



Environmental Monitoring Report

Project Number: 45224-003
July 2017
Part B: Annexures

Period: October 2016 – March 2017

IND: Rajasthan Renewable Energy Transmission Investment Program - Tranche 1

Subprojects: 400 kv D/C LILO of Jodhpur – Merta Transmission Line to Bhadla (ICB-6)

Submitted by

Rajasthan Rajya Vidyut Prasaran Nigam Limited, Jaipur

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Asian Development Bank



Vardan EnviroLab

Regd. Off: D-142, Sushant Lok-III, Golf Course Extension Road, Sector-57, Gurgaon (Hr) Tel: 0124-4291036
 Laboratory: Samaspur, Opposite Amity School, Sector-51, Gurgaon (Hr)
 Branch Off: J-3, Subhash Marg, C-Scheme, Jaipur (Rajasthan) Tel: 0141-4026275
 {ISO 9001|ISO 14001|OHSAS 18001|MoEF & CC Recognized|NABL Accredited|HSPCB & RSPCB Approved}

Test Certificate

Sample Number:	VEL/TPL/N/08	Report No.:	VEL/N/1612/14008
Name & Address of Client :	M/s Tata Projects Limited	Format No.:	5.10 F-01
	Construction of 400 kV /DC Quad ACSR Moose	Party Reference No.:	NIL
	Bhadla- Jodhapur ICB 6 Transmission Line- RVPNL Project (200135)	Reporting Date:	17/12/2016
Sample Description :	AMBIENT NOISE LEVEL MONITORING	Receipt Date:	14/12/2016

General Information:-

Client Representative	: Mr.Prateek Singh
Sample collected by	: Mr. Tarun Singh
Sampling Location	: JajiwalaGehlotan
Latitude	: ---
Longitude	: ---
Instrument Used	: Sound Level Meter
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 13-14/12/2016
Surrounding Activity	: Human, Vehicular and Other Activities
Scope of Monitoring	: Internal Use
Control measure if Any	: --
Sampling & Analysis Protocol	: CPCB Guidelines & IS-9989
Sampling Duration	: 24 Hrs
Parameter Required	: As per work order

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L _{eq}	CPCB Guidelines/ IS 9989	47.78	41.80	dB(A)
CPCB Noise Standards					
2.	Industrial Area		75	70	dB(A)
3.	Commercial Area		65	55	
4.	Residential Area		55	45	
5.	Sensitive Area		50	40	

Note: - On the basis of Monitoring carried out, Noise levels are found well within tolerance level as described for Residential Area

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 (ISO 9001 | ISO 14001 | OHSAS 18001 | MoEF & CC Recognized | NABL Accredited | HSPCB & RSPCB Approved)

Test Certificate

Sample Number: **VEL/TPL /W/001**
 Issued To: **M/s Tata Projects Limited**
 Construction of 400 kV /DC Quad ACSR Moose
 Bhadla- Jodhapur ICB 6
 Transmission Line-RVPL Project (200135)

Report No.: **VEL/W/1612/14001**
 Format No.: **5.10 F-01**
 Party Reference No.: **NIL**
 Reporting Date: **17/12/2016**
 Receipt Date: **14/12/2016**
 Sampling Date: **13/12/2016**
 Sampling Type: **Grab**
 Sampling Quantity: **2.0 Ltr**
 Parameter Required: **As per Work Order**

Sample Description: **Ground Water (Tank water supply by Bore Well)**
 Sampling Location: **NEAR BHADLA VILLAGE**
 Sample Collected by: **Mr. Tarun Singh**
 (Name & Designation) **(Field Analyst)**
 Client Representative: **Mr. Prateek Singh**
 Sampling & Analysis Protocol: **IS-10500-2012, APHA 22nd Edition 2012**

S. No.	Parameter	Result	Unit	Limits of IS:10500 -2012		Test-Method
				Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)	
Physical Parameters						
1.	Color, Hazen Units	< 1	--	5	25	IS: 3025 Part 4 - 1983
2.	Odour	Unobjectionable	Hazen	Unobjectionable	-	IS: 3025 Part 5 - 1983
3.	Taste	Agreeable	---	Agreeable	-	IS: 3025 Part 7,8 -1984
4.	Turbidity, NTU	< 1	NTU	5	10	IS: 3025 Part 10 - 1984
5.	pH	7.46	--	6.5 - 8.5	-	IS: 3025 Part 11 - 1984
General Parameters						
6.	Total Hardness as CaCO3	576.00	mg/l	300	600	IS: 3025 Part 21 - 1983
7.	Iron as Fe	0.13	mg/l	0.3	1.0	IS: 3025 Part 53 - 2003
8.	Chloride as Cl	675.90	mg/l	250	1000	IS: 3025 Part 32 - 1983
9.	Residual Free Chlorine	< 0.1	mg/l	0.2	-	IS: 3025 Part 26 - 1986
10.	Dissolved Solids	1867.0	mg/l	500	2000	IS: 3025 Part 16 - 1984
11.	Calcium as Ca	123.89	mg/l	75	200	IS: 3025 Part 40 - 1991
12.	Magnesium as Mg	64.85	mg/l	30	100	IS: 3025 Part 46 - 1994
13.	Copper as Cu	< 0.02	mg/l	0.05	1.5	IS: 3025 Part 42 - 1992
14.	Manganese as Mn	< 0.10	mg/l	0.1	0.3	IS: 3025 Part 59 - 2006
15.	Sulphate as SO4	146.90	mg/l	200	400	IS: 3025 Part 24 - 1986
16.	Nitrate as NO3	8.67	mg/l	45	No relaxation	IS: 3025 Part 34 - 1988
17.	Fluoride as F	1.45	mg/l	1.0	1.5	IS: 3025 Part 60 - 2008

[Handwritten Signature]



NOTE: a) The results listed refer only to the tested samples & applicable parameters
 b) The liability of our lab will be restricted to the invoice amount only



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Branch Off: J-3, Subhash Marg, C-Scheme, Jaipur (Rajasthan) Tel: 0141-4026275

(ISO 9001 | ISO 14001 | OHSAS 18001 | MoEF & CC Recognized | NABL Accredited | HSPCB & RSPCB Approved)

Test Certificate

18.	Phenolic Compounds as C ₆ H ₅ OH	< 0.001	mg/l	0.001	0.002	IS: 3025 Part 43 - 1991
19.	Mercury as Hg	< 0.001	mg/l	0.001	No relaxation	IS: 3025 Part 48 - 1994
20.	Cadmium as Cd	< 0.005	mg/l	0.01	No relaxation	IS: 3025 Part 41 - 1992
21.	Selenium as Se	< 0.001	mg/l	0.01	No relaxation	IS: 3025 Part 56 - 2003
22.	Arsenic as As	< 0.01	mg/l	0.05	No relaxation	IS: 3025 Part 37 - 1998
23.	Cyanide as CN	< 0.02	mg/l	0.05	No relaxation	IS: 3025 Part 27 - 1986
24.	Lead as Pb	< 0.01	mg/l	0.05	No relaxation	IS: 3025 Part 47 - 1994
25.	Zinc as Zn	< 0.20	mg/l	5	15	IS: 3025 Part 49 - 1994
26.	Anionic Detergents as MBAS	< 0.1	mg/l	0.2	1.0	APHA 5540 C
27.	Chromium as Cr+6	< 0.02	mg/l	0.05	No relaxation	IS: 3025 Part 52 - 2003
28.	Mineral Oil	< 0.01	mg/l	0.01	0.03	IS: 3025 Part 39 - 1991
29.	Alkalinity	415.80	mg/l	200	600	IS: 3025 Part 23 - 1986
30.	Aluminum as Al	< 0.02	mg/l	0.03	0.2	IS: 3025 Part 55 - 2003
31.	Boron as B	< 0.50	mg/l	1	5	IS: 3025 Part 57 - 2005
32.	Coliform Organisms	5	CFU	10	10	IS: 1622 - 1981
33.	E. Coli	Absent	-	Absent	Absent	IS: 1622 - 1981

Note: - On the basis of Analysis report, the water is suitable for drinking purpose as per IS: 10500-2012





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Test Certificate

Sample Number:
Issued To:

VEL/TPL /W/002
M/s Tata Projects Limited
 Construction of 400 kV /DC Quad ACSR Moose
 Bhadla- Jodhapur ICB 6
 Transmission Line-RVPL Project (200135)

Report No.: **VEL/W/1612/14002**
 Format No.: **5.10 F-01**
 Party Reference: **NIL**
 No.:
 Reporting Date: **17/12/2016**
 Receipt Date: **14/12/2016**
 Sampling Date: **13/12/2016**
 Sampling Type: **Grab**
 Sampling Quantity: **2.0 Ltr**
 Parameter Required: **As per Work Order**

Sample Description:
 Sampling Location:
 Sample Collected by:
 (Name & Designation)

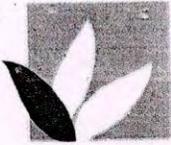
Kannasar Canal water Supply Tank
NEAR NOORE KI BURJ VILLAGE
Mr. Tarun Singh
(Field Analyst)

Client Representative: **Mr. Prateek Singh**
 Sampling & Analysis Protocol: **IS-10500-2012, APHA 22nd Edition 2012**

S. No.	Parameter	Result	Unit	Limits of IS:10500 -2012		Test-Method
				Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)	
Physical Parameters						
1.	Color, Hazen Units	< 1	--	5	25	IS: 3025 Part 4 - 1983
2.	Odour	Unobjectionable	Hazen	Unobjectionable	-	IS: 3025 Part 5 - 1983
3.	Taste	Agreeable	---	Agreeable	-	IS: 3025 Part 7,8 -1984
4.	Turbidity, NTU	< 1	NTU	5	10	IS: 3025 Part 10 - 1984
	pH	7.34	--	6.5 - 8.5	-	IS: 3025 Part 11 - 1984
General Parameters						
6.	Total Hardness as CaCO ₃	112.89	mg/l	300	600	IS: 3025 Part 21 - 1983
7.	Iron as Fe	0.10	mg/l	0.3	1.0	IS: 3025 Part 53 - 2003
8.	Chloride as Cl	48.80	mg/l	250	1000	IS: 3025 Part 32 - 1988
9.	Residual Free Chlorine	< 0.1	mg/l	0.2	-	IS: 3025 Part 26 - 1986
10.	Dissolved Solids	247.0	mg/l	500	2000	IS: 3025 Part 16 - 1984
11.	Calcium as Ca	25.76	mg/l	75	200	IS: 3025 Part 40 - 1991
12.	Magnesium as Mg	11.81	mg/l	30	100	IS: 3025 Part 46 - 1994
13.	Copper as Cu	< 0.02	mg/l	0.05	1.5	IS: 3025 Part 42 - 1992
14.	Manganese as Mn	< 0.10	mg/l	0.1	0.3	IS: 3025 Part 59 - 2006
15.	Sulphate as SO ₄	18.34	mg/l	200	400	IS: 3025 Part 24 - 1986
16.	Nitrate as NO ₃	7.67	mg/l	45	No relaxation	IS: 3025 Part 34 - 1988
17.	Fluoride as F	0.98	mg/l	1.0	1.5	IS: 3025 Part 60 - 2008

NOTE: a) The results listed refer only to the tested samples & applicable parameters
 b) The results will be restricted to the invoice amount only





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Test Certificate

18.	Phenolic Compounds as C ₆ H ₅ OH	< 0.001	mg/l	0.001	0.002	IS: 3025 Part 43 - 1991
19.	Mercury as Hg	< 0.001	mg/l	0.001	No relaxation	IS: 3025 Part 48 - 1994
20.	Cadmium as Cd	< 0.005	mg/l	0.01	No relaxation	IS: 3025 Part 41 - 1992
21.	Selenium as Se	< 0.001	mg/l	0.01	No relaxation	IS: 3025 Part 56 - 2003
22.	Arsenic as As	< 0.01	mg/l	0.05	No relaxation	IS: 3025 Part 37 - 1998
23.	Cyanide as CN	< 0.02	mg/l	0.05	No relaxation	IS: 3025 Part 27 - 1986
24.	Lead as Pb	< 0.01	mg/l	0.05	No relaxation	IS: 3025 Part 47 - 1994
25.	Zinc as Zn	< 0.20	mg/l	5	15	IS: 3025 Part 49 - 1994
26.	Anionic Detergents as MBAS	< 0.1	mg/l	0.2	1.0	APHA 5540 C
27.	Chromium as Cr+6	< 0.02	mg/l	0.05	No relaxation	IS: 3025 Part 52 - 2003
28.	Mineral Oil	< 0.01	mg/l	0.01	0.03	IS: 3025 Part 39 - 1991
29.	Alkalinity	176.80	mg/l	200	600	IS: 3025 Part 23 - 1986
30.	Aluminum as Al	< 0.02	mg/l	0.03	0.2	IS: 3025 Part 55 - 2003
31.	Boron as B	< 0.50	mg/l	1	5	IS: 3025 Part 57 - 2005
32.	Coliform Organisms	6	CFU	10	10	IS: 1622 - 1981
33.	E. Coli	Absent	-	Absent	Absent	IS: 1622 - 1981

Note: - On the basis of Analysis report, the water is suitable for drinking purpose as per IS: 10500-2012

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{ISO 9001|ISO 14001|OHSAS 18001|MoEF & CC Recognized|NABL Accredited|HSPCB & RSPCB Approved}

Test Certificate

Sample Number:
Issued To:

VEL/TPL /W/003
M/s Tata Projects Limited
Construction of 400 kV /DC Quad ACSR Moose
Bhadla- Jodhapur ICB 6
Transmission Line-RVPL Project (200135)

Report No.:
Format No.:
Party Reference No.:
Reporting Date:
Receipt Date:
Sampling Date:

VEL/W/1612/14003
5.10 F-01
NIL
17/12/2016
14/12/2016
13/12/2016

Sample Description:

Ground Water (Tank Water Supply by Govt.
Bore well)

Sampling Type:
Sampling Quantity:
Parameter Required:

Grab
2.0 Ltr
As per Work Order

Sampling Location:

NEAR AMLA VILLAGE

Sample Collected by:
(Name & Designation)

Mr. Tarun Singh
(Field Analyst)

Client Representative:

Mr. Prateek Singh

Sampling & Analysis
Protocol:

IS-10500-2012, APHA 22nd Edition 2012

S. No.	Parameter	Result	Unit	Limits of IS:10500 -2012		Test-Method
				Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)	
Physical Parameters						
1.	Color, Hazen Units	< 1	--	5	25	IS: 3025 Part 4 - 1983
2.	Odour	Unobjectionable	Hazen	Unobjectionable	-	IS: 3025 Part 5 - 1983
3.	Taste	Agreeable	---	Agreeable	-	IS: 3025 Part 7,8 -1984
4.	Turbidity, NTU	< 1	NTU	5	10	IS: 3025 Part 10 - 1984
5.	pH	7.45	--	6.5 - 8.5	-	IS: 3025 Part 11 - 1984
General Parameters						
6.	Total Hardness as CaCO ₃	365.78	mg/l	300	600	IS: 3025 Part 21 - 1983
7.	Iron as Fe	0.17	mg/l	0.3	1.0	IS: 3025 Part 53 - 2003
8.	Chloride as Cl	167.23	mg/l	250	1000	IS: 3025 Part 32 - 1988
9.	Residual Free Chlorine	< 0.1	mg/l	0.2	-	IS: 3025 Part 26 - 1986
10.	Dissolved Solids	924.0	mg/l	500	2000	IS: 3025 Part 16 - 1984
11.	Calcium as Ca	81.78	mg/l	75	200	IS: 3025 Part 40 - 1991
12.	Magnesium as Mg	39.30	mg/l	30	100	IS: 3025 Part 46 - 1994
13.	Copper as Cu	< 0.02	mg/l	0.05	1.5	IS: 3025 Part 42 - 1992
14.	Manganese as Mn	< 0.10	mg/l	0.1	0.3	IS: 3025 Part 59 - 2006
15.	Sulphate as SO ₄	97.56	mg/l	200	400	IS: 3025 Part 24 - 1986
16.	Nitrate as NO ₃	23.50	mg/l	45	No relaxation	IS: 3025 Part 34 - 1988
17.	Fluoride as F	1.32	mg/l	1.0	1.5	IS: 3025 Part 60 - 2008
18.	Phenolic Compounds as	< 0.001	mg/l	0.001	0.002	IS: 3025 Part 43 - 1991

NOTE: a) The results listed refer only to the tested samples & applicable parameters
b) Results will be restricted to the invoice amount only





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Branch Off: J-3, Subhash Marg, C-Scheme, Jaipur (Rajasthan) Tel: 0141-4026275

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Test Certificate

	C6H5OH					
19.	Mercury as Hg	< 0.001	mg/l	0.001	No relaxation	IS: 3025 Part 48 - 1994
20.	Cadmium as Cd	< 0.005	mg/l	0.01	No relaxation	IS: 3025 Part 41 - 1992
21.	Selenium as Se	< 0.001	mg/l	0.01	No relaxation	IS: 3025 Part 56 - 2003
22.	Arsenic as As	< 0.01	mg/l	0.05	No relaxation	IS: 3025 Part 37 - 1998
23.	Cyanide as CN	< 0.02	mg/l	0.05	No relaxation	IS: 3025 Part 27 - 1986
24.	Lead as Pb	< 0.01	mg/l	0.05	No relaxation	IS: 3025 Part 47 - 1994
25.	Zinc as Zn	< 0.20	mg/l	5	15	IS: 3025 Part 49 - 1994
26.	Anionic Detergents as MBAS	< 0.1	mg/l	0.2	1.0	APHA 5540 C
27.	Chromium as Cr+6	< 0.02	mg/l	0.05	No relaxation	IS: 3025 Part 52 - 2003
28.	Mineral Oil	< 0.01	mg/l	0.01	0.03	IS: 3025 Part 39 - 1991
29.	Alkalinity	323.20	mg/l	200	600	IS: 3025 Part 23 - 1986
30.	Aluminum as Al	< 0.02	mg/l	0.03	0.2	IS: 3025 Part 55 - 2003
31.	Boron as B	< 0.50	mg/l	1	5	IS: 3025 Part 57 - 2005
32.	Coliform Organisms	9	CFU	10	10	IS: 1622 - 1981
33.	E. Coli	Absent	-	Absent	Absent	IS: 1622 - 1981

Note: - On the basis of Analysis report, the water is suitable for drinking purpose as per IS: 10500-2012

Done





Vardan EnviroLab

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Branch Off: J-3, Subhash Marg, C-Scheme, Jaipur (Rajasthan) Tel: 0141-4026275

{ISO 9001|ISO 14001|OHSAS 18001|MoEF & CC Recognized|NABL Accredited|HSPCB & RSPCB Approved}

Test Certificate

Sample Number:
Issued To:

VEL/TPL /W/004
M/s Tata Projects Limited
Construction of 400 kV /DC Quad ACSR Moose
Bhadla- Jodhapur ICB 6
Transmission Line-RVPL Project (200135)

Report No.:
Format No.:
Party Reference No.:
Reporting Date:
Receipt Date:
Sampling Date:
Sampling Type:
Sampling Quantity:
Parameter Required:

VEL/W/1612/14004
5.10 F-01
NIL
17/12/2016
14/12/2016
13/12/2016
Grab
2.0 Ltr
As per Work Order

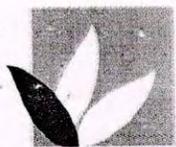
Sample Description:
Sampling Location:
Sample Collected by:
(Name & Designation)
Client Representative:
Sampling & Analysis
Protocol:

Ground Water (Govt. Bore well)
NEAR SIRMANDI VILLAGE
Mr. Tarun Singh
(Field Analyst)
Mr. Prateek Singh
IS-10500-2012, APHA 22nd Edition 2012

S. No.	Parameter	Result	Unit	Limits of IS:10500 -2012		Test-Method
				Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)	
Physical Parameters						
1.	Color, Hazen Units	< 1	--	5	25	IS: 3025 Part 4 - 1983
2.	Odour	Unobjectionable	Hazen	Unobjectionable	-	IS: 3025 Part 5 - 1983
3.	Taste	Agreeable	---	Agreeable	-	IS: 3025 Part 7,8 -1984
4.	Turbidity, NTU	< 1	NTU	5	10	IS: 3025 Part 10 - 1984
5.	pH	7.56	--	6.5 - 8.5	-	IS: 3025 Part 11 - 1984
General Parameters						
	Total Hardness as CaCO ₃	578.90	mg/l	300	600	IS: 3025 Part 21 - 1983
7.	Iron as Fe	0.15	mg/l	0.3	1.0	IS: 3025 Part 53 - 2003
8.	Chloride as Cl	675.90	mg/l	250	1000	IS: 3025 Part 32 - 1988
9.	Residual Free Chlorine	< 0.1	mg/l	0.2	-	IS: 3025 Part 26 - 1986
10.	Dissolved Solids	1867.0	mg/l	500	2000	IS: 3025 Part 16 - 1984
11.	Calcium as Ca	123.89	mg/l	75	200	IS: 3025 Part 40 - 1991
12.	Magnesium as Mg	65.56	mg/l	30	100	IS: 3025 Part 46 - 1994
13.	Copper as Cu	< 0.02	mg/l	0.05	1.5	IS: 3025 Part 42 - 1992
14.	Manganese as Mn	< 0.10	mg/l	0.1	0.3	IS: 3025 Part 59 - 2006
15.	Sulphate as SO ₄	198.90	mg/l	200	400	IS: 3025 Part 24 - 1986
16.	Nitrate as NO ₃	18.67	mg/l	45	No relaxation	IS: 3025 Part 34 - 1988
17.	Fluoride as F	1.47	mg/l	1.0	1.5	IS: 3025 Part 60 - 2008
18.	Phenolic Compounds as C ₆ H ₅ OH	< 0.001	mg/l	0.001	0.002	IS: 3025 Part 43 - 1991



NOTE: a) The results listed refer only to the tested samples & applicable parameters
b) The results will be restricted to the invoice amount only



Vardan EnviroLab

Regd. Off: D-142, Sushant Lok-III, Golf Course Extension Road, Sector-57, Gurgaon (Hr) Tel: 0124-4291036

Laboratory: Samaspur, Opposite Amity School, Sector-51, Gurgaon (Hr)

Branch Off: J-3, Subhash Marg, C-Scheme, Jaipur (Rajasthan) Tel: 0141-4026275

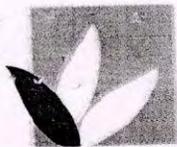
(ISO 9001 | ISO 14001 | OHSAS 18001 | MoEF & CC Recognized | NABL Accredited | HSPCB & RSPCB Approved)

Test Certificate

19.	Mercury as Hg	< 0.001	mg/l	0.001	No relaxation	IS: 3025 Part 48 - 1994
20.	Cadmium as Cd	< 0.005	mg/l	0.01	No relaxation	IS: 3025 Part 41 - 1992
21.	Selenium as Se	< 0.001	mg/l	0.01	No relaxation	IS: 3025 Part 56 - 2003
22.	Arsenic as As	< 0.01	mg/l	0.05	No relaxation	IS: 3025 Part 37 - 1998
23.	Cyanide as CN	< 0.02	mg/l	0.05	No relaxation	IS: 3025 Part 27 - 1986
24.	Lead as Pb	< 0.01	mg/l	0.05	No relaxation	IS: 3025 Part 47 - 1994
25.	Zinc as Zn	< 0.20	mg/l	5	15	IS: 3025 Part 49 - 1994
26.	Anionic Detergents as MBAS	< 0.1	mg/l	0.2	1.0	APHA 5540 C
27.	Chromium as Cr+6	< 0.02	mg/l	0.05	No relaxation	IS: 3025 Part 52 - 2003
28.	Mineral Oil	< 0.01	mg/l	0.01	0.03	IS: 3025 Part 39 - 1991
29.	Alkalinity	298.90	mg/l	200	600	IS: 3025 Part 23 - 1986
30.	Aluminum as Al	< 0.02	mg/l	0.03	0.2	IS: 3025 Part 55 - 2003
31.	Boron as B	< 0.50	mg/l	1	5	IS: 3025 Part 57 - 2005
32.	Coliform Organisms	8	CFU	10	10	IS: 1622 - 1981
33.	E. Coli	Absent	-	Absent	Absent	IS: 1622 - 1981

Note: - On the basis of Analysis report, the water is suitable for drinking purpose as per IS: 10500-2012





Vardan EnviroLab

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 Branch Off: J-3, Subhash Marg, C-Scheme, Jaipur (Rajasthan) Tel: 0141-4026275
 (ISO 9001 | ISO 14001 | OHSAS 18001 | MoEF & CC Recognized | NABL Accredited | HSPCB & RSPCB Approved)

Test Certificate

Sample Number: **VEL/TPL /W/005** Report No.: **VEL/W/1612/1400
5**

Issued To: **M/s Tata Projects Limited** Format No.: **5.10 F-01**
 Construction of 400 kV /DC Quad ACSR Moose
 Bhadla- Jodhapur ICB 6 Party Reference No.: **NIL**
 Transmission Line-RVPL Project (200135) Reporting Date: **16/12/2016**
 Receipt Date: **14/12/2016**
 Sampling Date: **13/12/2016**

Sample Description: **Ground Water (Tanker Water Supply from Govt.
Bore well)** Sampling Type: **Grab**

Sampling Location: **NEAR JAJIWAL GEHLTON** Sampling Quantity: **2.0 Ltr**
 Sample Collected by: **Mr. Tarun Singh** Parameter Required: **As per Work
Order**
 (Name & Designation) **(Field Analyst)**

Representative: **Mr. Prateek Singh**
 Sampling & Analysis Protocol: **IS-10500-2012, APHA 22nd Edition 2012**

S. No.	Parameter	Result	Unit	Limits of IS:10500 -2012		Test-Method
				Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)	
Physical Parameters						
1.	Color, Hazen Units	< 1	--	5	25	IS: 3025 Part 4 - 1983
2.	Odour	Unobjectionable	Hazen	Unobjectionable	-	IS: 3025 Part 5 - 1983
3.	Taste	Agreeable	---	Agreeable	-	IS: 3025 Part 7,8 -1984
4.	Turbidity, NTU	< 1	NTU	5	10	IS: 3025 Part 10 - 1984
	pH	7.76	--	6.5 - 8.5	-	IS: 3025 Part 11 - 1984
General Parameters						
6.	Total Hardness as CaCO ₃	489.56	mg/l	300	600	IS: 3025 Part 21 - 1983
7.	Iron as Fe	0.16	mg/l	0.3	1.0	IS: 3025 Part 53 - 2003
8.	Chloride as Cl	425.23	mg/l	250	1000	IS: 3025 Part 32 - 1988
9.	Residual Free Chlorine	< 0.1	mg/l	0.2	-	IS: 3025 Part 26 - 1986
10.	Dissolved Solids	1389.0	mg/l	500	2000	IS: 3025 Part 16 - 1984
11.	Calcium as Ca	105.34	mg/l	75	200	IS: 3025 Part 40 - 1991
12.	Magnesium as Mg	55.10	mg/l	30	100	IS: 3025 Part 46 - 1994
13.	Copper as Cu	< 0.02	mg/l	0.05	1.5	IS: 3025 Part 42 - 1992
14.	Manganese as Mn	< 0.10	mg/l	0.1	0.3	IS: 3025 Part 59 - 2006
15.	Sulphate as SO ₄	176.23	mg/l	200	400	IS: 3025 Part 24 - 1986
16.	Nitrate as NO ₃	9.12	mg/l	45	No relaxation	IS: 3025 Part 34 - 1988

Done



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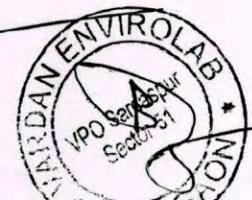
Test Certificate

Sample Number:	VEL/TPL/S/01	Report No.:	VEL/TCL/S/1612/14001
Name & Address of Party:	M/s Tata Projects Limited Construction of 400 kV /DC Quad ACSR Moose Bhadla- Jodhapur ICB 6 Transmission Line-RVPNL Project (200135)	Format No.:	5.10 F-01
		Party Reference No.:	NIL
		Reporting Date:	17/12/2016
		Receipt Date:	14/12/2016
		Sampling Date:	13/12/2016
		Type of Sampling:	Composite
		Sampling Quantity:	2.0 Kg
		Depth of Sampling:	30 cm
		Packing Status:	Temp Sealed
Sample Description:	SOIL		
Sampling Location:	NEAR BHADLA VILLAGE		
Sample Collected by	VardanEnviro Lab Team		
Sampling & Analysis Protocol:	IS 2720 & USDA		

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P-26,1987)	7.88	--
2.	Color	USDA Method, 1968	Light Brown	---
3.	Conductivity(1:5)	IS:14767-2000 Reaffirmed 2006	178	µS/cm
4.	Moisture	USDA Method, 1968	7.08	%
5.	Chlorides as Cl	USDA Method, 1968	0.005	%
6.	Sulphate as SO4	USDA Method, 1968	0.004	%
7.	Total Carbonates	IS:2720 (P-22, 1972)	0.09	%
8.	Total Soluble Solids	IS:2720 (P-22, 1972)	0.066	%
9.	Total Organic Matter	IS:2720 (P-22, 1972)	0.18	%
10.	Nitrogen as N	IS:14684, 1999	0.08	%
11.	Phosphorus as P	USDA, APHA-4500PC	< 0.0003	%
12.	Potassium as K	USDA Method, 1968	0.014	%
13.	Zinc	APHA-3030D, APHA-3111B	2.12	mg / kg
14.	Copper	APHA-3030D, APHA-3111B	3.23	mg / kg
15.	Chromium	APHA-3030D, APHA-3111B	BDL	mg / kg
16.	Cadmium	APHA-3030D, APHA-3111B	BDL	mg / kg
17.	Nickel	APHA-3030D, APHA-3111B	0.23	mg / kg
18.	Lead	APHA-3030D, APHA-3111B	0.67	mg / kg

Note: - *BDL-Below Detection Limit, *DL- Detection Limit

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NOTE: a)The results listed refer only to the tested samples & applicable parameters
 b)Liability of our lab will be restricted to the invoice amount only



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Test Certificate

Sample Number:	VEL/TPL/S/02	Report No.:	VEL/TCL/S/1612/14002
Name & Address of Party:	M/s Tata Projects Limited Construction of 400 kV /DC Quad ACSR Moose Bhadla- Jodhapur ICB 6 Transmission Line-RVPNL Project (200135)	Format No.:	5.10 F-01
		Party Reference No.:	NIL
		Reporting Date:	17/12/2016
		Receipt Date:	14/12/2016
		Sampling Date:	13/12/2016
Sample Description:	SOIL	Type of Sampling:	Composite
Sampling Location:	Noore Ki Burj	Sampling Quantity:	2.0 Kg
Sample Collected by	VardanEnviro Lab Team	Depth of Sampling:	30 cm
Sampling & Analysis Protocol:	IS 2720 & USDA	Packing Status:	Temp Sealed

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P-26,1987)	7.65	--
2.	Color	USDA Method, 1968	Light Brown	---
3.	Conductivity(1:5)	IS:14767-2000 Reaffirmed 2006	158	µS/cm
4.	Moisture	USDA Method, 1968	6.23	%
5.	Chlorides as Cl	USDA Method, 1968	0.007	%
6.	Sulphate as SO4	USDA Method, 1968	0.004	%
7.	Total Carbonates	IS:2720 (P-22, 1972)	1.05	%
8.	Total Soluble Solids	IS:2720 (P-22, 1972)	0.060	%
9.	Total Organic Matter	IS:2720 (P-22, 1972)	0.19	%
10.	Nitrogen as N	IS:14684, 1999	0.07	%
11.	Phosphorus as P	USDA, APHA-4500PC	< 0.0003	%
12.	Potassium as K	USDA Method, 1968	0.012	%
13.	Zinc	APHA-3030D, APHA-3111B	2.20	mg / kg
14.	Copper	APHA-3030D, APHA-3111B	3.45	mg / kg
15.	Chromium	APHA-3030D, APHA-3111B	BDL	mg / kg
16.	Cadmium	APHA-3030D, APHA-3111B	BDL	mg / kg
17.	Nickel	APHA-3030D, APHA-3111B	0.20	mg / kg
18.	Lead	APHA-3030D, APHA-3111B	0.69	mg / kg

Note: - *BDL-Below Detection Limit, *DL- Detection Limit

Demo



NOTE: a) The results listed refer only to the tested samples & applicable parameters
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Branch Off: J-3, Subhash Marg, C-Scheme, Jaipur (Rajasthan) Tel: 0141-4026275

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Test Certificate

Sample Number:	VEL/TPL/S/03	Report No.:	VEL/TCL/S/1612/14003
Name & Address of Party:	M/s Tata Projects Limited Construction of 400 kV /DC Quad ACSR Moose Bhadla- Jodhapur ICB 6 Transmission Line-RVPL Project (200135)	Format No.:	5.10 F-01
		Party Reference No.:	NIL
		Reporting Date:	17/12/2016
		Receipt Date:	14/12/2016
		Sampling Date:	13/12/2016
		Type of Sampling:	Composite
		Sampling Quantity:	2.0 Kg
		Depth of Sampling:	30 cm
		Packing Status:	Temp Sealed
Sample Description:	SOIL		
Sampling Location:	Amla		
Sample Collected by	VardanEnviro Lab Team		
Sampling & Analysis Protocol:	IS 2720 & USDA		

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P-26,1987)	7.38	--
2.	Color	USDA Method, 1968	Light Brown	---
3.	Conductivity(1:5)	IS:14767-2000 Reaffirmed 2006	467	µS/cm
4.	Moisture	USDA Method, 1968	3.67	%
5.	Chlorides as Cl	USDA Method, 1968	0.015	%
6.	Sulphate as SO4	USDA Method, 1968	0.005	%
7.	Total Carbonates	IS:2720 (P-22, 1972)	5.07	%
8.	Total Soluble Solids	IS:2720 (P-22, 1972)	0.160	%
9.	Total Organic Matter	IS:2720 (P-22, 1972)	0.12	%
10.	Nitrogen as N	IS:14684, 1999	0.019	%
11.	Phosphorus as P	USDA, APHA-4500PC	< 0.0003	%
12.	Potassium as K	USDA Method, 1968	0.005	%
13.	Zinc	APHA-3030D, APHA-3111B	2.0	mg / kg
14.	Copper	APHA-3030D, APHA-3111B	3.10	mg / kg
15.	Chromium	APHA-3030D, APHA-3111B	BDL	mg / kg
16.	Cadmium	APHA-3030D, APHA-3111B	BDL	mg / kg
17.	Nickel	APHA-3030D, APHA-3111B	0.20	mg / kg
18.	Lead	APHA-3030D, APHA-3111B	0.56	mg / kg

Note: - *BDL-Below Detection Limit, *DL- Detection Limit

2016



NOTE: a) The results listed refer only to the tested samples & applicable parameters
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Test Certificate

Sample Number:	VEL/TPL/S/04	Report No.:	VEL/TCL/S/1612/14004
Name & Address of Party:	M/s Tata Projects Limited Construction of 400 kV /DC Quad ACSR Moose Bhadla- Jodhapur ICB 6 Transmission Line-RVPNL Project (200135)	Format No.:	5.10 F-01
		Party Reference No.:	NIL
		Reporting Date:	17/12/2016
		Receipt Date:	14/12/2016
		Sampling Date:	13/12/2016
Sample Description:	SOIL	Type of Sampling:	Composite
Sampling Location:	Sirmandi Village	Sampling Quantity:	2.0 Kg
Sample Collected by	VardanEnviro Lab Team	Depth of Sampling:	30 cm
Sampling & Analysis Protocol:	IS 2720 & USDA	Packing Status:	Temp Sealed

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P-26,1987)	7.35	--
2.	Color	USDA Method, 1968	Light Brown	---
3.	Conductivity(1:5)	IS:14767-2000 Reaffirmed 2006	348	µS/cm
4.	Moisture	USDA Method, 1968	3.07	%
5.	Chlorides as Cl	USDA Method, 1968	0.018	%
6.	Sulphate as SO4	USDA Method, 1968	0.011	%
7.	Total Carbonates	IS:2720 (P-22, 1972)	1.08	%
8.	Total Soluble Solids	IS:2720 (P-22, 1972)	0.150	%
9.	Total Organic Matter	IS:2720 (P-22, 1972)	0.15	%
10.	Nitrogen as N	IS:14684, 1999	0.014	%
11.	Phosphorus as P	USDA, APHA-4500PC	< 0.0003	%
12.	Potassium as K	USDA Method, 1968	0.004	%
13.	Zinc	APHA-3030D, APHA-3111B	2.34	mg / kg
14.	Copper	APHA-3030D, APHA-3111B	3.12	mg / kg
15.	Chromium	APHA-3030D, APHA-3111B	BDL	mg / kg
16.	Cadmium	APHA-3030D, APHA-3111B	BDL	mg / kg
17.	Nickel	APHA-3030D, APHA-3111B	0.29	mg / kg
18.	Lead	APHA-3030D, APHA-3111B	0.65	mg / kg

Note: - *BDL-Below Detection Limit, *DL- Detection Limit

[Signature]



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Test Certificate

Sample Number:	VEL/TPL/S/05	Report No.:	VEL/TCL/S/1612/14005
Name & Address of Party:	M/s Tata Projects Limited	Format No.:	5.10 F-01
	Construction of 400 kV /DC Quad ACSR	Party Reference No.:	NIL
	Moose Bhadla- Jodhapur ICB 6 Transmission	Reporting Date:	17/12/2016
	Line-RVPNL Project (200135)	Receipt Date:	14/12/2016
Sample Description:	SOIL	Sampling Date:	13/12/2016
Sampling Location:	JajiwalaGehlota	Type of Sampling:	Composite
Sample Collected by	VardanEnviro Lab Team	Sampling Quantity:	2.0 Kg
Sampling & Analysis Protocol:	IS 2720 & USDA	Depth of Sampling:	30 cm
		Packing Status:	Temp Sealed

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P-26,1987)	7.39	--
2.	Color	USDA Method, 1968	Grey	---
3.	Conductivity(1:5)	IS:14767-2000 Reaffirmed 2006	412	µS/cm
4.	Moisture	USDA Method, 1968	3.07	%
5.	Chlorides as Cl	USDA Method, 1968	0.005	%
6.	Sulphate as SO4	USDA Method, 1968	0.012	%
7.	Total Carbonates	IS:2720 (P-22, 1972)	12.67	%
8.	Total Soluble Solids	IS:2720 (P-22, 1972)	0.223	%
9.	Total Organic Matter	IS:2720 (P-22, 1972)	0.189	%
10.	Nitrogen as N	IS:14684, 1999	0.023	%
11.	Phosphorus as P	USDA, APHA-4500PC	< 0.0003	%
12.	Potassium as K	USDA Method, 1968	0.005	%
13.	Zinc	APHA-3030D, APHA-3111B	2.80	mg / kg
14.	Copper	APHA-3030D, APHA-3111B	3.45	mg / kg
15.	Chromium	APHA-3030D, APHA-3111B	BDL	mg / kg
16.	Cadmium	APHA-3030D, APHA-3111B	BDL	mg / kg
17.	Nickel	APHA-3030D, APHA-3111B	0.27	mg / kg
18.	Lead	APHA-3030D, APHA-3111B	0.60	mg / kg

Note: - *BDL-Below Detection Limit, *DL- Detection Limit

