



# Environmental Monitoring Report

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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 Ramgarh – Akal Transmission Line (ICB-5)

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-Ramgarh /W/001** Report No.: **VEL/W/1612/14006**  
Issued To: **M/s Tata Projects Limited** Format No.: **5.10 F-01**  
**Construction of 400 kV /DC Twin ACSR Moose** Party: **NIL**  
**Ramgarh-Akal Transmission Line-RVPL** Reference No.:  
**Project Jaisalmer (200134)** Reporting: **17/12/2016**  
Date:  
Receipt Date: **14/12/2016**  
Sampling Date: **12/12/2016**  
Sampling: **Grab**  
Type:  
Sampling: **2.0 Ltr**  
Quantity:  
Parameter: **As per Work Order**  
Required:  
  
Sample Description: **Ground Water (Bore Well)**  
Sampling Location: **Near Village Akal**  
  
Sample Collected by: **Mr.Tarun Singh**  
(Name & Designation) **(Field Analyst)**  
  
Client Representative: **Mr.Dharmendra**  
Sampling & Analysis **IS-10500-2012,APHA 22<sup>nd</sup> Edition 2012**  
Protocol:

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	8.12	--	6.5 – 8.5	-	IS: 3025 Part 11 - 1984
General Parameters						
6.	Total Hardness as CaCO3	145.10	mg/l	300	600	IS: 3025 Part 21 - 1983
7.	Iron as Fe	0.23	mg/l	0.3	1.0	IS: 3025 Part 53 - 2003
8.	Chloride as Cl <sup>-</sup>	75.40	mg/l	250	1000	IS: 3025 Part 32 - 1988

NOTE: a) The results listed refer only to the tested samples & applicable parameters  
b) Total liabilities of our lab will be restricted to the invoice amount only  
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9.	Residual Free Chlorine	< 0.1	mg/l	0.2	-	IS: 3025 Part 26 - 1986
10.	Dissolved Solids	767.0	mg/l	500	2000	IS: 3025 Part 16 - 1984
11.	Calcium as Ca	45.56	mg/l	75	200	IS: 3025 Part 40 - 1991
12.	Magnesium as Mg	7.63	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 <sub>4</sub>	76.45	mg/l	200	400	IS: 3025 Part 24 - 1986
16.	Nitrate as NO <sub>3</sub>	2.78	mg/l	45	No relaxation	IS: 3025 Part 34 - 1988
17.	Fluoride as F	0.90	mg/l	1.0	1.5	IS: 3025 Part 60 - 2008
18.	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> 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	246.80	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

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

Sample Number:	VEL/TPL-Ramgarh /W/002	Report No.:	VEL/W/1612/14007
Issued To:	M/s Tata Projects Limited	Format No.:	5.10 F-01
	Construction of 400 kV /DC Twin ACSR	Party Reference No.:	NIL
	Moose Ramgarh-Akal Transmission Line-	Reporting Date:	17/12/2016
	RVPNL Project Jaisalmer (200134))	Receipt Date:	14/12/2016
Sample Description:	Ground Water (Supply water)	Sampling Date:	12/12/2016
Sampling Location:	Near Hadda Village	Sampling Type:	Grab
Sample Collected by:	Mr.Tarun Singh	Sampling Quantity:	2.0 Ltr
(Name & Designation)	(Field Analyst)	Parameter Required:	As per Work Order
Client Representative:	Mr.Dharmendra		
Sampling & Analysis Protocol:	IS-10500-2012,APHA 22 <sup>nd</sup> 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	7.67	--	6.5 – 8.5	-	IS: 3025 Part 11 - 1984
General Parameters						
6.	Total Hardness as CaCO3	414.89	mg/l	300	600	IS: 3025 Part 21 - 1983
7.	Iron as Fe	0.12	mg/l	0.3	1.0	IS: 3025 Part 53 - 2003
8.	Chloride as Cl	512.50	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	2089.0	mg/l	500	2000	IS: 3025 Part 16 - 1984
11.	Calcium as Ca	98.20	mg/l	75	200	IS: 3025 Part 40 - 1991
12.	Magnesium as Mg	41.28	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

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15.	Sulphate as SO <sub>4</sub>	176.80	mg/l	200	400	IS: 3025 Part 24 - 1986
16.	Nitrate as NO <sub>3</sub>	0.87	mg/l	45	No relaxation	IS: 3025 Part 34 - 1988
17.	Fluoride as F	1.62	mg/l	1.0	1.5	IS: 3025 Part 60 - 2008
18.	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> 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	430.10	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

*Signature*



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## Test Certificate

Sample Number:	VEL/TPL-Ramgarh /W/003	Report No.:	VEL/W/1612/14008
Issued To:	M/s Tata Projects Limited	Format No.:	5.10 F-01
	Construction of 400 kV /DC Twin ACSR Moose	Party Reference No.:	NIL
	Ramgarh-Akal Transmission Line-RVNL	Reporting Date:	17/12/2016
	Project Jaisalmer (200134))	Receipt Date:	14/12/2016
Sample Description:	Ground Water (Tank Water Supply)	Sampling Date:	12/12/2016
Sampling Location:	Near Khivsar Village	Sampling Type:	Grab
Sample Collected by:	Mr.Tarun Singh	Sampling Quantity:	2.0 Ltr
(Name & Designation)	(Field Analyst)	Parameter Required:	As per Work Order
Client Representative:	Mr.Dharmendra		
Sampling & Analysis Protocol:	IS-10500-2012, APHA 22 <sup>nd</sup> 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	8.12	--	6.5 – 8.5	-	IS: 3025 Part 11 - 1984
General Parameters						
6.	Total Hardness as CaCO3	324.89	mg/l	300	600	IS: 3025 Part 21 - 1983
7.	Iron as Fe	0.21	mg/l	0.3	1.0	IS: 3025 Part 53 - 2003
8.	Chloride as Cl	312.80	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	1323.0	mg/l	500	2000	IS: 3025 Part 16 - 1984
11.	Calcium as Ca	96.20	mg/l	75	200	IS: 3025 Part 40 - 1991
12.	Magnesium as Mg	20.62	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

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15.	Sulphate as SO <sub>4</sub>	156.20	mg/l	200	400	IS: 3025 Part 24 - 1986
16.	Nitrate as NO <sub>3</sub>	10.50	mg/l	45	No relaxation	IS: 3025 Part 34 - 1988
17.	Fluoride as F	1.35	mg/l	1.0	1.5	IS: 3025 Part 60 - 2008
18.	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> 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	378.30	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:	VEL/TPL-Ramgarh /W/004	Report No.:	VEL/W/1612/14009
Issued To:	M/s Tata Projects Limited	Format No.:	5.10 F-01
	Construction of 400 kV /DC Twin ACSR Moose	Party Reference No.:	NIL
	Ramgarh-Akal Transmission Line-RVNL	Reporting Date:	17/12/2016
	Project Jaisalmer (200134))	Receipt Date:	14/12/2016
Sample Description:	Ground Water (Tank Water Supply)	Sampling Date:	12/12/2016
Sampling Location:	Near Ramgarh Village	Sampling Type:	Grab
Sample Collected by:	Mr.Tarun Singh	Sampling Quantity:	2.0 Ltr
(Name & Designation)	(Field Analyst)	Parameter Required:	As per Work Order
Client Representative:	Mr.Dharmendra		
Sampling & Analysis Protocol:	IS-10500-2012, APHA 22 <sup>nd</sup> 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	8.15	--	6.5 – 8.5	-	IS: 3025 Part 11 - 1984
General Parameters						
6.	Total Hardness as CaCO3	312.80	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	426.90	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	1556.0	mg/l	500	2000	IS: 3025 Part 16 - 1984
11.	Calcium as Ca	68.56	mg/l	75	200	IS: 3025 Part 40 - 1991
12.	Magnesium as Mg	34.44	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	156.20	mg/l	200	400	IS: 3025 Part 24 - 1986

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16.	Nitrate as NO <sub>3</sub>	9.23	mg/l	45	No relaxation	IS: 3025 Part 34 - 1988
17.	Fluoride as F	1.49	mg/l	1.0	1.5	IS: 3025 Part 60 - 2008
18.	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> 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	278.12	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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Branch Off: J-3, Subhash Marg, C-Scheme, Jaipur (Rajasthan) Tel: 0141-4026275

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## Test Certificate

Sample Number: **VEL/TPL-Ramgarh/N/01** Report No.: **VEL/N/1612/14009**  
Name & Address of Client: **M/s Tata Projects Limited** Format No.: **5.10 F-01**  
**Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPNL Project Jaisalmer (200134)** Party Reference No.: **NIL**  
Sample Description : **AMBIENT NOISE LEVEL MONITORING** Reporting Date: **17/12/2016**  
Receipt Date: **14/12/2016**

### General Information:-

Client Representative : Mr. Dharmendra  
Sample collected by : Mr. Tarun Singh  
Sampling Location : Akal village Near location no.AP-5  
Latitude : 26° 50' 0.2'' N  
Longitude : 071° 03' 50.6'' E  
Instrument Used : Sound Level Meter  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 11-12/12/2016  
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 <sub>eq</sub>	CPCB Guidelines/ IS 9989	52.31	42.31	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

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

Sample Number: **VEL/TPL-Ramgarh/N/02** Report No.: **VEL/N/1612/14010**  
Name & Address of Client: **M/s Tata Projects Limited** Format No.: **5.10 F-01**  
**Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPNL Project Jaisalmer (200134)** Party Reference No.: **NIL**  
Reporting Date: **17/12/2016**  
Receipt Date: **14/12/2016**

Sample Description : **AMBIENT NOISE LEVEL MONITORING**

### General Information:-

Client Representative : Mr. Dharmendra  
Sample collected by : Mr. Tarun Singh  
Sampling Location : Hamira Village Near location no. AP-15  
Latitude : 27° 00' 36.1'' N  
Longitude : 077° 05' 52.8'' E  
Instrument Used : Sound Level Meter  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 11-12/12/2016  
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	52.63	42.40	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

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

Sample Number:	EL/TPL-Ramgarh/N/03	Report No.:	VEL/N/1612/14011
Name & Address of Client:	M/s Tata Projects Limited Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPNL Project Jaisalmer (200134)	Format No.:	5.10 F-01
		Party Reference No.:	NIL
Sample Description:	AMBIENT NOISE LEVEL MONITORING	Reporting Date:	17/12/2016
		Receipt Date:	14/12/2016

### General Information:-

Client Representative	: Mr. Dharmendra
Sample collected by	: Mr. Tarun Singh
Sampling Location	: Hadda village Near location no.AP-22
Latitude	: 27° 04' 44.2'' N
Longitude	: 071° 01' 47.6'' E
Instrument Used	: Sound Level Meter
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 11-12/12/2016
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 <sub>eq</sub>	CPCB Guidelines/ IS 9989	48.89	41.98	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

*(Signature)*



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

Sample Number: **EL/TPL-Ramgarh/N/04** Report No.: **VEL/N/1612/14012**  
Name & Address of Client: **M/s Tata Projects Limited** Format No.: **5.10 F-01**  
**Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPNL Project Jaisalmer (200134)** Party Reference No.: **NIL**  
Reporting Date: **17/12/2016**  
Sample Description : **AMBIENT NOISE LEVEL MONITORING** Receipt Date: **14/12/2016**

### General Information:-

Client Representative : Mr. Dharmendra  
Sample collected by : Mr. Tarun Singh  
Sampling Location : Asda Village Near location no.25/13  
Latitude : 27° 08' 51.1" N  
Longitude : 070° 56' 11.5" E  
Instrument Used : Sound Level Meter  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 11-12/12/2016  
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.	<b>L<sub>eq</sub></b>	CPCB Guidelines/ IS 9989	47.56	41.59	dB(A)
<b>CPCB Noise Standards</b>					
2.	<b>Industrial Area</b>		75	70	dB(A)
3.	<b>Commercial Area</b>		65	55	
4.	<b>Residential Area</b>		55	45	
5.	<b>Sensitive Area</b>		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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## Test Certificate

Sample Number: **EL/TPL-Ramgarh/N/05** Report No.: **VEL/N/1612/14013**  
Name & Address of Client: **M/s Tata Projects Limited** Format No.: **5.10 F-01**  
**Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPL Project Jaisalmer (200134)** Party Reference No.: **NIL**  
Sample Description : **AMBIENT NOISE LEVEL MONITORING** Reporting Date: **17/12/2016**  
Receipt Date: **14/12/2016**

### General Information:-

Client Representative : Mr. Dharmendra  
Sample collected by : Mr. Tarun Singh  
Sampling Location : Kandiyala Village Near location no. 26/4  
Latitude : 27° 09' 58.5" N  
Longitude : 070° 54' 31.9" E  
Instrument Used : Sound Level Meter  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 11-12/12/2016  
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.	<b>L<sub>eq</sub></b>	CPCB Guidelines/ IS 9989	49.4	41.54	dB(A)
<b>CPCB Noise Standards</b>					
2.	<b>Industrial Area</b>		75	70	dB(A)
3.	<b>Commercial Area</b>		65	55	
4.	<b>Residential Area</b>		55	45	
5.	<b>Sensitive Area</b>		50	40	

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

*Signature*



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## Test Certificate

Sample Number:	EL/TPL-Ramgarh/N/06	Report No.:	VEL/N/1612/14014
Name & Address of Client :	M/s Tata Projects Limited	Format No.:	5.10 F-01
	Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPNL Project Jaisalmer (200134)	Party Reference No.:	NIL
Sample Description :	AMBIENT NOISE LEVEL MONITORING	Reporting Date:	17/12/2016
		Receipt Date:	14/12/2016

### General Information:-

Client Representative	: Mr. Dharmendra
Sample collected by	: Mr. Tarun Singh
Sampling Location	: Gogadev Village Near Location No.27/1
Latitude	: 27° 11' 41.4" N
Longitude	: 070° 53' 35.7" E
Instrument Used	: Sound Level Meter
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 11-12/12/2016
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	48.05	42.12	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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## Test Certificate

Sample Number: **EL/TPL-Ramgarh/N/07** Report No.: **VEL/N/1612/14015**  
Name & Address of Client: **M/s Tata Projects Limited** Format No.: **5.10 F-01**  
**Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPNL Project Jaisalmer (200134)** Party Reference No.: **NIL**  
Reporting Date: **17/12/2016**  
Sample Description: **AMBIENT NOISE LEVEL MONITORING** Receipt Date: **14/12/2016**

### General Information:-

Client Representative : Mr. Dharmendra  
Sample collected by : Mr. Tarun Singh  
Sampling Location : Moti Killo Ki Dhani Near location no. 27/5  
Latitude : 27° 12' 09.8'' N  
Longitude : 070° 53' 19.9'' E  
Instrument Used : Sound Level Meter  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 11-12/12/2016  
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 <sub>eq</sub>	CPCB Guidelines/ IS 9989	49.78	40.2	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

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

Sample Number: **EL/TPL-Ramgarh/N/08** Report No.: **VEL/N/1612/14016**  
Name & Address of Client: **M/s Tata Projects Limited** Format No.: **5.10 F-01**  
**Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPL Project Jaisalmer (200134)** Party Reference No.: **NIL**  
Sample Description: **AMBIENT NOISE LEVEL MONITORING** Reporting Date: **17/12/2016**  
Receipt Date: **14/12/2016**

### General Information:-

Client Representative : Mr. Dharmendra  
Sample collected by : Mr. Tarun Singh  
Sampling Location : Khivasar Near location No. 31/3  
Latitude : 27° 16' 40.2'' N  
Longitude : 070° 50' 53.6'' E  
Instrument Used : Sound Level Meter  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 11-12/12/2016  
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	53.56	43.6	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

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

Sample Number: **TEL/TPL-Ramgarh/N/09** Report No.: **VEL/N/1612/14017**  
 Name & Address of Client: **M/s Tata Projects Limited** Format No.: **5.10 F-01**  
**Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPNL Project Jaisalmer (200134)** Party Reference No.: **NIL**  
 Reporting Date: **17/12/2016**  
 Sample Description : **AMBIENT NOISE LEVEL MONITORING** Receipt Date: **14/12/2016**

### General Information:-

Client Representative : Mr. Dharmendra  
 Sample collected by : Mr. Tarun Singh  
 Sampling Location : Parevar Village Near Location No.AP-42  
 Latitude : 27° 21' 29.1'' N  
 Longitude : 070° 42' 26.9'' E  
 Instrument Used : Sound Level Meter  
 Instrument Calibration Status : Calibrated  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 11-12/12/2016  
 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 <sub>eq</sub>	CPCB Guidelines/ IS 9989	49.89	40.30	dB(A)
<b>CPCB Noise Standards</b>					
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

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

Sample Number:	EL/TPL-Ramgarh/N/10	Report No.:	VEL/N/1612/14018
Name & Address of Client :	M/s Tata Projects Limited	Format No.:	5.10 F-01
	Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPNL Project Jaisalmer (200134)	Party Reference No.:	NIL
Sample Description :	AMBIENT NOISE LEVEL MONITORING	Reporting Date:	17/12/2016
		Receipt Date:	14/12/2016

### General Information:-

Client Representative	: Mr. Dharmendra
Sample collected by	: Mr. Tarun Singh
Sampling Location	: Joga Village Near Location No. 44/7
Latitude	: 27° 21' 20.3'' N
Longitude	: 070° 37' 42.7'' E
Instrument Used	: Sound Level Meter
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 11-12/12/2016
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 <sub>eq</sub>	CPCB Guidelines/ IS 9989	48.23	41.8	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

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

Sample Number: **EL/TPL-Ramgarh/N/11** Report No.: **VEL/N/1612/14019**  
 Name & Address of Client: **M/s Tata Projects Limited** Format No.: **5.10 F-01**  
**Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line-RVPNL Project Jaisalmer (200134)** Party Reference No.: **NIL**  
 Sample Description: **AMBIENT NOISE LEVEL MONITORING** Reporting Date: **17/12/2016**  
 Receipt Date: **14/12/2016**

### General Information:-

Client Representative : Mr. Dharmendra  
 Sample collected by : Mr. Tarun Singh  
 Sampling Location : Ramgarh Village Near Location No. 46  
 Latitude : 27° 20' 11.7' N  
 Longitude : 070° 32' 45.8'' E  
 Instrument Used : Sound Level Meter  
 Instrument Calibration Status : Calibrated  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 11-12/12/2016  
 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	51.78	42.7	dB(A)
<b>CPCB Noise Standards</b>					
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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# 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-Ramgarh/S/01	Report No.:	VEL/S/1612/14006
Name & Address of Party:	M/s Tata Projects Limited Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line- RVPNL Project Jaisalmer (200134))	Format No.:	5.10 F-01
		Party Reference No.:	NIL
		Reporting Date:	17/12/2016
		Receipt Date:	14/12/2016
Sample Description:	SOIL	Sampling Date:	12/12/2016
Sampling Location:	NEAR BASNA PIR VILLAGE (Land of Mr.Hari Ram, Near Location no. AP-7)	Type of Sampling:	Composite
	VardanEnviro Lab Team	Sampling Quantity:	2.0 Kg
Sample Collected by		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)	7.88	--
2.	Color	USDA Method, 1968	Light Brown	---
3.	Conductivity(1:5)	IS:14767-2000 Reaffirmed 2006	324	%
4.	Moisture	USDA Method, 1968	3.78	%
5.	Chlorides as Cl	USDA Method, 1968	0.004	%
6.	Sulphate as SO <sub>4</sub>	USDA Method, 1968	0.008	%
7.	Total Carbonates	IS:2720 (P-22, 1972)	6.45	%
8.	Total Soluble Solids	IS:2720 (P-22, 1972)	0.86	%
9.	Total Organic Matter	IS:2720 (P-22, 1972)	0.12	%
10.	Nitrogen as N	IS:14684, 1999	0.006	%
11.	Phosphorus as P	USDA, APHA-4500PC	< 0.0003	%
12.	Potassium as K	USDA Method, 1968	0.016	%
13.	Zinc	APHA-3030D, APHA-3111B	2.0	mg / kg
14.	Copper	APHA-3030D, APHA-3111B	2.45	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	BDL	mg / kg
18.	Lead	APHA-3030D, APHA-3111B	0.67	mg / kg

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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-Ramgarh/S/02	Report No.:	VEL/S/1612/14007
Name & Address of Party:	M/s Tata Projects Limited Construction of 400 kV /DC Twin ACSR Moose Ramgarh-Akal Transmission Line- RVPNL Project Jaisalmer (200134))	Format No.:	5.10 F-01
		Party Reference	NIL
		No.:	
		Reporting Date:	17/12/2016
		Receipt Date:	14/12/2016
		Sampling Date:	12/12/2016
		Type of Sampling:	Composite
		Sampling Quantity:	2.0 Kg
		Depth of Sampling:	30 cm
		Packing Status:	Temp Sealed

Sample Description: SOIL  
Sampling Location: NEAR HADDA VILLAGE (Land of Mr.Yaru Ram, Near Location no. AP-23)  
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)	7.80	--
2.	Color	USDA Method, 1968	Light Brown	---
3.	Conductivity(1:5)	IS:14767-2000 Reaffirmed 2006	198	%
4.	Moisture	USDA Method, 1968	2.12	%
5.	Chlorides as Cl	USDA Method, 1968	0.005	%
6.	Sulphate as SO <sub>4</sub>	USDA Method, 1968	0.007	%
7.	Total Carbonates	IS:2720 (P-22, 1972)	10.53	%
8.	Total Soluble Solids	IS:2720 (P-22, 1972)	0.18	%
9.	Total Organic Matter	IS:2720 (P-22, 1972)	0.08	%
10.	Nitrogen as N	IS:14684, 1999	0.007	%
11.	Phosphorus as P	USDA, APHA-4500PC	< 0.0003	%
12.	Potassium as K	USDA Method, 1968	0.018	%
13.	Zinc	APHA-3030D, APHA-3111B	2.12	mg / kg
14.	Copper	APHA-3030D, APHA-3111B	2.46	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	BDL	mg / kg
18.	Lead	APHA-3030D, APHA-3111B	0.69	mg / kg

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

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

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## Test Certificate

**Sample Number:** VEL/TPL-Ramgarh/S/03  
**Name & Address of Party:** M/s Tata Projects Limited  
Construction of 400 kV /DC Twin ACSR  
Moose Ramgarh-Akal Transmission Line-  
RVPNL Project Jaisalmer (200134))  
**Report No.:** VEL/S/1612/14008  
**Format No.:** 5.10 F-01  
**Party Reference No.:** NIL  
**Reporting Date:** 17/12/2016  
**Receipt Date:** 14/12/2016  
**Sampling Date:** 12/12/2016  
**Type of Sampling:** Composite  
**Sampling Quantity:** 2.0 Kg  
**Sample Description:** SOIL  
**Sampling Location:** NEAR KHIVSAR VILLAGE (Land of  
Mr.Padam Singh, Near location no. 31/3)  
VardanEnviro Lab Team  
**Sample Collected by**  
**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)	7.89	--
2.	Color	USDA Method, 1968	Light Brown	---
3.	Conductivity(1:5)	IS:14767-2000 Reaffirmed 2006	312	%
4.	Moisture	USDA Method, 1968	3.09	%
5.	Chlorides as Cl	USDA Method, 1968	0.003	%
6.	Sulphate as SO <sub>4</sub>	USDA Method, 1968	0.005	%
7.	Total Carbonates	IS:2720 (P-22, 1972)	4.12	%
8.	Total Soluble Solids	IS:2720 (P-22, 1972)	0.56	%
9.	Total Organic Matter	IS:2720 (P-22, 1972)	0.25	%
10.	Nitrogen as N	IS:14684, 1999	0.009	%
11.	Phosphorus as P	USDA, APHA-4500PC	< 0.0003	%
12.	Potassium as K	USDA Method, 1968	0.019	%
13.	Zinc	APHA-3030D, APHA-3111B	2.78	mg / kg
14.	Copper	APHA-3030D, APHA-3111B	2.98	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	BDL	mg / kg
18.	Lead	APHA-3030D, APHA-3111B	0.78	mg / kg

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

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

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## Test Certificate

**Sample Number:**

**VEL/TPL-Ramgarh/S/04**

**Report No.:**

**VEL/S/1612/14009**

**Name & Address of Party:**

**M/s Tata Projects Limited**

**Format No.:**

**5.10 F-01**

Construction of 400 kV /DC Twin ACSR  
Moose Ramgarh-Akal Transmission Line-  
RVPNL Project Jaisalmer (200134)

**Party Reference**

**NIL**

**No.:**

**Reporting Date:**

**17/12/2016**

**Receipt Date:**

**14/12/2016**

**Sampling Date:**

**12/12/2016**

**Type of Sampling:**

**Composite**

**Sampling Quantity:**

**2.0 Kg**

**Sample Description:**

**SOIL**

**Sampling Location:**

**NEAR JOGA VILLAGE (Land of  
Mr.Padam Singh, Near location no. 44/21)  
VardanEnviro Lab Team**

**Sample Collected by**

**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)	7.67	--
2.	Color	USDA Method, 1968	Light Brown	---
3.	Conductivity(1:5)	IS:14767-2000 Reaffirmed 2006	323	%
4.	Moisture	USDA Method, 1968	2.34	%
5.	Chlorides as Cl	USDA Method, 1968	0.006	%
6.	Sulphate as SO <sub>4</sub>	USDA Method, 1968	0.007	%
7.	Total Carbonates	IS:2720 (P-22, 1972)	5.34	%
8.	Total Soluble Solids	IS:2720 (P-22, 1972)	0.80	%
9.	Total Organic Matter	IS:2720 (P-22, 1972)	0.15	%
10.	Nitrogen as N	IS:14684, 1999	0.0067	%
11.	Phosphorus as P	USDA, APHA-4500PC	< 0.0003	%
12.	Potassium as K	USDA Method, 1968	0.012	%
13.	Zinc	APHA-3030D, APHA-3111B	1.23	mg / kg
14.	Copper	APHA-3030D, APHA-3111B	2.23	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	BDL	mg / kg
18.	Lead	APHA-3030D, APHA-3111B	0.45	mg / kg

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