

## **Environmental Monitoring Report**

Project Number: 45224-003

October 2016

Period: March 2015 - March 2016

# IND: Rajasthan Renewable Energy Transmission Investment Program - Tranche 1

Subprojects: 400KV D/C Ramgarh – Akal Transmission Line (ICB 5); and 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



RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED

OFFICE OF THE Addl. CHIEF ENGINEER (Contracts)

Corporate Identity Number(CIN): U 40109RJ2000SGC016485

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Regd.Office: MM Building of RVPN, Old Power House Premises (Back Side), Near Ram Mandir, Bani Park, Jaipur-302006

NO, RVPN /ACE (Contracts)/ SE (Contracts-I) / D,

Dated 15-9-16

Dear Mr. Karbar, Energy Specialist

ADB

Please find enclosed herewith the Social & Environmental Safeguard reports for ICB 1, 2, 5 & 6 under Tranche-1 for the period up to March-16. These reports for the period of April-16 to September 16 will be submitted by the end of the October-16.

Regards

(V. K. Mishra)

Addl. Chief Engineer (Contracts)

Addi. Chief Engineer (Contrac RVPN, Jaipur

Copy to Mr. Len George for information please,







### **Environmental Safeguards Document**

## 1<sup>st</sup>Environment Monitoring Report

400 KV D/C Ramgarh - Akal Transmission Line (ICB-5)

**Document Stage: Final Document**Project Number: 45224 (IND)
Period – March2015 - March2016.
Reporting - April 2016.

India: Rajasthan Renewable Energy Transmission Investment Program

Prepared for Asian Development Bank by Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL), Government of Rajasthan.



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#### **Environment Monitoring Report**

#### Compliance Status & Monitoring Report of Environment Safeguards

Period: March 2015 - March 2016

#### Submitted by: Rajasthan Rajya Vidyut Prasaran Nigam Limited, Rajasthan

#### Table of Contents .

S.No.	CONTENT	PAGE	
A	Project Information		
1.	General	3	
2.	Sub-Project Octails	3	
3.	Overali Project Progress: Agreed Milestones and Implementation Schedules	0	
В	Environmental Safeguards		
1	Compliance status with national/state/local statutory environmental requirements and international standards	4	
2	General Implementation Status	4 - 6	
2.1	Forest Clearance	4	25
2.2	Fulfillment of Commitments made curing of Public Hearing/Consultation	5	
2.3	ADB Stipulation/Safeguarding Measures	5	
24	Record of Complaints (Regarding Environment Saleguard Measures) and their Resolution	b	
2.5	Staffing, Institutional Arrangements and Grievance Redress	Ġ.	
2.6	Other measures	6	
2.7	Anr.exures	e	
3.	Status of Implementation of Environment Management Plan (EMP)	7 - 21	
3.1.	Environment Management Plan and Status on Implementation	7 - 18	
3.2	Environment Monitoring Plap and Status on Implementation	19 - 21	

#### **Abbreviations**

		MINIST CASOSTOLIS
A <sup>C</sup> 's	Affected Persons	
C/o	Construction of	
Deptt.	Department	
Distt.	District .	
FCA	Forest Conservation Act	
G:S	Gas Insulated Switchgear	* 120
Gol	Govt of India	
GRO	Grievance Redressal Committee	
Ha.	Hectare (10,000, sq. m. land)	. *
l≝ Rule	Indian Electricity Rule	
MOEFCC	Ministry of Furest, อิกงเวดกรรด: ลก	d Climate Change
MPAF	Main Project Affected Family	, ,

#### Project Information

A.1. General

P. 1.	Name of Project	Rajasthan Renewable Energy Transmission
	Name of Fragon	Investment Program
11	Loan Number	Loan 3052-IND: Rajasthan Renewable Energy Transmission Investment Program - Tranche 1
П	Name of MonitorIng/Reporting Agency and address	RRVPNL/Vidut Blrawan, Janpath , Jyofi Nagar Japour – 302005 Tata Projects 'Limited', Mithon Towers -1 , Prenderghast Road , Secunderabod - 500003
:11	Monitoring Period (Season/month)	March -2015 to March -2016
IV	Report No.	
٧	Report for the period	March -2015 to March -2016
VI.	Date of reporting	9 September -2016

A.2. Subproject details

	List of sub-projects	 Name of the Project site
1	400 KV D/C Ramgarh to Transmission Line. (ICB S)	400kV D/C TWIN ACSR Moose Transmission Line from Ramgarh to Akal under specification No. RRVPN / ADB / Transhe 1/ICB-5 (Supply & Service contract) to TATA Projects Dimited

A.3. Overall Project Progress, Agreed Milestones and Implementation Schedules

S No	Name of sub-project	Progress as on date of Report	Implementation Schedule
1	Survey	99.163 KW	April -15 - Sep -15
1	Foundation	260Nos	May -15 to March - 16
2		239Nos	Aug-15 to March -13
3	Erection	No: Started	Dec -15 to Mar -16
4	Stringing	No. Started	DOM 10 12 111

## B.1: Compliance Status with National/State/Local Statutory Environmental Requirements and International Standards

N		Applicable Attributes	RRVPNL's Compliance
1	The Water (Prevention and Control of	A STATE OF THE PERSON NAMED IN COLUMN	Status
2	Act, 1974 as amended;		Preventive measures are being adopted to avoid such pollution. Report shall be submitted by Sep '2016.
3	The Air (Prevention and Control of Pollution) Act. 1981	Air Pollution	Preventive measures are being adopted to avoid such pollution. Report shall be submitted by Sep 2016.
4	The Environment (Protection) Act, 1986	Construction Practices	Report shall be submitted by Sep'2016.
5	The Environment Impact Assessment Notification, 1994 as amended	EMP monitoring	Report shall be submitted by Sep 2016.
_	and Handling) Rules 1989 as amended	Transformer Oil	Not applicable
6	(Regulation and Control) Rules 2000	Cleaning of electrical contacts using HFCs etc.	Not applicable
7	Handling) Rules 2001 as amended	Balteries	Not applicable
3	amendad Forest Act, 1927 as	Reserve Forest areas, Right of way	Forest Land is not involved we have avoided the forest area in complete Line. Line is more than 1.0 km away
•	The Wild Life (Protection) Act, 1972 as amended	Critical habitats	from Forest Land.  No Wild life is involved in Project.Line is more than 4 5 km's away from Forest Land.
0	The Biological Diversity Act, 2002	Welland	No Wotland is involved.
1	amended (Conservation) Act, 1980 as	Construction work in forest areas	Forest Land is not involved we have avoided the forest erast in complete Line. Line is more than 1.0 km away from Forest Land.
	The National Environmental Pelicy, 2006 of Gol	Construction Practices	GOI norms for environmental management followed for all construction
	Other State Lovel Acts	Compensation	work Compensation as per RRVPNL and state Revenue department.
	Other Intermational levels conventions and treatles	Biodiversity, GHG emissions	Not being affected.

## B.2: General Immplementation Status

B.2.1. Forest Clearance.

SN D.	Measures/ stipulation	Compliance Status
1200	Sub-Project #	
1	Right of W	
	Right of Way/ land required	23 Mtr either side of the central line, corridor width 46 mtrs, as per approved RVPNL tower schedule.
_	Clearance from trees	26 Mtr either side of central line.
3	Forest area and Nos. of trees.	20 Mile Side of Califfer Jille.
	And Nos. of traes.	No Forest land is being involved. No trees being affected during the Foundation and erection work. <b>During the</b> stringing work no trees shall be done.

SN o.	Measures/ stipulation	Compliance Status
4	Damage to forest	No damage shall be done to forest area.
5	Wild life sanctueries	No Wild tife is involved in Project. Line is more than 4-5 Kms away from Forest Land.

6.2.2. Fulfillment of commitments made during Public Hearing/Consultation

S.No.	Query/Apprehension	Commitment	Compliance Statement
1	Sub-project #		N.C. WITHOUT THE REMOVED TO WHOSE THE
	Compensation for crop	As per EPC contractor bid	All seasonal cultivated props if damaged during the work compensated as per the RVPN/State Revenue department.
2	Compensation for land damages	As per EPC contractor bid	No land is damaged during the construction of line.
3	Compensation for pathways, channels for waterway.	Restoration after erection by EPC contractor	Tift date no pathways, channels for waterways have been affected during the work. If affected, they shall be restored properly.
4	Nuisance due to dust, noise, vibrations, labor during construction	As per EMP implemented by EPC contractor	Preventive actions are being adopted to avoid such nuisance. No reported dust, noise, vibrations and labor problems currently.  Report shall be submitted by Sap 2016.

B.2.3. ADB Stipulations/ safeguarding measures on Environment.

SNo.	Product Activity/Stage	Parameter to be monitored	Compliance Status
1 380	Sub-Project #		
	Construction	The second secon	- CAN THE PARTY OF
1	Archeological site/ monument safety	Chance find	Not involved
2	Public places, schools, ponds, airport, railway etc.	Distance 500 m away	No school, ponds have been affected Proposal has been submitted to
			concerned authority.
3	Safeguard against critically endangered Flora and fauna.	Avoid	Filora Fauna not involved in project
4	Rain and Flood prone area.	Avoid	The entire construction area of transmission line beyond the flood prone area
5	Environmental parameters for air, noise, land and water during project construction	Environmental Monitoring Plan	Report shall be submitted by Sep 2016.

B.2.4 Record of complaints (regarding environment safeguard measures) and their resolution

Sr.No	Complainant Name and address	Date of receipt	Subject/issue	Date of resolution	Remarks
	Sub-Project #	(1986年)	WEST NEEDS AND	STATE OF THE SAME OF THE SAME	WEST CONTRACTOR
	As on date no complaint has been received				

B.2.5. Staffing, Institutional Arrangements and Grievance Redress

S.No.	Parameters	Commitment	Compliance Statement
1	Numbers of Staff deputed/employed for environment saleguards	One at -site	One Safety Officer for 100 No tower erection.
2	PiU established as per proposed institutional mechanism	Date	18-5-2015
3	GRC formation	Date	1-3-2016
4	Grievance Redress Machanism followed	Proper record	No tree cutting involved. Currently no environment related grievance received.

#### B.2.6. Other measures:

1	Sub-Project#
1	At Workplace like stores, we have provided Toilet facilities to our workmen.
2	Gas cylinders are being used to avoid the usage of wood for cooking.
3	Good quality water is being provided for drinking, cooking and bathing purpose.
4	Control of dust near habitats for top soil being stored near foundations using covering sneets

#### B27 Annexures

Sub-Project #
Photographs of the following – foundation construction, tower crection, stores, tolicts, drinking water, kitchen, safety workshop, training material for HSE, from fauna etc.
RVPNL Letter dated 19.02.2016 regarding EMP issues
Baseline Report of Environmental Parameters (Pre-construction)
Tata Projects Limited Reply to RVPNI. Letter dated 19,02.2016 regarding EMP Issues: Remedial measures take from Tata Projects in response to Armexure 1 and 2 above.

## B.3: Status of Implementation of Environment Management Plan (EMP) and Environment Monitoring Plan (EMoP)

B3.1. Environment Management Plan and Status on Implementation

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutiona) Responsibilit Y
Pre-construction	on	100500000000000000000000000000000000000		I now the second		Y Section 2		
Temporary use of land	Impact to the existing environment	Selection of lands adhering to local taws and regulations Construction facilities should be placed at least 500 m away from water bodies, natural flow paths, important ecological hebita's and residential areas	wate• and air quality	Inventory activity of free, crop and asset in the area that may affected by project implementation such as excavation and material transportation was undertaken before construction activities.  Compensation is implemented to damage crop.	260	Excess soil effer foundation K∋pt on bund.	Need to maintain same practice up to completion of project	RRVPNL
Substation location and design	Noise generation Exposure to noise, Nuisence to neighbouring properties Disturbance to the adjacent lands and the	Substation Cesigned to ensure noise will not be a nuisance.  Maintained adequate clearance.	Expected noise emissions based on substation design, noise levels  Setbacks to houses and other structures	Not Applicable				
	people due to cut and fill operations	construction of retaining structures, minimise out and fill operations adjoining to the dwellings						

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (lock, corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutional Responsibility Y
Location of transmission towers and transmission line alignment and design	Exposure to safety related risks	Satback of dwellings to overthead line route designed in accordance with permitted lével of power frequency and the regulation of supervision at	Tower location and line alignment selection with respect to nearest dwellings	Tower Location un 26 Meter either side is away from House/dwelling area. Line is minimum 500 Mtr away from such dwelling	199.151km	46 Mtr corridor from center of lower is maintained during survey work to avoid house & for 500 mtr for reserve.	Need to maintain up to completion of project.	RRVPNL
	Impact on water bodies / land/ residences	sites.  Consideration of site location to avoid water hodies or agricultural land as much as possible.  Careful site selection to avoid existing settlements	Site location, line alignment selection (distance to dwelling, water and/or agricultural land)	Arl the water bodies/dwelling s are more than 500 mtrs awayfrom the Line	F-260 E = 239	46 Mtr corridor from center of tower is maintained during survey work to avoid house & for 500 mtr for reserve	Need to maintain up to completion of project	RRVPNL
Equipment specifications and design parameters	Release of chemicals and harmful gases in receptors (air, water, land)	PCBs free substation transformers or other project facilities or equipment.	Transformers and specifications and compliance with setback distances ("as-built" diagrams)		Not Applicable			
Encroachment into precious acological areas	Loss of precious ecological vehies/ damage to precious species	Avoid encroachment by careful site and alignment selection and reconnaissance before final siting of activities.  Minimise the RoW wherever possible	Floral and faunal habitata loss	ec .	Route has been selected in a manner to avoid such encroachments No ecological areas are involved in TL	Entire line passing away from flora & funa & forest area / NOC had taken thefore starting of project.	Non	RRVPNL
Involuntary resettlement and acquisition	t oss of lands and structures	Compensation paid for temporary/ permanent loss of productive land	Public complaints		Compensation is implemented for the crop damaged.	Land acquistion not required for work,	Crop compensatio n provide to affected person.	RRVPNL

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (Incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutional Responsibilit y
					n shall be paid for the cultivated crop damaged as measured jointly by RVPNL. Palwas and Tala project site incharge			
Encroachment into fermland	Loss of agriculture: productivity	Use existing tower footings/towers wherever possible  Avoid siting new towers on familian!	Tower location and fine alignment selection  Design of Implementation of crop and free compensation		Componsation Is implemented for the crop/tree damaged during	F- 260 E- 239	Non	RRVPNL
		wherever possible	(based on affected area)  Statutory approvals for tree trimming /removal		construction activity.  Avoided, though some	Discuss with awner	RYPNL to provide proper crop compensatio p	
		Farmers compensated for any permanent loss of productive land and trees that need:	nd.		are unavoidable		None	RRVPNt
		to be trimmed or removed along RoW.			During Foundation and erection work no frees are not involved,			
Interference with drainage patterns/Intgetic nichannals	Tempurary flooding hazards/loss of agricultural production	Appropriate sighting of towers to avoid channel interference	Site location and line alignment selection	All tower are spotted beyond the boundaries of water channel.		250	Non	RRVINL
		Appropriate provision or excess soil dug up from the						

							E	
Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutional Responsibilit y
		foundations/trenche s						
Explosions/Fire	Няzяду to life	Design of substations to include modern fire control systems/firewalls.	Substation design compliance with fire prevention and control codes	Not Applicable				
Construction		Provision of firefighting equipment to be located close to transformers, power generation equipment.			Care Care Care Care Care Care Care Care			DB0452000 - 8600
Removal or disturbance to other public utilities	Public Inconvenience	Advance notice to the public about the time and the duration of the offilly disruption	Disruption to other commercial and public activities / Public complaints	Advance notice published into the local newspaper for electric utility shutdown,	F- 260 E-239	Nil	Advance notice published in daily newspaper.	RRVPNI
		Use of well trained and experienced machinery operators to reduce accidental damage to the public utilities						
		Restore the utilities immediately to overcome public inconvenience		80				
Acquisition of cultivable lands	Loss of agricultural productivity	Avoid faming season wherever possible for the project activities.	Lang area of agriculture loss	We have avoided the work for the locations where there is farming	F - 260 Nos E - 239 Nos			
		Ensure existing irrigation facilities	Usage of existing utilities	season. Compensation provided to land		None		

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutional Responsibilit y
		are maintained in working condition.  Protect /preserve topsoil and reinstate after construction completed  Repair /reinstate damaged bunds etc. after construction completed  Compensation for temporary loss in agricultural	Status of facilities (earthwork in m <sup>3</sup> ) Implementation of crop compensation(amount paid, dates, etc.)	owner against the crop demaged. Lop soil is restored during the back filling work.			None	RRVPNL
lemporary outage of the electricity	Lass of power supply to the local community when distribution lines crossing the new transmission line are switched off	production.  Advance notice to the public about the time and the duration of the etility disruption.  Restore the utilities immediately to overcome public inconvenience.	Power disruption to houses and commercial promises of power disruption	Advance notice published into the local newspaper for electric utility shutdown.	E = 239 Advance notice published into newspapers.	None	Nona	RRVPNL
Equipment layout and installation	Noise and vibrations	Selection of construction techniques and machinery to minimise ground disturbance.	Construction techniques and machinery	Construction activity carried out during in day. Report are still awaited.	Foundation - 260 Erection - 239	None	None	RRVPNL
	SF6 leakage during storage and crection of Switchgear	Record of all substation switchgear, storage cylinders located within secure casings	Switchgear casings and substation bounding	Not Anplicable				

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutional Responsibili y
Substation construction	Loss of soil	Fill for the substation foundations obtained by creating or improving local crain system.	Borrow area sighting (area of site in m <sup>2</sup> and estimated volume in m <sup>3</sup> )	Not Applicable		3.3		
	Interference in drainage of rain and waste water at site	Removal of silt and trash choking the drainage of the substation land	Drains choked with rain/water due to silt and trash	Not Applicable				
	Water pollution	Construction activities involving significant ground disturbance (i.e. substation land forming) not undertaken during the monsoon season.	Water Quality (pH, BOD/COD, Suspended solids, other) during major earthworks	Not Applicable				,
Construction schedu.es	Noise nuisance to neighboring properties	Minimize construction activities undertaken during the night end local communities informed of the construction achedule.	Timing of construction (noise emissions, [dB(a)])	All Construction activity carried out during day tima. ( Report anall be submitted September -16 still awaited') We have avoided the work for the locations where there is ferming season.	F = 260 Nos £ -239 Nos	Ngr	Non	RRVPNLTPL
Provision of facilities forconstruction workers	construction crosses their	Restriction work construction work during the known period of migration by any wildlife in the area	Timing of Construction	No wild lifearea involve through the TL	F -260 Σ - 239	Non	Non	RRVPNLAPL
	Contemination of receptors	Construction workforce facilities	Amenities for Workforce facilities	Covered and fence well				RRVPNL/T°L

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Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutional Responsibilit V
	(land, water, air)	to include proper sanitation, water supply and waste disposal facilities.		around the worker I ving area. Worker have sufficient waste water collection system and septic camp.				
Surptus earthwork/spil	Runoff to cause water pollution, solid waste disposal	Excess fill from tower foundation excavation to be reused on site or disposed of next to made or around houses, in agreement with the local community or landowners.	Location and amount (m²) of fill disposal Soil disposal locations and volume (m³)	Excess soil is dumped on the bound of field and also dumped to path after discussing with the local persons as per requirement.	F = 260 F = 239	Need to maintain same practice up to completion of project.	Nep	RRVPNL√TPL
Air Pollution	Loose dust might blow in the area causing dusty conditions	Damping of dust by sprinkling of water within the work area and stack the loose soil and contain it with covers if required.	Soil stacking locations, access roads, tower locations, substation site	Sprayed water to minimize dust releasing in case of windy and dry weather. Excavated earth is covered.	F -260 F 239	Need to maintain same practice up to completro u of project.	Non	₹RVPNL1 ₽
Wood/ vegetation harvesting, cut and fill operations	I oss of vegetation and deforestation	Construction workers prohibited from harvesting wood in the project area during their employment.	Illegal wood /vegetation hervesting (area in m², number of incidents reported)	LPC cylinder provided to Labor.	Always	Non	Non	RRYPNL/TPL
	Effection fauna	Prevent work force from disturbing the flore, fauna including hunting of animal and fishing	Habitet loss	Training program conducted to create awareness	F = 250 E = 239	Non	Nort	rrypnl/tpl
		in water bodies.  Propor awareness programme		among the workers and staff to conserve the		<u> </u>		

		18						
Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Complative Progress to date	Corrective Actions Required	Further Follow-up required	institutional Responsibilit Y
		regarding conservation of flora, fauna including ground vegetation to all drivers, operators and other workers.		flora and fun. (Provice annexure if available).		4		
Site clearance	Vagetation	Marking of vegetation to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	Vegetation marking and clearance centrol (area in m²)	Vegetation land not involve through the TL.	A'ways	Non	Nor	RRVPNL/TPL
	Soll crosion and surface runoff	Construction near seasonal rivers, erosion and flood- prone areas (if any) should be restricted to the dry season.	Soll erosion	No soil erosion involve during the construction activity of tower foundation.	Always	Non	Non	RRVPNL/TPL
		Provision and maintenance of drains and retention pends.					×	
	ä	Treat clearing and filling areas against flow acceleration and construction work should be						
	ž	carefully designed to minimise obstruction or destruction to natural drainage.						
Mechanised construction	Noise, vibration and operator	Construction equipment to be well meintained.	Construction equipment - estimated noise	Construction equipment is regularly	Always	Work carried out with the standards	Need to maletain same	RRVPNL/TPL

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Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutional Responsibilit Y
	safety, efficient operation Noise, vibration, equipment	Proper maintenance and turning off plant not In use.	emissions and operating schedules	maintained. Pollution under control certificate available	981	ncants.	practice up to completion up to project.	
Construction of roads for accessibility	wear and tear Increase in airborne dust particles Increased land requirement for temporary accessibility	Existing roads and tracks used for construction and maintenance access to the site wherever possible.  New access ways restricted to a single carriageway wioth within the Row.	Access roads, routes (length and width of access roads)	Existing read/path only used for the construction activity.  Any new access path used is only one carriageway width for tractor, JCB machine and other machines.	F – 260 E – 239	Only existing path is used for construction activity	Need to maintain senic practice up to completion up to project	RRVPNL/TPL
Transportation and storage of materials	Nuisance to the general public	Transport loading and unloading of construction materials should not cause nuisance to the people by way of noise, vibration and dust	Water and Air Quality	Dropping material in the road collected.	Always	Nan	Non	RRVPNL/TPL
		Avoid storage of construction materials beside the road, around water bodies, residential or public sensitive locations		Construction material stored at high level ground level at construction site.				
		Construction meterials should be shored in covered		Construction waste removed from the				

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Project Activity	Potential Environmenta Impact		Standards	Actions during reporting period (incl. corrective)	Comulative Progress to date	Corrective Actions Required	Further Follow-up required	înstitutional Responsibilit Y
3.		areas to ensure protection from dust, emissions and such materials should be bundled in environment friendly and nuisance free manner		construction site after workcompletion Construction material - sand will be covered at top to avoid air pollution near bouses, and stacked top soil to be also covered at top to avoid blowing duringwindy				
rimming/cutting firees within cvv		Trees allowed growing up to a height within the RoW by maintaining adequate clearance between the top of tree and the conductor as per the regulations.  Trees that can survive trimming to comply with statutory distance should be lopped and not felled  Felled trees and other cleared or primed vegetation to be disposed of as euthorised by	Species-specific trac retention asapproved hystatutory authorities (average and maximum tree height at maturity, in metres)  Disposal of cleared vegetation as approved by the statutory authorities (area cleared in m²)	conditions  The Iree and trishes coming within the 28 Meter either side of centraling has to be trimmed up height required for the clearance.  No vegetation filed involved during the construction activity.	Always	Compensation of same should be given in time		RRVPNL/TPL

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutional Responsibilit Y
Health and safety ADD PPE	Injury and slokness of workers and members of the public	Contract provisions specifying minimum requirements for construction camps from water bodies, reserved areas etc.  Contractor to prepare and implement a health and safety plan and provide workers with required personal protective equipment (PPE) at site.  Contractor to arrange for health and safety awareness programmes	Contract clauses (number of incidents and total:iost-work days caused by injuries and sickness)	Conducting training courses and meeting for the workers on safely and environmental hygienic Providing personal safety devices for workers safety boots, helmet gloves, meak and protective cloths	Always	All work is carrying out with PPE	Nor	RYPNLTPL
Nuisance to nearby properties	Losses to nelghbouring land uses/ values	Contract clauses specifying careful construction practices.  As much as possible existing access ways will be used.  Productive land will be reinstated following construction of construction.  Compensation will be paid for loss of production, if any.	Contract clauses Design basis and layout Reinstalement of land status (area affected, m²) Implementation of Tree/Crop compensation (amount paid)	Excavated material is used for filling ground itself.  Access roads always used for construction activity.  Compensation peid against the crop damaged to farmers.	Campletely	NA NA		<u>RRVPNL/TPL</u>
Inoration and A						Mark Control of the Control		

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Project Activity	Potential Environmental Impact	Miligation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	institutional Responsibilit y
	to the workers and public	around substation  Establishment of	of fences and sign boards		Applicable			
		warning signs  Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (lost work days due to illness and injuries)					
Noise generation	Nulsance to the community around the site	Provision of noise barriers near substation sites	Noise level		Not Applicable		14-752-7	
Soil Erosion	Removal of top	Planting of buffer zone species suitable for erid climate.	Turbidity of water (Visual Inspection)		Not Applicable			
Maintenance of Transmission line	Exposure to electromagnati c interference	Transmission line design to comply with the limits of electromagnetic interference from overhead power lines	Required ground clearance (metres)					
Substation maintenance	Exposure to electromagnoti o interference	Substation design to comply with the limits of electromagnetic interference within floor area	Required vibrations level, instrumentation		Not Applicable			
Oil spällage	Contamination of land/nearby water bodies	Substation transformers located within secure and impervious bundled areas with a storage capacity of at least 110% of the	Substation bounding ("as-huilt" diagrams)		Not Applicable			
		cepecity of oil in transformers and associated reserve tanks.	1					
Operation of	Leakage of	Record of all	Switchgear casings		Not			

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (Incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow-up required	Institutional Responsibilit y
Switchgear	\$F6 gas	substation switchgear :ocated within secure casings	and Substation bounding		Applicable			

B.3.2 Environment Monitoring Plan and Status on Implementation

	A. Pre- construction stage (Baseline development)	PM <sub>101</sub> PM <sub>2.01</sub> SO <sub>21</sub> NOX, SPM, CO	Boundary of	J.	Spot check using field portable instruments	RVPNL	ion			-	
		(Visible dust)	≱ubstation	One time	National Air quality standards of CPCB [PM10 or				9		
uality (	B, Construction Stage	PM <sub>10</sub> , PM <sub>25</sub> , SO <sub>2</sub> , NOx, SPM, CO (Visible dust)	Soundary of substation	Every one month of construction period	PM2.5] Spot check using field portable instruments National Air quality standards of CPCB [PM10 or PM2.5]	T.PL	Reports shall be submitted by Sepi201	RRVPNL			Reports shall be submitted by Sep 2016
( (		NOx.	Boundary of substation	One time during commissioni ng	Spot check using field parlable instrument aNational Air quality standards of GPCB PM10 or PM2.5	RVPNL					

Quality	construction stage (Baseline development)	TSS, OO, BOD, P <sup>1</sup> Oil and grease.	weil near substatio ns		water quality standards of CPCB				
		Pb.							
						TPL	Reports shall be		
	B. Construction Stage	EC, TSS, DO, BOD, P <sup>d</sup> Oil and grease, Pb,	Nearest well near substatio ns	One time during cable laying	National water quality standards of CPCB		submitted by Se <b>p'2015</b>		
	C. Operation Stage	EC, TSS, DO, BOD, P <sup>d</sup> Oil and grease, Pb,	Nearest well near substatio ns		National water quality standards of CPCR	RVPINL			
	A. Pre- construction stage (Basefine development)	Noise level [dB(A)]	Boundar y of substatio n	One time	CPCB standards for Noise and vibrations	RVPNL			
3.Noise/ Vibration	B. Construction Stage	Noise level [dB(A)]	Boundar y of substatio n	to rinem	CPCB standards for Noise and vibrations	TPL	Reports shall be submitted by Sep*2016		
	C. Operation Stage	Noise level [dB(A)]	Boundar y of substatio n	One time during commissioni ng	CPOB standerds for Noise and vibrations	RVPNL			

	A. Pre- construction stage (Baseline development)	Visible spills and/or soil stationg, Oil & grease	f location inside substatio n	One time	Plazardous Wasts Managem ent rules	RVPNL			
4. Soil	B. Construction Stage	Visible spills and/or soil staining, Oil & grease	1 location inside substatio n	Ond time	Hazardous Waste Managem ent rules	I PI	Reports shall be submitted by Sep 2016		
	C. Operation Stage	Visible spills and/or soil staining, Oil & grease	t location inside substation	One time during commissio ning	Hazardous Wasie Managem ent rules	RVPNI.			
SF6	Operation Stage	Volumetri c loss from GIS equipmen t	Substati on equipme nt, circuit breakers	Online monitoring Iry data loggere	As per Approved Specifications of Equipment	Not Applicable		6	

#### Abbreviations:

SO<sub>21</sub>-Sulphur Diuxide; NO<sub>2</sub>. - Nitrogen Dioxide; CO- Carbon Monoxide; EC - Electric Conductivity;

Pb = Lead; PM₂₀ Particulate Matter <2.5;PM₁₀ - Perticulate Matter <10; TSPM- Total suspended Particulate Matter;

EC - Electrical Conductivity; DC - Dissolved Oxygen; TSS - rotal Suspended Solids;

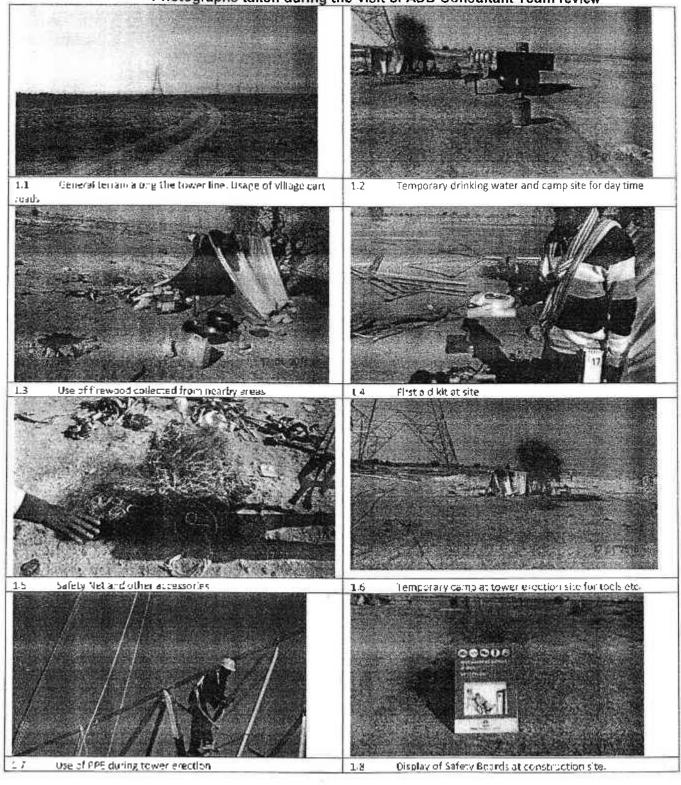
SF<sub>6</sub> – Surphur Hexafluoride gas

BOD - Biological Oxygen Demand; DRP - Oxidation Reduction Potential

NAAQS - National Ambient Air Quality Standards specified by CPCB, Gol;

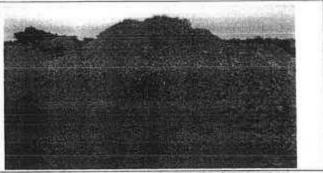
NWQS - National Water Quality Standards specified by CPCB, Cot.

Annexure 1: Photographs regarding EMP issues
Photographs taken during the visit of ADB Consultant Team review





1.9 After construction of foundation of tower foundation before leg erection



1.10 Stacked topsoil besides a tower foundation pit very near to the edge.

## Annexure 2: RVPNL Letter dated 19.02.2016 regarding EMP issues



#### RAJASTHAN RAJYA VIDYUT PRAŞARAN NIGAM LIMITED OFFICE OF THE SUPTOG. ENGINEER (P&P)

Corporate Identity Number(CIN): U 40109RJ2000SGC016485

Regd. Office: Vidyut Bhawan, Janpath, Jaipur, Rajasthan (India)-302005 Tel: 91-141-2740373 2740381 Ext1336, Fax: 91 141 2740704

NO.RVPN/SE(P&P)/XEN(ADB-II)/ICB-5/.D - 3087 Dated

Dated 19-02-16

M/s Tatu Project Ltd., Ground Floor, Tower-B, Green Boulevard, Plot No. B-9/A, Sector-62, Noide-201 307 (U.P.) E-cuidi t<u>pl@tetsproisets.com,</u> xitagingh@tata,rejects.com Fax: 91-120 6199990 Pitono :- 91-120 6199999

Subs. To furnish information of environmental and social aspects in various ADB funded projects.(ICB-S)

Dean Sir(s)

The ADR consultant teath for social & environmental monitoring have visited your site and have advised you certain improvement in your work activities which are essential to meet the ADR's social & environmental defeguent requirements.

You are advised to take note of the following:

- Gas is used by all sub-contractors bactead of fire wood which is not allowed.
- Stacking of loose suit/robbs should be at least one meter sway from the foundation pit otherwise it may foll on the working staff.
- Ensure that temporary todata are available for sub-contractor staff.
- Besides strict compliance of environment management plan (EMP) provided in the mondoring format by the ADB team be ensured.

The ADS mission from Delhi office shall be visiting the respective sites to review the adherence of the activities at site in complemes with their social & sucremmental safeguerd policy, kindly ensure strict compliance of the above.

(A.K. Sharma)

Supedarending Engineer (P&P)

RVFN. Jaipur

Copy submitted to The Superintending Engineer (400 KV GSS) RVFN Isignmen for kind information.

Superintending Engineer (P&F)

## Annexure 3 Baseline Test Reports (Tests done during IEE assessment in 2011-2012)

Location of Sampling along the associated Grid Substations (November 2011)

\$. No	Component	No. of Sample	Reference No.	Sampling Location
1 and 2	for Arrand Noise	4 each	53-1	GSS Sub Station Land, Khasara No. 9, Village: Chadle, Post: Nuro K. Butj. Tebsi ; Phaledi, District Jodhpur
	Monitoring		SS 2	400 KVA GSS Site, Village: Meyon Ki Dhani, Post Ramgarh, Jaisainte
			\$\$ 3	Near Stroffice 400 KVA (RRVPNL), Village: Akal, Post Jodha, Jaisalmen
		-	53-4	GSS 400 NVA Site. Violage: Kakani, Post and Tehsto Luni, Jodhpur
3	Water Analysis	4	\$5-1	Water sample collected from Bore we'l of Munda Ram Jr, Wilage: Bhadla ( Khasra No.9). Post: Nuro Ki Burj, Tohail: Phalodi. District Jodhpu
		İ	\$\$ 2	Water sample op lepted from Govt, Bore well (Nearest Bore well GSS Ramgath), Village and Post; Sanu, Tebsil: Rangath, District Jaisalman
				SS-3
			SS - 4	Water sample to feetud from Open Well of Babu Singh Champavat, Village, Kakon, Post and Tehsil: Luni, Jodhpur
4	Soit Analysis	1	\$\$-1	Soil sample collected from the land of proposed GSS Sub Stallon, Khasar No. 8, Village: Chadle, Post: Nuro Kl Surj, Tehsil: Chalodi, District Jodhpur
			SS - 2	Soil sample collected from the proposed Remgarh CSS 400 KVA, Village and Post; Sond Tehsil: Rangarh District Jaisoffrer
			\$\$ - 3	Soil sample collected from the land of proposed GSS 400 KVA (RRVPNL) Village: Aka, Post; Jodha, Jaisalmer
			8S 4	Soil sample collected from the land of Proposed GSS 400 KVA, Village, Kakani, Post and Jensil: Luni, Jodhpur

Location of Sampling along the Tranche -1 transmission lines (December 2011 to January 2012)

S. No	Component	No. Of Sample	Sample No.	Sampling Location
1 and 2	for Air and		Sample No. 1	Village: JajiwalGehlotan, Post: Jajiwal via Mandor, District Jodhpur
	Noise	17 each	Sample No. 2	Village and Post: Jr.ed Nagar, Tensil: Osiyan, District Jodhpur
	Monitoring		Sample No. 3	Near 44 No. Railway crossing Bhikamkhar, Tehsil: Osiyan, District Jadhpur
		1	Sample No.4	Village: Arria (Near Kichan), Post and Tehsil: Phalodi, Distric: Jodhpur
		1	Sample No.5	Village: Khirwa, Post: HidalGol, Tehsil: Phalodi, District Jodhpur)
			Sample No.6	Village: Kanssar, Post: Bab, Tehall: Pijalodi, District Jodhpur)
			Sample No. 7	(Village and Post: Askandra, Tehsil: Pokharan, District Jaisalmer)
		1	Sample No. B	Village and Post: Tadana, Tehsil and District Jaisalmer)
		1	Sample No. 9	Village: Nirudeen Ki Dhani, District Jaisalmer)
			Sample No.10	Village: Nebdai, District Jaisalmer
		1	Sample No.11	Village: Tanusar, District Jaisalmer
			Sample No.12	Wlage: Joga, District Jaisaimer
			Sample No. 13	Village: Parewer, District Jaisalmer
			Sample No. 14	Villago: Asda, District Joisplmer
			Sample No. 15	Village: Hadda, District Jalsalmer
			Sample No.16	Hamira Rly Station, Village: Thaiyat, District Jaisalmer)
			Sample No.17	Village: ShaguKaGaon, District Ja salmor
3	Water Acalysis	7	Sample No. 1	Water sample coffected from Pond, Village: JájíwálGenlotan, Post: Jájíwál via Mandor, Dialrict Jodhjour
			Sample No. 2	Water sample collected from Bore well of Sukh Ram Sro Shri ShagirathRam , Villager Simoandi, Post and Tehsil: Osiyan, District Jachour
			Sаπра No. 3	Water sample collected from Bore we'l of Manish S/o Shri Panna La. Ji Vi lage: Amia, Post and Tehsil: Phalodi, District Jodhpur
	20.1		Sample No.4	Water sample collected from Govt. Sore well, Village and Post Askandra, Tohs I: Pokharan, District Jaisalmer
			Sample No.5	Water sample collected from Water Tank of Babu Singh S/o Shri Bagh Singh, Village: Tenusar, Jaisalmor
			Sample No.6	Water sample collected from Govt, Bors wall, Village: Joshiyan (Hadda), Post: Kanod, Tehsil; and District: Jajsalmer
			Sample Ne.7	Water sample collected from Govt, Bore well, Village and Post: BhaguKeGaco, Tehsil and Oistrict, Jaisalmer
4	Soil Analysis	7	Sample Vo. 1	Soil sample on lected from the Pond of Village: JajiwulGehlotan, Post: Jajiwal via Mander, District Jodhpur
			Sample Vo. 2	Soil sample of lected from the land of Sukh Ram S/o Shri Bhagirath Barn, Village, Surraudi, Post and Telesii, Osayan, District Jodhpur

5ample No. 3	Soft sample collected from the land of Manish S/o Shri Panna Lat J', Village: Amia, Post and Tehs I: Phatodi, District Jordapur
Sample No.4	Soil sample collected from the land of Padern Singh Sto Shri Chengar Singh Ji, Village and Post: Askendra, Tehall: Pokaron, District Jaisalmor
Sample No.5	Soil sample collected from the land of Babu Singh S/o Shir Bugh Singh, Village: Tanusar, Jalsaimer)
Sample No.6	Sail sample collected from the land of Bhoraram Ji \$/c Sar Manglarem Ji Villager Hadda, Post: Kanod, Tehe'll and District Jaisa mer
Sample No.7	Spillisample ool coted from the land of Berkat Khan S/o Shri Jalu Khan. Milage and Post: ShaguKaGaon, Tehsil and District: Ja'salmer

A. AMBIENT AIR QUALITY MONITORING REPORT

Sample No	Ambient Air Quality Monitoring Site	Particulate Matter (PM 2.5)	Particulate Matter (PM 10)	Sulphur Diaxide (SOZ)	Oxide of Hitrogen (NOX)	Carbon Monoxide as (CO)
\$\$ - 1	CSS Sub Station Land, Khasara No. 8, Village: Bhadlu, Post: Nuro Ki Burj, Tehsil: Phalodi, District Jodhpur	24.1 /g / m2	47.5 ,ig / in3	6.0 µg / ni3	9.0 µg / m3	373 µg / m3
\$S 2	400 KVA GS\$ Site, Village: Mayon Ki Dhart, Post: Ramgarh, Jaisalmer	27.3 µg / m3	57.7 μg/m3	5.5 µg / m3	9.3 μg / m3	573 μg / m3
<b>\$</b> \$-3	Near SE office 400 KVA (RRVPNL) Vilage: Akal, Post: Jodha, Jaiselmei	32.6 µg / m3	65.5 μg / m3	6.3 µg / m3	97 kg / m3	687   g / m3
SS - 4	GSS 400 kVA Site, Village: Kakani, Post and Tehsll, Luni, Lodhpur	20.5 µg / m3	44.0 µg / m3	6.0 µg / m3	9.0 kg / m3	458 µg / m3
	Standard Value	60 µg (m3	100 no / m3	80 µq / m3	Sch yigu G8	2000 µg / m3
	Methods of Meagurement	Gravimetric Method	Gravimetric Method	mproved West and Gacko Method	Modified Jacob and Hoobheiser Method	IS: 5152 – 1975 Part X

Sant ple No	Ambient Air Quality Monitoring F	Particulate Matter (PM 2.5)	Particulate Matter (PM 10)	Sulphur Dioxide (SO2)	Oxide of Nitrogen (NOX)	Carbon Monoxide as (CO)
1	Near NageshwarMahadov Tomple, Village: Jajiwa Gehlotan, Pos≘ Jajiwalvia Mandor, District Jodhpur	33.6 µg / m3	88.5 µg / m3	6.3 µg / m3	9.7 ug / m3	458 µg / m3
2	Near 33 KVA Sub Station, Villege and Post Urried Nagar, Tehalli Csiyan, Diatriot Jodhpur	36,2 µg / m3	70.5 pg / m3	6.6 µg / m3	9.8 ug / m3	573 ug / m3
3	Near 44 No. Railway orossing, Bhikamkhor, Telisit: Osiyan, District Jodhpur	39.5 ug / m3	62.3 µg / m3	6.8 µg / m3	10.1 pg / m3	687 ag / m3
4	Near house of Manish S/o Shri Panna La J', Villege: Amia (Near Kichan). Post and Tehsil: Phalodi, District Jodhpur	24.1 ug / m3	52.3 μg / m3	6.2 ug / m3	9.5 <sub>kg</sub> / m3	458 ug / m3
5	Néar NayaTalab, Village: Klrirwa, Post: HidalGol, Tehs I: Pha.odi, District Jodhpur)	22.6 ag / m3	47.8 µg / m3	6.t ug/m3	9.3 µg / m3	458 µg / m3
6	(Near house of Gopal S/o Shri Prem Pa Vishnoi, Villago: Kanesar, Post: Bap, Tehail: Phalodi, District Jodhpur)	30.5 pg / m3	62.3 ug / m3	6.3 µg / m3	5.8 µg / m3	573 µg / m3
7	Crossing point at Askandra - Nachna Road - Village and Fost: Askandra, Tehsi': Pokharan, District Jaisamor	41.5 µg / m3	76.6 µg / m3	7.5 µg / m3	11.9 µg / m3	887 µg / m3
8	Near Stone Quarry, Nachna — Tadana Road, Vi. age and Post: Tacana, Tensil and District Jaisalmer)	24.0 µg / m3	52.0 µg / m3	6.7 µg / m3	9.5 ug / m3	458 µg / m3
9	Year Nirudeen Ki Dhani, District Jaisalmer)	18.6 µg/m3	41.4 pg / m3	6.0 µg / m3	9,0 µg / m3	344 µg / m3
10	Near FandiDunyari, Villege: Nehdat, District Jaisalme:	21.8 <sub>Mg</sub> / m3	49.4 µg / m3	6.1 µg / m 3	9.3 ug / m3	34K µg / m3
15	Near house of Babu Singh S/o Shri Bagh Singh, Village: Tunusar, District Jaisalner	23.0 µg / m3	52.4 µg / m3	6.2 µg / re3	9.6 u5 / m3	458 µg / m3
2	Villager Joga, Post, Saulwa, Tehsil and District Jaisalmer	25.7 µg / m3	69.8 µg / m3	B.2 μg / m3	95 ag / m3	458 µg / m3
13	Near Tulsiram Ki Dhani, Village:	28.0 µg / m3	62.4 µg / m3	6.5 µg/m3	9.7 j.g./ m3	573 pf m3

Sam pie No	Site	Particulate Matter (PM Z.5)	Particulate Matter (PM 10)	Sulphur Dioxide (\$02)	Oxide of Nitrogen (NOX)	Carbon Monoxide as (CO)
	Parewor, Tehsil and District Jaissimer)					1
14	Neer house of Fajal Klian S/a Shri Viram Khan, Village: Asda, Postr Devel Tehsil and District Jaisatmer	32.0 pg / m3	62.5 µg / m3	6.3 µg / m3	9.8 µg / m3	573 ug / m3
15	Near Mile Stone KW. 3, Village: Hedda, Post: Kanod, Tehşil and District Jalsa'mer	34.2 j.g / m3	71.7 µg / m3	6.8 ,ig / m3	10.9 µg / m3	687 µg / m3
16	Near Hamira Rly Station, Village: Thaiyat, District Jaispliner	31.9 j.g / m3	67.1 µg / m3	6.8 µg / m3	9.7 µg / m3	973 µg / m3
17	Near house of Barkat Khan S/o Shri Juliu Khan, Village and Post B) eguKaGeon, Teha Land District Jaisa mer	93.0 µg / m3	56.2 µg / m3	6.3 µg / m/\$	9.5 µg / m3	573 µg / m3
	Standard Value	60 pg / m3	100 µg / m3	80 µg / m3	80 jeg / m3	2000 μg / m3
	Methods of Measurement	Gray mairib Method	Gravimetric Method	improved V/est and Gacke Method	r/odifled Jacob and Hachhelser Method	15: 5182 - 1975 Part X

Sample No	Site	Ld (Day Equivalent)	Ln (Night Equivalent)	Ldn (Day-Night Equivalent)
SS 1	958 Sub Station Land, Krissara No. 8, Village: Bhadta, Post Nuco Ki Burj, Tehall: Phalodi, District Jodhpur	45 45	41.00	48.15
38 - 2	400 KVA GSS Site, Village: Meyon Ki Dhani, Pust; Ramgarti, Jaisahno	48 56	41 94	53.01
88-3	Near SE office 400 KVA (RRVPNL), Village: Akal, Post: Jodha, Jaisalmer	52.31	42.31	52.31
SS - 4	GSS 400 kVA Site, VMage: Kalkani, Post and Tensil: Lun', Jodhpur	53.17	41.75	52.74

ii. Amblent Noise Monitoring Report for Along the 3 400 kV transmission lines (December 2011 to January 2012)

Sample No	Site	Ld (Day Equivalent)	Lo (Night Equivalent)	Equivalent)	
1	Village: Jajiwal Gehlotan, Post: Jajiwal via Mondor, District Jedhpur	47.1B	41.61	49.20	
2	Village and Post: Umed Nagar, Tehsil, Os yan, District Jodhpur	52,82	43.64	53.11	
3	Near 44 No. Raifway crossing, Bh kemkhor Tehsil: Oslyan, Diarrict Jodhpur	49.73	41.23	50.28	
4	Vi lage: Amla (Near Kichen), Post and Yehail: Phalod, District Jodhan:	54.09	42.03	53.51	
5	VI lage: KNitva, Post: HidalGet, Tehsil: Phalod ;  District Jednour)	51.05	41.08	51.34	
6	Viilage: Kanasar, Post: Bap, Tehsi : Phalod . District Jodinson)	48.00	44.12	51.07	
7	(Village and Post: Askondra, Tehşil; Pokharan, District Jaisalmer)	49 90	43.03	51.21	
E	Village and Post: Tadana, Tehsil and District Jaksalmer)	52.64	42.43	52.57	
Ų	Village: Nirudaen Ki Dhan', District Jalse\mer)	44.38	40.87	47.71	
10	Village: Nehoei, Distriol Jaisalmer	50.58	42.08	51 14	
11	Village: Tenusar, District Jaiselmer	49.67	41.20	50.24	
12	Village: Joga. District Jaissimer	47.29	41.42	49.13	
13	Village: Parewer, District Jaisalmer	48.94	41.74	50.62	
14	Village: Asda, District Jalsalmer	47.B2	41.59	49.47	
.5	Village: Hadda, District Jaisaimer	48 06	41.79	49.68	
16	Hamina Riy Station, Village: Thaiyat, District calsalmer)	52.63	42.40	52.55	
:7	Village: ShaguKaGaon, District Jaisainter	49.20	41.80	50.27	
		Towns and the second se	4		

All results are in Deciber (dB) Unit

Ambient Air Quality Standards in respect of Noise

The state of the s	term planting in the second		-
Area Codo	Category of Area/Zone	Limits in dB(A) Leq *	

		Day Time	Night Time
(A)	Industrial acea	75	70
(B)	Commercial area	65	55
(C)	Residential grea	55	45
(D)	Silence Zong	50	40

#### Note

- 1. Day tortle shall mean from 6.00 a.m. to 10.00 p.m.,
- Night time shall mean from 10.09 p.m. to 6,00 a.m. 2.
- Э. Silence zone is defined as an area courtsing not less than 100 metres around hospitals, educational institutions and courts. The silence zones are zones which are declared as such by the competent authority.
- Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.
- fdB(A) Log denotes the time weighted sverage of the level of sound in dadicels on seals A which is relatable to human hosting. A "decibel" is a unit in which noise is measured.
- "AT, in dB(A) Leg, cenotes the frequency weighting in the measurement of holse and corresponds to frequency response characteristics of the human ear.
- Leg ; it is an energy mean of the noise level, over a specified period.

Source: Ministry of Environment and Ecrests Notification, New Delhi, the 14 February, 2000 S.O. 123(E).

#### Ċ. ANALYSIS REPORT OF SOIL

Analysis Report of Soil for Grid Substations (November 2011) ī.

Parameters (Unit)	Unit	SS -1 Bhadia GSS	5S -2 Ramgerh GSS	55 -3 Akal GSS	\$5.4 Jodhpur G\$5 at Kakani
Colur	Visual Comparison	Light Brown	Light Brown	Gight Brown	Light Brown
pH (1:5)		7.87	7.25	77:	7.64
Conductivity(1:5)	("S/cm)	141	823	203	388
Moisture	(%:)	€.1	6.5	7.2	6.8
Chiorides as Ci	(%)	0.004	0.037	0.005	0.01
Sulpirate as SO4	(%)	0.005	0.D16	0.002	0.003
Total Carbonates	(%)	0.05	0.04	0.05	0.02
Total Soluble Splids	(%)	0.064	0.33	0.072	0.122
Total Organic Matter	(%)	0.13	0.14	0.07	60.0
Nitrogen as N	(%)	E.07	0.00	0.04	0.04
Phosphorus as 2	(%)	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Polassium as K	(%)	0.012	0.04	0.024	0.012
Zinc	Mg / 100 Gm.	BDL	BDL	BDL	BOL
Copper	Mg / 100 Gm	BDL	BDL	BDL	BD'_
Chromium	Mg / 100 Gm	BOL	BDI	BDL	BDL
Cadmlum	Mg / 100 Gm	EDL	BOL	BDL	BCAL
Nickel	Mg / 100 Gm	BDL	BDL	BUL	BCI
Lead	Mg / 100 Gm	EDL	BDL	EDL	BDI

BDL\* - Below Detectable \_init

Samp a No	and the second second	1	sion lines (December	3	1.4	5	6	7
Parameters (Unit)	Unit	Results JejiwolGehl otan, Jodhpur	Villager Sirmandi, Jodhpur	Village: Amla, Jedhpur	Village Askandra. Jaisalmer	Virage: Tanusar, Jaisalme	Results Village: Hadda, Jaissimer	Village: BhaguKaG aon, Jaisalmer
Color	Visita. Comparison	Grey	Light B Twon	sight Brown	Light Brown	Light Brown	Light Brown	Light Brown
pH (5:5)	<b>€</b> 7	7.58	7.33	7.31	7,23	7.12	1.1	7.06
Conductivity(1:5)	(uS/cm)	406	340	424	110	2520	146	1795
Moisture	(%)	2.64	2.06	2.49	0.05	1.98	0.30	0.34
Chicrides as Cl	(%)	0.007	0.016	.D16	0.003	0.005	0.004	C.072
Sulphate as 504	(%)	0.014	0.012	0.004	0.008	0.156	0.009	0.068
Total Carbonates	(%)	13.86	1.17	6.95	2.91	21.96	11.56	22,54
Total Soluble Solids	(%)	0.201	0.158	0.165	0.136	1.199	0.108	0.768
Total Organio Matter	(%)	0.187	0.037	0.091	0.026	0.029	0.034	0.004
Nitrogen as N	(%)	0.020	0.013	0.021	0.008	0.005	0.009	0.119
<sup>u</sup> hoaphon.s as P	(%)	< 0.0005	< 0.0005	< 0.0005	< 0.0006	< 0.0005	< 0.0005	< 0.0005
Potassium as K	(%)	0.007	0.003	0.004	0.002	0.015	0.003	0.007
Zina	Mg / 100 Gm	BOL	EDI	BDL	BDL	BOL	BOL	RDL
Copper	Mg / 100 Gm	BDI.	BDL	BDL	BDL	BUL	BOL	BDL
Chromium	Mg / 100 Gm	BDL	EDI	BDL	BDL	BUL	BDL	BDL

Cadmium	Mg / 100 Gm	600	EDL	3DL	90.	BDL	BDL	BCL	
Nickel	Mg / 100 Gm	BDL	BDI	3DI	BD_	BDI	BOI.	BDL	
Load	Mg / 100 Gm	BD.	BDI	SDL	BDL	BDL	BDL	BDL	

Alf results are on dry hosts
BOL - Below Detectable Limit

#### D. ANALYSIS OF WATER QUALITY

#### Analysis of Water Quality Along the Grid Substation Sites (November 2011)

Sample Nol: SS-4: Water sample collected from Bore well of Munna Ram. Jl, Village: Thadia (Khasha No.9), Post: Nuro Ki Burj, Tonsil: Phalodi, D.s(a) Lochpur (for GSS Bhadia)

Paramater	Concentration	Standard Drinking 10500:1981 as am	Protocci (Test Method)	
		Desirable Limit	Permissible Limit in absence of alternate source	
1.1.1.1.1 Essential Charac	ctoristics-Physical F	aramoter		
Color, Hazen Units	<1	5	1 25	(S: 3025 Part 4 - 1983
Oceur	Unableotionable	Unobjectionable	-	15: 3025 Part 5 - 1983
aste	Ag. ceabio	Agreeable		S: 3025 Part 7.8 -1984
Turbidity, NTU	<1	5	1C	S: 3025 Part 10 - 1984
PΑ	7.40	6.5 -8.5	+	S: 2025 Part 11 - 1984
Essential Characteristics-Che	mical Parameters	100		
Total Farchess as CaCO3	548.00 Mg / L	300 Mg/L	600 Mg / L	5: 3025 Pa. (21 - 1983
Iron as Fe	0.10 Mg / L	0.3 Mc / L	1.0 Wkg/L	IS: 3025 Part 53 - 2003
Chloride as Ol	775.76 Ma / L	250 Mg / J	1600 Mg / L	19: 3025 Part 32 - 1986
Residual Free Chlorine	- 0.1 Mg L	0.2 Mg / L	-	IS: 3025 Part 26 - 1986
Desirable Characteristics-Che		1 304 (1914		TO. BILL.
Dissolved Solids	2.532.00 Ma / I.	500 Mg / L	2000 Ma/ L	iS: 3025 Part 16 - 1984
Calcium as Ca	11C.40 Mg / L	75 Má / I	200 Mg / L	IS: 3025 Part 40 - 1091
Magnesium as Mg	66.64 Mg / L	30 Mg / L	100 Mg / L	18: 3025 Port 46 1994
Copper as Cu	< 0.02 Mg / I	0.05 Mg/L	1.5 Mu / L	IS: 3025 Part 42 - 1992
Manganese as Mn	< 0.01 Mg/L	0.1 Mg / L	0.3 Mg/L	IS: 3025 Par. 59 - 2006
Sulphate as SO4	186.34 Mp / I	200 Mg/1	400 Mg / L	IS, 3025 Part 24 - 1986
Nitrate as NO3	7.56 Mg / L	45 Mg / L	No relaxation	IS: 3026 Part 34 1988
Fluctide as F	1.33 Mg / L	1.0 Mg/L	1.5 Mg/L	IS: 3025 Part 60 2006
Phano in Compounds as C6H5OH	< 0.001 Mg/	0.001 Mg / C	0.002 Mg / L	IS: 3025 Par: 43 - 1991
Mercury as Hg	< 0.2 µg / L	0.001 No/L	No relaxation	IS: 3025 Part 48 - 1994
Cadm um as Cd	< 0.005 Mg /	0.01 Mc / L	No relaxation	IS, 3025 Part 41 - 1992
Selenium as Se	< 0.005 Mg / C	0.01 Mg / L	No relaxation	18: 3025 Part 56 2003
Arsen clas As	< 0.005 Mg / U	0.05 Mc / L	No reiaxation	IS: 3025 Part 37 - 1998
Cyanide as CN	< 0.02 Mg / I	0.05 Mg / L	No relaxation	IS: 3025 Part 27 - 1986
Lead as Pt	< 0.01 Ma/L	0.05 Mg / L	No relexation	IS: 3025 Part 47 - 1994
Zinc as Zn	< 0.02 Ma7 L	5 Ma/	15 Mg / L	'S: 3025 Part 49 - 1994
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Ma / L	1.0 Mg / L	APHA 5540 C
Chromium as Cr+8	< 0.02 Mg/L	0.05 Mg / L	No relaxation	S: 3025 Part 52 2003
Mirteral Oil	< 0.01 Mg / L	0.01 Mg / L	0.03 Mg / L	Sr 3025 Part 39 - 1991
Alkalinity	404.00 Mg (	200 Mo / L	600 Mg / L	S: 3025 Part 20 - 1986
Mumir oni as Al	< 0.065 Vg / L	0.03 Mg/s	0.2 Mg / L	S: 3025 Part 55 - 2003
Boron as B	< 0.02 Mg / L	1 Me / I	5 No / L	'S, 3025 Part 57 - 2005
Bacteriological Characteristic				
Coliform Organisms	6 CFU	10 CFJ	10 CFU	'S: 1622 - 1981
F. Cnl	Absent	Absent	Absert	.S: 1622 - 1981

Sample No. SS = 2. Water sample collected from Covt, Bora Wall (Nearest Bore well GSS Ramgarh). Wilege and Post Sonu, Tehsi : Ramgarh, Distributions

Parameter	Concentration	Standard Drinkin; 10500:1991 as am	Protocol (Test Method)		
		Destrable Limit	Permissible Limit in absence of alternate source		
1.1.1.1.2 Essential CI	haracteristics-Physical	Parameter			
Color, Hazen Units	< 1	5	25	IS: 3025 Part 4 - 1983	
Ogour	Unobject onzbl	Unabjectionable	5	IS: 3025 Part 5 1983	
Taste	Agreeable	Agreesblo	/+:	IS: 3025 Part 7.8 -1994	
Turb.elly, NTU	c 1	5	10	IS: 3025 Part 10 - 1994	

pH	8.05	6.5 - 8.5	1.	15: 2025 Part 44 4004
Essential Characteristics-Ch	emical Parameters	1.000		IS: 3025 Part 11 - 1984
Total Hardness as CaCO3	276.00 Mg / L	300 Mg / L	600 Mg / L	I IC. 2005 D + 104 1000
ron as Fc	0.05 Mg /	03 Mg / E	1.0 Mg / L	IS: 3025 Part 21 - 1983
Chloride as CI	495.85 Mg / L	250 Mg / L	1000 Mg / L	'S: 3025 Part 53 - 2003
Residual Free Chlorine	< 0.1 Mo / I	0.2 Mei / L	1000 Mg / L	IS: 3025 Part 32 - 1988
Desirable Characteristics-Ch	emical Parameters	O.Z Mg) L	1.	IS: 3025 Part 26 - 1986
Dissolved Solids	1,785.00 Mg / L		2000 Mar 11	
Calcium as Ca	70.40 Mg / L	75 Mg / L	2000 Mg / L	IS: 3025 Part 18 - 1984
Magnesium as Mo	24 50 Mg / L	30 Me / L	200 Mg / L	IS: 3025 Part 40 - 1991
Сорыг ав Си	< 0.02 Mg / L		100 Mg / L	IS: 3025 Part 46 - 1994
Manganese as Mo	< 0.01 Mg / L	0.05 Mg / L	1.5 Mg / L	IS: 3025 Fart 42 - 1992
Sulphate as SO4	113.49 Mg/L	0.1 Mg / I	0.3 Mg /1	S: 3025 Part 59 - 2006
Vilrate as NO3	12.93 Mg / L	200 Mg / L	400 Mg / L	IS: 3025 Fart 24 - 1986
Fluoride as	12.85 Wg / L	45 Mg / L	No relaxation	IS: 3025 Part 34 - 1986
Prenotic Compounds as	.47 Mg / _	1.0 Mg / L	1.5 Mg / L	IS: 3025 Part 60 - 2008
CGNSOH	< 0.001 Mg / L	0.001 Mg / I	0.002 Mg / L	IS: 3025 Part 43 - 1991
Mercury as Hg	<0.2 µc/L	0.001 Mg / L	No relexation	JS, 3025 Part 48 - 1994
Cadmium as Cr.	< 0.005 Mg / L	0.01 Mg / L	No relaxation	IS: 3025 Part 41 - 1992
Selenium ar Se	< 0.005 Mg / L	0.04 Mg / L	No relaxation	IS: 3025 Part 56 - 2003
Arsenic &s As	< 0.005 Mg / L	0.05 Mg / I	No relexation	IS: 3025 Part 35 - 2003
Cyanide as CN	< 0.02 Mg/L	0.05 Mg / I.	No relaxation	
ead as Pt	< 0.01 Mg / L	0.05 Mg / L	No re axation	IS: 3025 Part 27 - 1986
Zinc as Zn	< 0.02 Mg / L	5 Mg / L	15 Mg / L	IS: 3025 Part 47 - 1994
Anionin Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mo / L	IS: 3025 Part 49 1994
Chromium as Cr+6	< 0.02 Mg / L	0.05 Mg / L	No relaxation	APHA 5540 C
/ineral Oit	< 0.01 Mg / L	0.01 Mg/L	0.03 Mg / L	IS: 3025 Part 52 - 2003
Alkalinity	268.00 Mg / L	200 Mg / L		IS: 3025 Part 39 - 1991
Aluminum as Al	< 0.005 Mg / L	0.03 Mg / L	600 Mg / L	iS: 3025 Part 23 - 1986
Boronias B	< 0.02 Mg / L	1 Mg / L	0.2 Mg / I	IS: 3025 Part 55 - 2003
Bacteriological Characteristic	S S S S S S S S S S S S S S S S S S S	T tivig / C	5 Mg / L	IS: 3025 Part 57 - 2005
ol form Organisms	7 CFU	10 CFU	10.0F(1	1.00
. Coli	Absent	Absent	10 CFU	IS: 1622 - 1981
	- 145 CHT	AUSEII.	Absent	IS 1622 1981

Sample No. SS = 3: Water sample collected from Govt. Bore well inside 400 KVA GSS (RRVPNL), Village: Axal, Post; Jordan District Jalsalmen

Perameter	Concentration	10500:1991 as am	water Specification as per (8 – endment up to 3 July 2010	Protocol (Test Method)	
		Desirable Limit	Permissible Limit in absence of alternate source		
1.1.1.1.3 Essential Char	acteristics-Physical P	arameter	Bource		
Color, Hazen Units	<1	5	25	10- open Dest 4 4 4000	
Odou:	Ur.ob, en fonable	Unnhjectionable		IS: 3025 Part 4 - 1980	
Taste	Agreeable	Agreeable		S: 3025 Part 5 - 1983	
Turbidity, NTU	< 1	5	10	15: 3025 Part 7.8 1984	
pH	B 3H	6.5 - 8.5		15: 3025 Part 10 - 1984	
<b>Essential Characteristics-Cl</b>	nemical Parameters	0.0 - 6.3		IS: 3025 Part 11 - 1984	
Total Hardness os CuCQ3	120.00 Mg / L	300 Mg / L	1 200 11	T .=	
Iron as Fe	0.03 Mg / L	0.3 Mg / L	600 Mg / L	15: 3025 Part 21 - 1893	
Chloride es Cl	61,98 Mg / L		1.0 Mg / L	IS: 3025 Part 53 - 2003	
Residual Free Chlorine	< 0.1 Mg / L	250 Mg	1000 Mg / L	15: 3025 Part 32 - 1538	
Desirable Characteristics-Ci	remical Parameters	0.2 Mg / L	*	IS: 3025 Part 28 - 1986	
Dissolved Solids	977,00 Mg/L	500 Mp / I	0000 44 14		
Calcium os Ca	27.20 Mg / I	75 Mc / L	2000 Mg / L	15: 3025 Part 16 - 1984	
Magnesium as Mg	12.74 Mg / L		209 Mg / L	IS: 3025 Part 40 - 1991	
Copper as Cu	< 0.02 My/L	30 Mg / L	100 Mg / _	IS: 3025 Part 46 - 1994	
Manganese as Mri	0.01 Mg/L	0.05 Mg / L	1.5 Mg/1	IS: 3025 Part 42 - 1992	
Sulphate as SO4	131.75 Mg / L	0.1 Mg/L	0.3 Mg / I	IS: 3025 Part 59 - 2006	
Nitrate as NO3	2.25 Mg / L	200 Mg / L	400 Mg / v.	IS: 3025 Part 24 - 1998	
Fluoride as F	0.83 Mg / I	45 Mg / L	No relaxation	IS: 3025 Part 34 - 1938	
Phenolic Compounds as	< 0.001 Mg / L	1.0 Mg / L	1.5 Mg / L	IS: 3025 Part 60 - 2008	
С6Н5ОН	- 5.001 Mg / L	0.001 Mg / L	0.002 Mg / L	'S: 3025 Part 43 - 1991	
Mercury as Hg	0.2 Mg / L	0.001 Mg / L	No relaxation	IC: 2005 Cart 10 1004	
Cadmium as Cd	0.005 Mg / L	0.01 Mg / L	No relaxation	IS: 3025 Part 48 - 1994	
Selenium as Se	0.005 Mg / L	0.01 Mg / L	No refaxation	IS: 3025 Part 41 - 1992	
Arsenic as As	0.005 Mg / L	0.05 Mg/E	No relaxation	15: 3025 Part 56 - 2003	
Dyanide as CN	0.02 Mg / L	0.05 Mg/L		IS: 3025 Part 37 - 1988	
ead as Pb	0.01 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 27 - 1986	
Zinc as Zn	0.02 Mg/L		No relaxation	IS: 3025 Part 47 - 1994	
	TO OF WAYE	5 Mg/L	15 Mg / L	IS: 3025 Part 49 - 1994	

Anionic Delergents as MBAS	0.1 Vig (L	0.2 Mg / .	1.0 Mg / L	APEA 5540 C
Chromium as Cr+6	0.02 Mg / L	0.05 Mg/L	No relaxation	15: 3025 Part 52 - 2003
Minera Oil	3.01 Mg / L	0.01 Mg / L	0.03 Ma / L	IS: 3025 Pert 39 - 1901
A. kalinity	204,00 Mg / F	200 Mg / L	600 Mg / L	IS 3025 Part 23 - 1986
Aluminum as Al	0.005 Mc / L	0.33 Me / L	0.2 Mg / L	IS: 3025 Part 55 - 2003
Boron as B	0.02 Mg / L	1 %a/L	5 Na/12	S: 3025 Part 57 - 2005
Bacteriological Characteristic	s		1 4 13 1	2000
Coliform Organisms	6 CFU	10 CFL	10 CFU	IS: 1622 1981
E. Co.i	Abseni	Absent	Absent	IS 1622 1381

Sample No. SS = 4: Water sample collected from Open Well of Babu Singh Champaval Villager Kakani, Post and Tichsit: Luni, District Indhour

Parameter	Concentration	Standard Drinking water Specification as per IS = 10500:1991 as amendment up to 3 July 2010		Protocol (Test Method)
		Desirable Ulctit	Permissible Limit in absence of alternate source	
1.1.1.1.4 Essential Charac	cteristics-Physical P	arameter		
Color, Hazen Units	< 1	5	1 25	IS: 3025 Part 4 - 1983
Odpur	Ungojodionable	Propioctionable		IS: 3025 Part 5 1983
Taste	Agrecabio	Agreeable		IS: 3025 Part 7.8 -1984
Turbidity, NTU	< 1	5	10	IS: 3025 Par; 10 1984
cll	8.30	6.5 - 8.5		IS: 3025 Part 11 - 1984
Essential Characteristics-Che	mical Parameters	4.4		1010001 011 11 1004
Total Hardness as CaCO3	108.00 Mg / L	300 Mg / L	500 Mg / L	IS: 3025 Part 21 - 1983
ron as Fe	0.02 Mg / L	0.3 Mg / L	1.0 Mo/L	S: 3025 Port 53 - 2003
Chipride as Cl	7.88 Mg / I	250 Mg / L	1000 Mg / L	S: 3025 Part 32 - 1988
Residual Free Chlorine	< 0.1 Mg/L	0.2 Mg / I	- oda mg r c	S: 3025 Part 26 - 1986
Desirable Characteristics-Che	emical Parameters	1		0.3023 / B 120 - 1880
Dissolved Solics	181.00 Mg / L	500 Mg / L	2000 Mg/L	13 3025 Part 16 - 1984
Calcium as Ca	33.80 Wa / I	75 Va/L	200 Mg / L	IS: 3025 Part 40 - 1961
Magnusion as Mg	5.98 Vij / L	30 Mg/L	100 Vg /	IS: 3025 Part 45 - 1994
Copper as Cu	< 0.02 Mg / I	0.05 Mg / L	1.5 Mg / I	IS: 3025 Part 42 - 1992
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	C.3 Mg / L	18: 3025 Part 53 - 2006
Sulphate as SO4	27.22 Mg/L	200 Mc / L	400 Ma/ .	IS: 3025 Part 24 - 1986
Nitrate as NO3	2.79 Mg / L	45 Mg / I	No relaxation	IS: 3025 Part 34 - 1988
Fluoride as F	0.15 Mg / .	1 C Mg/L	1.5 Mg / I	IS: 3025 Part 60 - 2008
Phenblic Compounds as C6H5OH	< 0.001 Mg / I	0.001 Mg / L	C.DUZ Mg / L	IS: 3025 Part 43 - 1991
Mercury as Hg	< 0.2 µg / L	0.001 Mg / I	No relaxation	IS: 3025 Part 48 - 1994
Cedmium es Cd	< 0.006 Mg / L	0.01 Mc / L	No relaxation	IS: 3025 Part 41 - 1992
Selenium as Se	< 0.005 Mg / c	0.01 Vg / 1	No relaxation	IS: 3725 Part 56 - 2003
Arsenic as As	< 0.005 Mg / L	0.05 Ma / L	No relaxation	IS: 3025 Part 37 - 1998
Cyanide as CN	< 0.02 Mg / L	0.35 Ma / .	No relaxation	IS: 3025 Part 27 - 1986
Lead as Pb	< 0.01 Mg/L	0.05 Mo / C	No relaxation	IS: 3025 Part 47 - 1994
Ziricias Ziri	< 0.02 Mg / !	5 Mg/L	15 Mg / L	IS: 3025 Part 49 - 1994
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Na/L	1.0 Mg / L	API A 5540 C
Chromium as Cri-6	< 0.02 Mg/L	0.05 Ma / L	No relaxation:	IS: 3025 Part 52 - 2003
Minera, O I	< 0.01 Mg / L	0.01 Mg / L	0.03 Mg/L	IS: 3025 Part 39 - 1991
A kalimity	124.00 Mg/L	200 Mg/L	600 Mg / L	IS: 3025 Part 23 - 1986
Alurrinum as Al	< 0.005 Mg / L	0.03 Mg / L	0.2 Mg/L	IS: 3025 Part 55 - 2003
Вогол ав В	< 0.02 Mg / L	1 Mg / L	5 Mg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristic			1 v trg / L	10. 3020 Part 37 - 2000
Caliform Organisma	3 CFU	10 OF 9	10 CFJ	IS: 1622 - 1981
E Col:	Absent	Absent	Agsent	IS: 1981

### Analysis Report of Water Along the 3 nos. 400 kV transmission lines (December 2011 to January 2012)

Sample No. 1 (Water sample collected from Pond, Williams, Jajiwal Cableton, Pont, Pont, Jajiwal Cableton, Pont, Po

H.

Porameter	Concentration	age: JajiwalGehlotan, Post: Jajiwal via Mandor, District Standard Ozinking water Specification as per IS ~10500:1891 as amendment up to 3 July 2010		Protocol (Test Method)
		Desirable Limit	Permissible Limit in absence of alternate source	
Essential Characteristics	s-Physical Parameter			
Color Hazen Units	< '	1	25	15: 3025 Part 4 - 1983
Oddur	Unobjectionable	Unobjectionable	*	IS: 3025 Part 5 - 1983
Taste	Agreeable	Agreeable		IS: 3025 Part 7,8 -1984

Turbicity, NTU	2.3	15	10	IS: 3025 Part 10 - 1984
pH	7.75	6.5 - 8.5		IS: 3025 Part 11 - 1984
Essential Character(stics-Che	mical Parameters			
Total Hardness as CaCO3	100.00 Mg / L	300 Mg / L	600 Mg / L	IS: 3025 Part 21 - 1983
lion as Fe	0.02 Mg / L	0.3 Ma / L	1.0 Vg / L	IS: 3025 Part 53 - 2003
Chloride as Cl	57 98 Mg / L	250 Mc / L	1000 Ma / L	IS: 3025 Part 32 - 1959
Residual Free Chlorine	< 0.1 Mg / L	0.2 Mg / L		IS: 3025 Part 26 - 1956
Desirable Characteristics Cha	amical Parameters			
Dissolved Solids	560.00 Mg / L	500 Mg (1	2000 Ma / .	IS: 3025 Part 16 - 1984
Calcium as Ca	30.40 Mg / L	75 Ma / L	200 Mg/ _	IS: 3025 Part 40 1991
Magnesium as Mg	5.88 Me / L	30 Mg / L	100 Mg / L	18: 3025 Part 48 - 1994
Copper as Cu	< 0.02 Mg / L	0.05 Mg / L	1.5 Vg / I	S: 3025 Part 42 - 1992
Wanganesa as Min	< 0.01 Mg / :	0.1 Mg (1	0.3 Vg / I.	S: 3025 Part 59 - 2006
Sulphote as SC4	33.30 Mg / L	200 Mg / L	700 Mg / L	S: 3025 Part 24 - 1986
Nilrate as NC3	8.12 Mg / L	45 Mg / L	No relaxation	S: 3025 Part 34 - 1988
Fluoride as F	1.00 Ng/L	1.0 Mg (L	1.5 Mg / L	IS: 3025 Part 80 - 2008
Phenolic Compounds as C6H5CH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	(S: 3025 Part 43 - 1991
Mercury as Hg	< 0.2 µg / L	3.001 May L	No relaxation	IS: 3025 Part 48 - 1994
Cadmium as Cd	< 0.005 Mg/L	0.01 Mg/L	No relexation	IS: 3025 Part 41 - 1992
Selanium as Se	< 0.005 Mg / I	0.04 Mg / I	No relaxet on	IS: 3025 Part 56 - 2003
Amenic as As	< 0.005 Mg / I	0.05 Mg / L	No relaxation	IS: 3025 Part 37 1998
Cyanido as CN	< 0.02 Mg / L	0.05 Mg / L	No relaxation	15: 3025 Part 27 - 1988
Lead as Pb	< 0.01 Mg / L	0.05 Ma74	Na relaxation	IS: 3025 Part 47 - 1994
Zinc as Zr	< 0.02 Vo / L	5 Mg / L	15 Mg / _	IS: 3025 Part 49 - 1994
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA 5540 C
Chromium as Cr+6	< 0.02 Ma / E	0.05 Mg / _	No relaxation	18, 3025 Part 52 - 2003
Mineral Oit	< 0.01 Mg/L	0.01 Wu/L	0.03 Mg / L	IS: 3025 Part 35 1991
Alkalinity	192.00 Mg / L	200 Mg / L	600 Mp / I.	IS: 3025 Part 23 - 1986
Aluminum as Al	< 0.005 Mg / L	0.03 Mg / L	0.2 Mg / L	IS: 3025 Part 55 - 2003
Boton as E	< 0.02 Mg / L	1 Mg / L	5 Mg/L	IS: 3025 Part 57 - 2005
Bacteriological Characteristic	6			- 1011
Coi form Organisms	B0 CFU	10 CFU	10 CFJ	IS: 1622 - 1981
E. Coli	Absent	Absen.	Absent	18: 1622 - 1981

CFU-Colony Forming Unit

Sample No. 2: (Water sample collected from Bore well of Sukh Ram, Sro ShA Bhagirath Ram, Vitlage: Shroandi, Post and Tohsi . Osiyon, District Jodhpur)

Parameter	Concentration	Standard Drinking water Specification as per 15 –10500:1991 as amandment up to 3 July 2010		Protocol (Test Method)
		Destrable Limit	Parmissible Limit in absence of alternale source	
1.1.1.1.5 Essential Chara	acteristics-Physical Pa	rameler		
Color, Hazen Units	< 1	5	25	IS: 3025 Part 4 - 1983
Odour	Unobject onable	Unobjectionable	(a)	IS: 3025 Part 5 - 1983
Taste	Agreeable	Agreeable		IS: 3025 Part 7.8 -1984
Turbidity, NTU	< 1	5	10	IS: 3025 Part 10 - 1984
pH	7.88	6.5 - 8.5		IS: 3025 Part 11 - 1984
Essential Characteristics-Ch	semical Parameters			
Total Flardness as CaCO3	588.00 Mg / L	300 Mg / 1	800 Mg / _	IS: 3025 Part 21 1983
Iron as Fe	0.08 Mg / L	0.3 Mg / L	1.0 Vg / L	IS: 3025 Part 53 - 2003
Chloride as C	591.82 Mg / L	250 Mg / L	1000 Mg / L	IS: 3025 Part 32 - 1989
Residual Free Chferine	< 0.1 Mg / L	0.2 Mg / L		15; 3025 Part 26 - 1986
Desirable Characteristics-Cf	hemical Parameters			7
Disso vec Solids	3.619.00 Mg / L	500 Mg / ±	2000 Mg / t	IS: 3025 Part 16 - 1984
Calcium as Ca	113.60 Mg / L	75 Mg / _	200 Mg/ _	IS: 3025 Part 40 - 1991
Magnesium as Vig	74,48 Mg / L	30 Mg / !	100 Mg/L	IS: 3025 Part 46 - 1994
Copper as Cu	< 0.02 Mg / _	0.05 Mg / L	15 Mg / L	IS: 3025 Part 42 - 1992
Manganese as Mn	< 0.01 Mg / _	0.1 Mg / L	0.3 Vig / L	IS: 3025 Pert 59 - 2006
Sulphate as SO4	185,06 Mg / L	200 Mg / L	400 Mg/ _	IS: 9025 Part 24 - 1986
Nitrate as NO3	16.82 Mg / L	45 Mg / _	No relaxation	IS: 3025 Part 34 - 1988
Fluoride as F	1.50 Mg / L	1.0 Mg/L	1.5 Mg / L	IS: 3025 Part 60 - 2008
Phenolic Compounds as C8H5OH	< 0.001 Mg / L	0.001 Mg / L	0,002 Mg / L	IS: 3025 Part 43 - 1991
Mercury as Hg	< 0.2 µg / L	0.001 Mg / L	No relaxation	IS: 3025 Part 48 - 1994
Cadmiunt as C6	< 0.005 Mg / L	0.01 Mar / I	No relaxation	IS: 3025 Part 41 - 1992

Selenium as Se	< 0.005 Mg / i.	0.01 Mg / L	No relaxation	IS: 3025 Part 56 - 2003
Arsenic as As	< 0.005 Mg / L	0.05 Vg / E	No velaxation	IS, 3025 Peit 37 - 1998
Cyankle as CN	< 0.02 Mat L	0.35 Mg / _	No relaxation	IS: 3025 Part 27 - 1986
Lead as Pb	< 0.01 Mg/ L	0.05 Mg / L	No relaxation	IS: 3025 Part 47 - 1994
Zinc as Zr	< 0.02 Mg / L	5 Mg / L	15 Mg / L	2S: 3025 Part 49 - 1994
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / I	APRA 5540 C
Chromium as Cr+6	< 0.02 Mg / L	9.05 Mg / I	No relaxation	IS: 3025 Part 52 - 2003
Mineral Oil	< 0.01 Mg / L	0.01 Mg / L	0.03 Mg / L	1St 3025 Part 39 - 1991
Alkalinity	260.00 Mg / L	200 Mg / L	800 Mg / _	IS: 3025 Part 23 - 1985
Albrithum as At	< 0.005 Mg / L	0.03 Mg / L	0.2 Mg / L	IS: 3025 Part 55 - 2003
Boron as B	< 0.02 Mg / L	1 Mg / L	5 Mg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristic	\$		- W 3	NA-
Coliforn Organisms	16 CFJ	10 CF.J	10 CFU	IS: 1622 - 1981
F Call	Absent	Absent	A.5senf	IS: 1622 - 1981

CFU-Colony Forming Unit

Rample No. 3, (Water san ple collected from Bore well of Manish S/s Shri Panna Lai Ji, Village: Amia, Post and Tiens I, Phalod , District Jour pur)

Parameter	Concentration	Standard Drinking water Specification as per IS -10500:1991 as amendment up to 3 July 2010		Protocol (Test Method)
		Desirable Limit	Permissible Limit in absence of alternate source	
1.1.1.1.8 Essential Chara	cteristics-Physical Par	ameter		4//
Color, Hazer Units	< 1	5	25	IS: 3025 Part 4 - 1983
Odour	Jnobjectionable	Unobjectionable	-	IS: 3025 Part 5 - 1983
Tasté	Agresso'e	Acreeable		IS: 3025 Part 7.6 -1984
Turbidity, NTU	31	5	10	IS: 3025 Part 10 - 1984
pH	7.13	6.5 8.5		IS: 3025 Part 11 - 1984
Essential Characteristics-Ch	emical Parameters			
Total Hardness as CaCO3	309.00 Mg / L	300 Ma / L	500 Ma / L	(S: 3025 Part 2) - 1983
Iron as Fc	0.04 Mg / L	0.3 Mg / c	1.6 Mg / L	IS: 3025 Part 53 - 2003
Ohloride as CI	127 96 Mg / t	250 Ma/L	1000 Ma / L	IS: 3025 Part 32 - 1988
Residual Free Chiorine	< 0.1 Mg / L	0.2 Mg/ _		IS: 3025 Part 26 - 1986
Desirable Characteristics-Ch	emical Parameters			
Dissolved Splids	1.245,00 Mg/L	500 Ma / L	2000 Ma / E	13: 3025 Part 16 - 1964
Caldium as Ca	73.60 Mu / L	75 Mg / L	200 Na / L	1S: 3025 Part 40 1991
Magnesium as Mg	28.42 Mg / L	30 Mg / L	100 Nis / L	15: 3025 Part 46 - 1894
Cooper as Cu	< 0.02 Mg / L	0.05 Mo / L	1.5 Mg / L	IS: 3025 Part 42 - 1952
Manganese as Mn	< 3.01 Mg / U	-0.1 Mg /L	0.3 Mg / L	18: 3025 Part 59 - 2006
Sulphate as SO4	77.41 Mg/L	200 Mo / L	400 Mg / L	IS: 3025 Part 24 1986
Nitrate & NO3	13.56 Ma / L	45 Mg / L	Nu relaxation	IS: 3025 Part 34 1988
Fluoride as F	1.16 Ng/ _	1.0 Ma / L	1.5 Mg / L	15: 3025 Part 60 - 2008
Phenolic Compounds as C6H5OH	< 0.001 Mg / L	0.001 Mg / I	0.002 Mg / L	JS: 3025 Part 43 - 1991
Moreury as Fig.	< 0.2 µg / L	0.001 Mg / L	No relaxation	IS: 3025 Part 48 - 1994
Cadmium as Cd	< 0.005 Mg / L	0.01 Mc / L	No relaxation	PS: 3025 Part 41 - 1992
Selenium as Se	< 0.005 Mg / L	0.01 Me / L	No relaxation	IS: 3025 Part 56 - 2003
Arser id as As	< 0.305 Mg / U	0.05 Ma / L	No relaxation	IS: 3025 Part 37 - 1998
Cyanide as CN	< 0.02 Mg / I	3.05 Mg / L	No relaxation	LS: 3025 Part 27 - 1986
Lead as Pb	4 0.01 Mg / L	0.05 Mc / L	No relaxation	IS: 3025 Feet 47 - 1994
7⊌nc as 7r	< 0.02 Mg / L	5 Mp / I.	15 Mg / L	IS: 3025 Part 42 - 1994
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA 5540 C
Chromium as Cr+6	< 0.02 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 52 - 2003
Vineral Oil	< 0.01 Mg / L	0.01 Ma / L	0.03 Mg / L	IS: 3025 Part 39 - 1991
Alkatrity	352.00 Mg / L	200 Mc / I	600 Mg / €	JS: 3025 Part 23 - 1966
Aluminum as Al	< 0.005 Mg/	0.03 Mg / L	0.2 Mg / L	IS: 3025 Part 55 - 2003
Вогон аз В	< 0.02 Mg / I	1 Mu / L	5 Mg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristi	cs		INTEL COLUMN	-91:
Çoliforn Örganisma	18 CFU	10 CPU	10 CFU	TS: 1622 - 1991
E. Coli	Absent	Apsent	Absent	IS: 1622 - 1981

CFU-Colony Forming Unit

Sample No.4: (Water sample obtacted from Govt. Bore well, Village and Post: Askandra, Tensit: Pokharan, District Jaisalmer)

Parameter	Concentration	Standard Drinking water Specification as	Protocol (Test Method)
		per IS -10500:1991 as amendment up to	12
		3 July 2010	

		Desirable Limit	Permissible Limit in absonce of alternate source	
1.1.1.1.7 Essential Chara	cteristics-Physical Pa	arameter		
Color, Hazen Units	14.	15	25	IS: 3025 Part 4 1983
Odour	Unobjectionable	Linobiactionable	-	IS: 3025 Fart 5 - 1983
Taste	Agraeoble	Acreeable	-	13: 3025 Fart 7,8 -1984
Turbidity, NTU	<1	5	10	IS: 3025 Fact t0 - 1984
ol I	7.78	B.5 - 8.6		IS: 3025 Part 11 - 1984
Essential Characteristics-Ch	ernical Parameters	100		
Total Hamness es CaCO3	600.00 Mg / L	300 Mg / _	600 Mg/L	IS: 3025 Part 21 - 1983
Iron as Fe	0.11 Mg/ _	0.3 Mg/L	1.0 Mg / L	IS: 3025 Part 53 - 2003
Chloride as C	404.87 Mg / L	250 Mu / _	1000 Mg / L	IS: 3025 Part 32 - 1988
Residual Free Chlorine	< 0.1 Mg / L	0.2 Vg / L	out may a	IS: 3025 Part 26 - 1985
Desirable Characteristics-Ch		TOTAL ASTA		1.5.3525
Disac yeq Solids	3,081,00 Mg/L	500 Mu / L	2000 Mo./T	(S: 3025 Part 16 - 1984
Calcium as Ca	104.00 Mg / L	75 Mg / L	200 Mg/L	IS: 3025 Part 40 - 1991
Magnesium as Mo	93.30 Mg/L	30 Ma / L	100 Ma / L	IS: 3025 Part 45 - 1994
Copper as Cu	< 0.02 Mg/L	0.05 Mg / I	7.5 Mg / L	.S: 3025 Part 42 - 1992
Manganese as Mn	< 0.01 Mg / I	0.1 Vg / I.	0,3 Mg / L	S: 3025 Part 59 - 2006
Sulphate as \$04	1,52,63 Mg / L	200 Mg/L	400 Ma / L	IS: 3025 Part 24 1986
Nitrate as NO3	173.00 Mg / L	45 Mg / L	No relaxation	5: 3025 Part 34 - 1988
Fluoride as F	1.30 Mg / _	1.0 Va / L	1.5 Mn /	S: 3025 Part 80 - 2008
Phenolic Compounds as	< 0.001 Mc / L	9,001 Mg / L	0.002 Mg / L	St 3025 Part 43 - 1991
C6H5OH		3.44. mg / E	Sibba mg . L	
Mercury as Hg	< 0.2 gg / L	0.004 Mg / L	No relaxation	S: 3025 Part 48 - 1994
Cadmiam as Cd	< 0.005 Mg / L	0.01 Mg / L	No relaxation	.S: 3025 Part 41 - 1982
Selénium as Se	< 0.005 Ma71	0.01 Ma / L	No relaxet on	IS: 3025 Part 56 - 2003
Arsanic as As	< 0.005 Mg / L	0.05 Ma / L	No relevation	IS: 3025 Part 37 - 1998
Cyanice as CN	< 0.02 Mg / L	0.05 Mg / I	No relaxation	IS: 3025 Part 27 - 1986
Cead as I'o	< 0.01 Ma / L	0.05 Mg / L	No relaxation	IS: 3025 Part 47 - 1994
Zinc as Zn	< 0.02 Mg / L	5 Mg / L	*5 Mg/_	IS: 3025 Part 49 - 1994
Anionic Detercents as MBAS	< 0.1 Mp/ _	D2Mq/L	1.0 Mg / _	APHA 5548 C
Chromium as Cr+6	< 0.02 Mg / L	0.05 Ma / L	No relexation	IS: 3025 Part 62 - 2003
Mineral Or	< 0.01 Mg / L	0.01 Ma / L	0.03 Mg / L	IS: 3025 Part 39 - 1991
Alkalinity.	340.00 Mg / L	200 Ma/ _	500 Ma / L	IS: 3025 Part 23 - 1986
A urtinum as Al	< 0.005 Mg / L	0.03 Mg / L	0.2 Mg / L	IS: 3025 Part 55 - 2003
Boron as B	< 0.02 Mg / L	1 Mg / L	5 Mg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristi	cs			
Col form Organisms	13 CFU	10 CFU	10 CFU	IS: 1622 - 1991
E. Coli	Absent	Absent	Apsen1	IS: 1622 - 1981

Sample No.5: (Water sample collected from Water Tank of Rabu Singh Size Shiri Bagh Singh, Villager Tanusar, District Jaisailiner)

Parameter	Concentration	Standard Drinking -10500:1991 as an	Protocol (Test Malhod)	
		Desirable Limit	Permissible Limit in absence of elternate source	
1.1.1.1.8 Essential Char	acteristics-Physical Pa	rameter		
Color, Hazen Units	< 1	15	25	IS: 3025 Part 4 - 1983
Odour	Unobjectionable	Unopiectionable	9	IS: 3025 Part 5 - 1883
Tasto	Agreeable	Agraeable		IS: 3025 Part 7,8 -1984
Turbidity, NTU	<1	5	10	IS: 3025 Part 10 - 1994
рЧ	7.39	65-9.5		IS: 3025 Part 11 - 1994
Essential Characteristics-Cl	homical Parameters			
Total Hardness as C2CO3	344.00 Mg / L	300 Mg / I.	600 Mg / L	IS: 3025 Part 21 - 1983
Iron as Fe	0.04 Mg / L	0.3 Ma / L	1.3 Mg / L	IS: 3025 Part 53 2003
Chloride as Cl	33.98 Mg / L	250 Mg / L	1000 Mg / L	IS: 3025 Part 32 - 1988
Residual Free Chlorine	< 0.1 Mg / L	0.2 Mg/L		IS: 3025 Part 26 - 1988
Desirable Characteristics-C	hemical Parameters		-4	
Dissolved Sollds	748.00 Ma71	500 Mg / L	2000 Mg / L	IS: 3025 Part 16 - 1984
Calcium as Ca	97.60 Mg / L	75 Ma / L	200 Mg / L	IS: 3025 Part 40 - 1991
Magnesium as Mg	24.50 Mg / 1	30 Mg / L	100 Mg / L	IS: 3025 Part 46 - 1994
Copper as Cu	< 0.02 Mg / L	0.05 Mg / L	1.5 Mg / L	IS: 3025 Part 42 - 1992
Manganeso as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	IS: 3025 Part 59 - 2008
Suiphate as SO4	49.97 Mg / L	200 Ma / L	400 Mg / L	IS: 3025 Part 24 - 1956
Nitrate as NO3	13.95 Mg / U	45 Mc / L	No re:axation	IS: 3025 Part 34 - 1988

Fluorice as <sup>e</sup>	0.55 Mg / L	1.0 Mg / L	1,6 Mg / L	S: 3025 Part 60 - 2006
rhervlig Com <b>pound</b> s <b>5</b> 5 C6H5ÖH	<0.001 Mg/L	0.001 Mg / E	0.002 Mg / L	IS1 3025 Part 43 - 1991
Mercury as Hg	< 3.2 µg / L	0.001 Mg / 5	No relaxation	IS: 3025 Part 48 - 1994
Cadmium as Od	< 0.005 Mg / _	0.01 Mg / L	No relaxation	ISt 3025 Part 41 - 1992
Selemum as Sa	< 0.005 Mg / L	0.01 Mg / L	No relaxation	IS: 3025 Part 56 2003
Arsonic as As	< 0.005 Mg / L	0.05 Mg/L	No relaxation	IS: 3025 Part 37 - 1998
Cyanido as CN	< 0.02 Mg / L	0.05 Mg / L	No relaxation	(S: 3025 Part 27 - 1986
Lead as Pb	< 0.01 Mg / L	0.05 Mp / L	No relaxation	18: 3025 Part 47 - 1994
Zinc as Zr	< 0.02 Mo / _	5 Mg / L	16 Mg / L	IS: 3025 Part 49 1994
Anion o Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	10Ma/L	APHA 5540 C
Chromium as Cr+6	< 0.02 Mg/ _	0.05 Mg / L	No relaxation	IS: 3025 Part 52 - 2003
Mineral Oil	< 0.01 Mg / L	0.01 Ma / L	0.03 Mg / L	IS: 3025 Part 39 - 1981
A kalinity	240.00 Mg / L	200 Mg / L	600 Mg / I	IS 3025 Part 23 - 1980
Auminum as Al	< 0.005 Mg / L	0.03 Mp / L	0.2 Mg / L	IS: 3025 Part 65 - 2003
Boron es 6	< 0.02 Mg/T	1 Mg / 1.	5 Wg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristic	cs			
Celiforn Organisms	23 CFU	10 CFU	10 GFU	15: 1622 - 1981
E. Cai	Assent	Absent	Janesda	IS: 1622 1981

CFU Colony Forming Unit

Same a No.5 (Water sample collected from Govt, Bore welf, Village: Joshlyan (Harda), Post: Kanod, Tehsii: and District Jassimer)

Psramotor	Concentration		Standard Drinking water Specification as per IS — 10500:1991 as amendment up to 3 July 2018		
		Desirable Limit	Permissible Limit in absence of alternate source		
1,1,1.1.9 Essential Chara	cteristics-Physical P	arameter			
Color, Hagen Units	5.1	5	25	IS: 3025 Pari 4 - 1983	
Odour	Unobject chable	Unobjectionable		IS: 3025 Part 5 1983	
Taste	Agreeable	Agreeable		IS: 3025 Part 7,6 -1984	
Furbidity, NTL	< 1	5	10	IS: 3025 Part 10 - 1984	
рН	7.71	6.5 - 8.5	4	IS: 3025 Part 11 - 1984	
Essential Characteristics-Cha	errical Parameters			- Automotive control	
Total Perdness as CaCO3	396,00 No / L	300 Mg / L	900 Mg / L	IS: 3025 Part 21 - 1963	
Iron as Fe	0.09 Mg / I	0.3 Nu / L	1.0 Mg / L	IS 3025 Part 53 - 2003	
Chloride as Ct	427.87 Mg / t	250 Mg / L	1000 Vg / L	IS: 3025 Part 32 - 1988	
Residual Free Color ne	< 0.1 Mg / L	0.2 Na / L		IS: 3025 Pert 25 - 1986	
Desirable Characteristics-Ch	emical Parameters			No.	
Dissolved Solids	3 161,00 Mg / L	500 Mg / u	2000 Vg / L	IS: 3025 Part 16 - 1984	
Calcium as Ca	84.80 Na / L	76 Mg / L	200 Mg/L	IS: 3025 Part 40 - 1991	
Megnesium as Mo	45.08 Ma / L	30 Mg / I	100 Mg / L	IS: 3025 Part 46 - 1994	
Cooper as Cu	< 0.02 Ma / L	3.05 Mg/L	1.5 Ma / L	13: 3025 Part 42 - 1992	
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0,3 Mg / L	IS: 3025 Part 59 - 2008	
Sulphate as SO4	173.52 Mc / _	200 Mg / L	400 Mg / L	IS: 3025 Part 24 - 1986	
Nitrato as NO3	0.74 Mg / L	45 Mg / I	No relaxation	IS: 3025 Part 34 - 1988	
rluoride as F	1.72 Mg / L	1.0 Mg / I	1.5 Mg / L	S: 3025 Part 60 - 2008	
Phenolic Compounds as C6H5OH	< 0.001 Mg / L	3,001 Mg / L	0.002 Mg / L	iS: 3025 Part 43   1991	
Mercury as Ho	< 0.2 go / L	0.001 Mg / L	No relaxation	IS: 3025 Part 48 - 1994	
Cadmium as Cd	< 0.005 Mg / L	0.01 Mg/L	No relaxation	IS: 3025 Part 41 - 1992	
Selenium as Se	< 0.005 Mg / L	0.01 Mg / L	No relexation	IS: 3025 Part 56 - 2003	
Arsenic as As	< 0.005 Mg / E	0.05 Mg / L	No relaxation	IS: 3025 Part 37 - 1998	
Cyanide as CN	< 0.02 Mg / L	0.05 Mg / I	No relexation	IS: 3025 Part 27 - 1966	
Lead as Pb	< 0.01 Mg / L	0.08 Mg / I	No re exation	19: 3025 Part 47 - 1994	
Zinc as Zri	< 0.02 Mg / 1	5 Mg / .	15 Mg / L	IS: 3025 Part 49 - 1994	
Anionic Determents as MBAS	< 0.1 Mg/L	C.2 Mu / L	1.0 Mg / C	APHA 5540 C	
Enramium as Cr+8	< 0.02 Mg / _	0.05 Ma / L	Ne re-axistion	IS: 3025 Part 52 - 2003	
Mineral Oil	< 0.01 Mg / c	C.01 Mg / L	0.03 Mg / L	IS: 3025 Part 39 - 1991	
Alkalinity	452.00 Mg / L	200 Mg / L	600 Ma / L	IS: 3025 Part 23 - 1986	
Aluminum as Al	< 0.005 Mg / L	0.03 Mg/T	0.2 Mg / L	IS: 3025 Part 55 - 2003	
Boron as B	< 0.02 Mg / L	1.Mg / .	5 Ma / L	18: 3025 Part 57 - 2005	
Bacteriological Characteristic		-			
Collform Grganisms	10 CFU	10 CFU	10 CFU	IŞ: 1022 - 1981	
E. Coli	Absort	Absent	Absent	IS: 1622 - 1981	
The state of the s					

CFU-Colony Forming Unit

Sample No.7. (Noter sample collected from Govt. Sore well, Village and Post: BhaguKaGaon, Tehsil and District: Jalsaimer)

Parameter	Concentration	Standard Drinking 10500:1991 as am	9 water Specification as per IS - endment up to 3 July 2010	Protocol (Test Method)	
		Desirable Limit	1.1.1.1.10 Permissible (innit in absence of alternate source		
1.1.1.1.1 Essential Char	acteristics-Physical f	Parameter	alletriale source		
Color, Hazen Units	<1	5	1		
Odour	Unobjectionable		25	IS: 3025 Part 4 - 1983	
Taste	Agreeable	Unobjectionable		IS: 3025 Part 5 - 1983	
Turc dity_NTU	< 1	Agreeable	-	IS: 3025 Part 7,8 -1984	
Hq	8.22	5	10	IS: 3025 Part 10 - 1954	
Essential Characteristics-Ch	nomical Darameters	6.5 - 8.5	-	IS. 3025 Part 11 1984	
Total Hardness as CaCO3	120.00 Mg / L	T-resource -		1007	
Iron as Fe	< 0.01 Mg / L	300 Mg / _	600 Mg / L	IS: 3025 Part 21 - 1983	
Chloride as CI	129.96 Mg / L	0.3 Mg / L	1.0 Mg / L	IS: 3025 Part 53 - 2003	
Residual Free Chlorine	129.96 Mg / L	250 Mg / L	1000 Mg / L	IS: 3025 Part 32 - 1988	
Desirable Characteristics-Ci	< 0.1 Mg/L	0.2 Mg / L		IS: 3025 Part 26 - 1986	
Dissolved Solids	iemical Parameters		- Viller on the Viller	1 0020 F dit 20 - 1900	
Calcium as Ca	1,455.00 Mg /	500 Mg / L	2000 Mg / L	IS: 3025 Part 16 - 1984	
	24.00 Mg / L	75 Mg / I	200 Mg / L	IS: 3025 Part 40 - 1991	
Magnesium as Mg	14.70 Mg / L	30 Mg / L	100 Mg / L	IS: 3025 Par: 46 - 1994	
Copper as Cu	< 0.02 Mg / L	0.05 Mg / L	1.5 Mg / L	.S: 3025 Part 42 - 1992	
Manganese as Vin	< 0.01 Mg / _	0.1 Mg/L	0.3 Mg / L	15: 3025 Part 42 - 1992	
Sulphate as SO4	121.67 Mg / L	200 Mg / L	400 Mg / L	15.5025 British 2006	
Nitrate as NO3	0.32 Mg / L	45 Mg /	No relaxation	IS. 3025 Part 24 - 1986	
Fluoride as F	1.86 Mg / L	1.0 Mg / L	1.5 Mg / L	IS: 3025 Part 34 - 1988	
Phenolin Compounds as CGH5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / I	IS: 3025 Part 60 - 2008 IS: 3025 Part 43 - 1991	
Mercury as Hg	< 0.2 µg / L	0.001 Mg / I	No relaxation		
Cadmium as Cd	< 0.005 Mg/L	0.01 Mg / L		IS: 3025 Part 49 - 1994	
Selenliim as Se	< 0.005 Mg / L	0.01 Mg / L	No relaxation	IS: 3025 Part 41 - 1992	
Arsenic us As	< 0.005 Mg / L	0.05 Mg / L	No refaxation	IS: 3025 Part 56 - 2003	
Cyanide as CN	< 0.02 Mg / L	0.05 Mg / L	No relaxation	IS: 3023 Part 37 - 1998	
ead as Fh	0.01 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 27 - 1986	
linc as Zn	< 0.02 Mg / L	5 Mg / L	No relaxation	IS: 3025 Part 47 - 1994	
Inionic Detergents ∞: MBAS	< 0.1 Mg / L	0.2 Mg / L	15 Mg / L	IS: 3025 Par: 49 - 1994	
thromium as Creō	-: 0.02 Mg / L	0.05 Mg / L	1.0 Mg / L	APHA 5540 C	
Mineral Off	< 0.01 Mg / L	0.03 Mg / L	No relaxation	IS: 3025 Part 52 2003	
lkalinity	364.00 Mg / L	0.01 Mg / L	0.03 Mg / L	IS: 3025 Part 39 - 1991	
luminum as Al	< 0.005 Mg / L	200 Mg / L	600 Mg / L	IS: 3025 Part 23 - 1986	
oron as B	< 0.02 Mg / L	0.03 Mg / L	0.2 Mg / L	15: 3025 Part 55 - 2003	
acteriological Characteristic	S S	1 Mg / L	5 Mg / L	IS: 3025 Port 57 - 2005	
oliform Organisms	26 CFU	10.001		area Sea	
Coli	Absent	10 CFU	10 CFU	IS: 1622 - 1981	
	- miorall(	Absent	Absent	IS: 1622 - 1981	

## Significance of Water analysis

Parameter	Results	Desirable Limit	Permissible Limit in absence of alternate source	Instrument Detection Limit	Undesirable effect outside the Desirable Limit
Color, Hazun Unils Turbidity, NTU	< 1	5	25	1	Above 5 consumer scoeplance decreases
Residual Free Chicrine	< 1	5	.0		Above 5 consumer acceptance decreases
	< 0.1 Mg / L	0.2 Mg / L		0.2 Mg / _	To be applicable when water is chlorinated
Copper as Cu	< 0.02 Mg / L	0.05 Mg /	1.5 Mg / L	0.02 Mg / _	Encrustation in water supply structure and adverse effects on domestic use
Mangenese ss Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	0.01 Mg / I	Beyond this limit laste/appuarance are affected, has adverse effect on domestic
henolic Compounds is C6H5OH	< 0.001 Mg / L	0.001 Mg 7L	0.002 Mg/	0.001 Mg / L	Beyond this, it may cause
Mercury as Hg	< 0.2 µg / L	0.001 Mg/L	No relaxation	0.2 up / 1	objectionable taste and odour Beyond this, the water becomes

					toxic
Cadmium as Cd	< 0.005 Mg 7 L	0 01 Mg/L	No relexation	0,005 Mg/1	Reyand this, the water becomes taxio
Selénium as Se	< 0.005 Mg	0.01 Mg/L	No relaxation	0.005 Mg / L	Beyond this, the water becomes toxic
Arsenio 95 As	< 0.005 Mg	0.05 Mg / L	Vo relaxation	0.005 Mg / L	Boyond this, the water becomes texts
Cyanide as CN	< 0.02 Mg / L	0.05 Mg / U	No relaxation	0.02 Mg / L	Beyond this, the water becomes toxic
Lead as Fb	< 0.01 Mg /	0.05 Mg / L	No rélaxation	001 Mg/L	Beyond this, the water becomes texic
Z nç aş Zn	< 0.02 Mg / -	5 Mg / L	15 Mg / L	0.02 Mg / L	Beyond this limit it can cause astringent taste and an opglescence in water
Anionic Detergents as MBAS	< 0.1 Mg /	5.2 Mg / L	1.0 Mg / I	01Mg/L	Beyond this limit it can cause a fight froth in water
Chromium as Cr+6	< 0.02 Mg /	0.05 Mg / L	No relexation	0.02 Mg / i	May be cardinogenic above this limit
Mitteral O :	< 0.01 Mg / L	0.01 Mg/L	6.63 Mg/L	0.01 Mg / L	Beyond this timit under rable taste and odour after chlorination take prace Toxic
A amirum as A	< 0.005 Mg / L	0.03 Mg / L	0.8 Mg / L	0.035 Mg / L	Beyond this limit taste becomes unpreseant Cumulative effect is reported to cause dementia
Boion as B	< 0.02 Mg /	1 Mg/_	5 Mg / C	0.02 Mg / L	

# Annexure 4: Tata Projects Limited Reply to RVPNL Letter dated 19.02.2016 regarding EMP issues



Rol: TPURVPN/R ANCIL-5/248

t<sub>o</sub> The Superintending Engineer (Contracts is

RVPN-MM Building of RVPN Old Power House Premises, Near Pain Mandir,

Bani Park, Jaipur-302006

Open zero

Construction of Approximal Two ACSR Moose Transmission uns Port (Karriguette, Aker

Date: 09.09.2016

Reference

SVPIKISE (PAREAKENIASB-ILVIOS-GEDOST UNIEC 16 02 2016.

Subject

Dear Sir.

With reference to the above kindly where that Essentrimental and Social Mindows grouped is sixteey supported after visit of ACS delegates at our site and implets enter the improvement suggested by the AUG kramilitie have taken the following action on euggested improvements-

class cycloséra any beind cised to avera the usage of wood for cooking.

2 caper soutroply-incavered material is being kept minimum 1,5M away from excepted bit and proper barricating olde is being used for salety preceditions

3. At Workthape with closes, wis habe play deal Total facilities to our workthen.

4. Elizare the strict edifierence of Edimporisont Management plan.

This is for your kind reference and records.

Thanking you and assuring you of our best services at those

Yours Faithfully

For Tata Projects Limited . .

Kommi Sivit Kumar

Selidor Manager (Projects)

Copy to 1. The Superintensing Engineer (T&C): RMPN Januarrich

TATA PROJECTS LIMITED

Ground Harri, Tower-B, Green Boulevains Plot tex, 8-9/4 Sector-67, Nolda-201307, Uttar Pradesh Frenc 491-120-619 9999 Fax:+91-120-619 9990

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## **Environmental Safeguards Document**

## **Environment Monitoring Report**

400 kV D/C LILO of Jodhpur - Merta Transmission Line to Bhadla (ICB-6)

Project Number: 45224 (IND)
Period – March 15 – March 16.
Reporting - April 2016

India: Rajasthan Renewable Energy Transmission Investment Program

Prepared for Asian Development Bank by Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL), Government of Rajasthan.



The environment monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or stoff, and may be preliminary in nature.

### **Environment Monitoring Report**

## Compliance Status & Monitoring Report of Environment Safeguards

Period: March 2015 - March 2016

Submitted by: Rajasthan Rajya Vidyut Prasaran Nigam Limited, Rajasthan

#### Table of Contents

S.No.	CONTENT	PAGE
A	Project Information	3
1.	General	3
2.	Sub-Project Details	3
3.	Overall Project Progress, Agreed Milestones and Implementation Schedules	3
В	Environmental Safeguards	4
1	Compliance status with netional/state/local statutory environmental requirements and international standards	4
2	General Implementation Status	5-6
2.1	Forest Clearance	5
2.2	Fulfillment of Commitments made during of Public Hearing/Consultation	5
2.3	ADB Stipulation/Safeguarding Measures	5
2.4	Record of Complaints (Regarding Environment Safeguard Measures) and their Resolution	6
2.5	Staffing, Institutional Arrangements and Grievance Redress	6
2.6	Other measures	6
2.7	Defail of any infrastructure development work done at project affected area	6
2.8	Annexures	Ô
3.	Status of Implementation of Environment Management Plan (EMP)	7-20
3.1	Environment Management Plan and Status on Implementation	7-17
3.2	Environment Monitoring Plan and Status on Implementation	18-20

#### Abbreviations

	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
A.⊇'s	Affected Persons
Cło	Construction of
Deptt.	Department
Distt.	District
FCA	Forest Conservation Act
GIS	Gas Insulated Switchgean
Gol	GovI of India
GRC	Grievance Redressal Committee
Ha.	Hectare (10,000 sq. m. land)
IE Rule	Indian Electricity Rule
MOEFCC	Ministry of Farest, Environment and Climate Change
MPAE	Main Project Affected Family

### Project Information

### A.1, General

1	Name of Project	Rajasthan Renewable Energy Transmission Investment Program
11	Loan Number	Loan 3052-IND; Rajasthan Renewable Energy Transmission Investment Program - Tranche 1
II	Name of Monitoring/Reporting Agency and address	RRVPNL/New Power House , Jodhpur – 342003
1.1	Monitoring Period (Season/month)	March' 2015 to March' 2016
V	Report No.	01
٧.	Report for the period	March' 2015 to March' 2016
VI	Date of reporting	6" Sep 2016.

## A.2. Subproject details

	List of sub-projects	Name of the Project site
1	400 KV D/C Bhadla to Jodhpur Transmission Line. (ICB 6)	400kV D/C TWIN ACSR Moose Transmission Line from BHABLA (Jaisalmer) to JODHPUR -MERTA LILO POINT under specification No. RRVPN / ADB / Trancha 1/ICB-6 (Supply & Service contract) to M/s Tata Projects Ltd.

## A.3. Overall Project Progress, Agreed Milestones and Implementation Schedules

S No	Name of sub-project	Progress as on date of Report	Implementation Schedule
1	Detailed Survey including Check survey.	197 Kms	March' 2015 to January' 2016
2	Foundation including backfilling.	282 Nos	May' 2015 to March'2016
3	Erection.	217 Nos	July' 2015 to March' 2016
4	Stringing.	Not started	

# B.1: Compliance Status with National/State/Local Statutory Environmental Requirements and international standards

S No	Legal Requirements/Acts/Rules/Gul defines	Applicable Attributes	RRVPNL's Compliance Status		
1	The Water (Prevention and Control of Pollution) Act. 1974 as amended;	Water Pollution	Preventive measures are being adopted to avoid such pollution. Report shall be submitted by September'2016.		
2	The Air (Prevention and Control of Poliution) Act, 1981	Air Pollution	Preventive measures are being adopted to avoid such pollution. Report shall be submitted by Sep'2016.		
3	The Environment (Protection) Act, 1986	Construction Practices	Report shall be submitted by Sep 2016.		
4	The Environment Impact Assessment Notification, 1994 as amended	EMP menitoring	Report shall be submitted by Sep 2016.		
Ş	The Hazardous Wastes (Management and Handling) Rules, 1989 as amended	Transformer Oil	Not applicable		
6	The Ozone Deploting Substances (Regulation and Control) Rules, 2000	Cleaning of electrical contacts using Hi Cs etc.	Not applicable		
7	The Batteries (Management and Handling) Rules, 2001 as amended	Batteries	Not applicable		
3	The Indian Forest Act, 1927 as amended	Reserve Forest areas, Right of way	Forest Land is not involved; we have avoided the forest area in complete Line. Line is more than 1.0 Kms away from Forest Land.		
9	The Wild Life (Protection) Act, 1972 as amended	Critical habitats	No Wild life is involved in Project. Lice is more than 4-5 Kms away from Forest Land.		
10	The Biolog.cal Diversity Act, 2002	Wetland	No Wetland is Involved.		
11	The Forest (Conservation) Act, 1980 as amended	Construction work in farest areas	Fores: Land 's not involved; we have avoided the forest area in complete Line. Line is more than 1.0 Kms away from Forest Land		
1.2	The National Environmental Policy, 2006 of Gol	Construction Practices	GOI norms for environmental management followed for all construction work		
13	Other State Level Acts	Compensation	Compensation as per RRVPNL and state Revenue department.		
14	Other international levels conventions and treaties	Biodiversity, GHC emissions	Not being affected,		

## B.2: General Implementation Status

B.2.1. Forest Clearance.

SNo.	Measures/ stipulation	Compliance Status
1 22	Sub-Project #	CLASSIC THE STATE OF
1	Right of Way/ land required	23 Mtr either side of the central line, corridor width 46 mtrs, as per approved RVPNL tower schedule.
2	Clearance from trees	8.840 Kms, as per approved RVPNL tower schedule.
3	Forest area and Nos. of trees.	No Forest land is being involved. No trees being affected during the Foundation and erection work. During the stringing work no trees shall be cut, only trimming of branches shall be done.
4	Damage to forest	No damage shall be done to forest area.
5	Wild life sanctuaries	No Wild life is involved in Project. Line is more than 4-5 Kms away from Forest Land.

B.2.2. Fulfillment of commitments made during Public Hearing/Consultation

S.No.	Query/Apprehension	Commitment	Compliance Statement
Res Se	Sub-project #	· 医阿姆克特氏病	小孩子。\$P\$ - 100 - 1
1	Compensation for crop	As per EPC contractor bid	All seasonal cultivated crops if damaged during the work compensated as parithe RVPN/State Revenue department.
2	Compensation for land damages	As per EPC contractor bid	No land is damaged during the construction of line.
3	Compensation for pathways, channels for waterway.	Restoration after prection by EPC contractor	Till date no pathways, channels for waterways have been affected during the work. If affected, they shall be restored properly
1	Nulsance due to dust, noise, vibrations, labor during construction	As per EMP implemented by EPC contractor	Preventive actions are being adopted to avoid such nuisance. No reported dust, notse, vibrations, and labor problems currently Report shall be submitted by Sep'2016.

B.2.3. ADB Stipulations/ safeguarding measures on Environment

SNo.	Product Activity/Stage	Parameter to be monitored	Compliance Status
Territor.	Sub-Project#		TO THE REPORT OF THE PROPERTY OF THE PARTY O
	Construction		
1	Archeological site/ monument safety	Chance find	Not involved
2	Public places, schoots, ponds, airport, railway etc.	Distance 500 m away	No school, ponds have been affected Proposal has been submitted to concerned authority.
3	Safeguard against critically endangered Flora and fauna.	Avaid	We have strictly avoided the Flora and Fauna.
4	Rain and Flood prone area.	Avoid	We have avoided the Flood zone area in the entire transmission line.
5	Environmental parameters for air, noise, land and water during project construction	Environmental Monitoring Plan	Report shall be submitted by Sep'2016.

B.2.4 Record of complaints (regarding environment safeguard measures) and their resolution

Sr.No	Complainant Name and address	Date of receipt	Subject/lasue	Date of resolution	Remarks				
	Sub-Project#								
	As on date no compla	int has been receive	ed						

B.2.5. Staffing, Institutional Arrangements and Grievance Redress

S.No.	Parameters	Commitment	Compliance Statement
1	Numbers of Staff deputed/employed for environment safeguards	One at site.	01 safety Officer at 300 no of tower erection.
2	PIU established as per proposed institutional mechanism	Date	05.05.2015
3	GRC formation	Date	30.10.2015
4	Griévance Redress Mechanism followed	Proper record	No Tree cutting Involved, Currently no environment related grievances received.

B.2.6. Other measures:

12	Sub-Project#
1	At Workplace like stores, we have provided Toilet facilities to our workmen.
2	Gas cylinders are being used to avoid the usage of wood for cooking.
3	Good quality water is being provided for drinking, cooking and bathing purpose.
4	Control of dust near habitats for top soil being stored near foundations using covering sheets.

B2.8 Annexures

12 de	Sub-Project#
1	Photographs of the following – foundation construction, tower erection, stores, toilets, drinking water, kitchen, safety workshop, training material for HSE, flora fauna etc.
2.	RVPNL Letter dated 19.02.2016 regarding EMP issues
3.	Baseline Report of Environmental Parameters (Pre-construction)
4.	Tata Projects Limited Reply to RVPNL Letter dated 19.02.2016 regarding EMP issues: Remedial measures take from Tata Projects in response to Annexure 1 and 2 above.

### B.3: Status of Implementation of Environment Management Plan (EMP) and Environment Monitoring Plan (EMOP)

Environment Management Plan and Status on Implementation Project Mitigation Action Standards Potential **Actions** during Climulative Corrective Further Follow-Institutional Activity Environmental reporting period Progress to Actions perjuper qu Responsibilit Impact (incl. corrective) date Required Pre-construction ...... Temparary use knower to the Selection of lands water and air. Route has been 282 Excess soil Need to RRVPNL of and existing. echanne to local qua**si**ty. selected in a manner after charita'n up to environment lews and to avoid the foundation completion of regulations interference of such keet on band ្រាញអង្គា Construction amenities. of field same facilities should be la regular placed at least practice at 500 m away from £ be. water budies. natural flow paths, important acological habitats and residential. areas Substation Noise Supstation Expected location and general on designed to ROISE design Exposure to ensure noise will emissions. noise, not be a nuisance. based on Nuisance to substation. Not Applicable neighboring design, propunies ncise levels D'attighance Maintained Setbacks to to the elsupats houses and adjacent. clearance other kands and the construction of Structures. gocole due to retaining cut and fill structures, operations minimise cut and fill operations acjoining to the awellinga

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Actions Required	Further Follow- up required	Instituționa Responsibi V	
Location of transmission towers and transmission the alignment and design	Exposure to safety (thated	Selback of dwellings to overneed line route designed in accordance with parmitted level of power frequency and the regulation of supervision at a tes.	Tower lecation and line slignment seinction with respect to nearect dwallings	tower Locations have been selected to swoid the overhead crossing of bouseholds/dwellings. Line is minimum 500 Mit away from such dwelling area.	197.107K M	AS Min comider from center of tower is mainly incontaining survey work to award pouses also applications water reserve.	Need to maintain v5 to campletion of project.	RRYPNL	
	Impact or water bodies / land/ residences	Consideration of site location to avoic water bodies or agricultural land as much as possible.  Careful site selection to avoid existing settlements	Site location, line alignment selection (dislance to dwelling, water and/or agricultural land)	All the water codies/dwallings are nore than 900 mins away from the Line.	282 Nas	46 Mitricomider from centar of towart is manufacturing survey work to avoid houses & for 500 intritor walter reserve	Need to maintain up to completion at project.	RRVPNL	
Equipment specifications and design persimaters	Release of chemicals and harmful gaset in receptors (all, water, land)	PGBs free substation frensformers of strait project foul ties on equipment.	Tansformers and specifications and compliance with setback distances ("as-auili" diagrams)	Not Applicable					
Encroachment into precious ecological areas	Loss of predicts acclogical values/ damage to predicts species	Avoid encroachment by careful site and alignment selection and reconnaissance before final siting of activities. Minimise the RoW wherever possible	Floral and faunal hapitets loss	Route has been si ntarmer to avoid si ancroachments, No ecological area involved	uch	Entire line passing away from flora & funa / forest area/ NOC had taken before starting of project.	Non	RRVPNL	

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Comutative Progress to date		Further Follow- up required	Institutional Responsibilit
Involuntary resettlement or land acquisition	Loss of lands and structures	Compensation pale for remporary/ permanent loss of productive land	Public winplants	No land is damaged during the construction of TI Comper solunt shall be paid for the cultivated crop damaged	8	Lend Acquisition not done in project for carrying bull the years.	Crop compensation and ty baild to affected land owners	RRVPNL
Encroachment Into fermiano	Loss of agricultural productivity	Use existing lower luctings/towers wherever possible	Tower location and I no alignment ae,ection	Compensation is for the cropitree of during construct :	damaged	282	Non	RRVPNL
		Avoid sting new towers on familiand wherever possible	Dosign of Implementation of propland trea companies ion (based on affected area)					
		Farmers compensated (or any permanent loss of productive land and trees that rough to be trimmed or removes along RoW.	Statutory approvate for free fring ming free free free free free free free free	During foundation work no trees are		262	Non	RR∀PNL
nterforence with drainage patterne/knigat on chennels	Temporary flooding trazardsfloss of agricultura: production	Appropriate sighting of towers to avoid channel interference.  Appropriate drawision or excess so'll dug up from the foundations/tranches.	Site ocation and line a ignment selection	Towers are being aelected/spoked in a manuer to avoid such channels		282	Kon	RRVPNL
FxalosiogwFipe	Hazartis la	Design of	Substation			NA		

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date		Further Follow- up required	Institutional Responsibilit Y
	life	substations to another control systems? Ireways of firefighting equipment to be to be to be formers, power generation equipment.	designs compliance with fine prevention and control codes	Nội applicative				
Construction			The state of the state of	The state of the s	States 20th	1000		
Removal or disturbance to other public at lities	Public nconvenienc	Advance notice to the public arou: the time and the disabout of the utility disaboun.  Use of well trained and experienced machinery operators to reduce accidental damage to the public Unities.  Restors the utilities.	Disruption to other commercial and public acts, ties / Public complaints	As an date there has been no disruption.  If any, there shall be advance information published into the local newspaper for electric utility shutdown.		217	Advance publishe News papers	d in local RRVPNL
		in medialely to overcome public inconvenience						
Acquisition of cultivable lands	Loss of egricultural productivity	Avaid faming season who over presible for the proport activities	Landlarda of agriculture loss Usage of	We have avoided the work for the locations where there is terming season.	282	k il	NiI	RRVPN.
		Ensure existing impation facilities are maintained in working condition	existing utilities Status of tecilities	Where required to the compensation has been provided to the farmers for the loss of cultivated crop.				

Project Activity	Potenția) Environmental Impact		Standards	Actions ouring reporting pariod (incl corrective)	Cumulative Progress to date		Further Follow- up required	Inetitutional Responsibilit	Š
		topsoil and reinstate after construction completed. Repair /reinstate demaged bunds atc. efter construction completed.	m*) Implementati on uf crop compensat o r (amount paid, dates etc.)	Top soil is restored during the back filling work.					п
		Compensation for tomporary loss in agricultural production.		ů.					
Temporary outage of the allactricity	Loss of power supply to the local community when distribution (ines crossing the new transmission line are extiched off	Advance notice to the public about the time and the duration of the utility disruption.  Restore the utilities immediately to overcome public linconyenience.	Power disrupt on to houses and commercial pierrises of power disruption	As on date there has been no disruption. If any, there shall be edvance information published into the local newspaper for electric utility shutdown.	217	Nil	Ni	RRVPNL	
Eculpment layuut and inscallation	Noise and vibrations	Selection of construction techniques and machinery to minimize ground disturbance.	Construction techniques and machinery	All locations are more than 600 mt/ sway from the residential afeas and all activities have been carried out during the day time.	Foundation - 262 Erection – 217	Ķil	Kil	RRVPNL/TP L	
	SF6 leakage outing storage and erection of Switchgear	Record of all substation switchgear, etorage cylinders tocated within secure casings	Switchgear casings and substation bounding	Not applicable					
Substation construction	Loss of soil	Fill for the substation foundations obtained by creating or	Borrow area sighting (ayea of site in mi and estimate a	Not applicable					es:

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow- up required	Institutional Responsibilit V
		improving local drain system.	volume in m³)					
	Interference in drainage of rain and weate water at site	Removal of silt and trianh cheking the drainage of the substation land	Drains ckoked with rain/water due to sill and trash	Not applicat è				50 TO S
	W <sup>l</sup> stor pallulion	Construction activities involving significant ground discursance (i.e. substation land forming) had undertaken during the constance season.	Water Quality (p.H., BOD/GOD Suspended solios other) during major eadh works	Not seplica sla			(4)	
Construction schedules	Noise in uservoerto in significant properties	Minimize construction act vities undertaken during the night end local communities informed of the construction sonedule.	Timing of construction (noise emissions, [cB;e]])	Al-Construction autorities are being carried out during day timp. All the locations are more than 500 mits away from the residential area.	F- 282 Nos E = 217 Nos	ΝI	Nil	RRVPNL/TPL
Provision of facilities for construction workers	No sance to wholife if the line construction crosses their higher by path	Restrict construction work during the known period of nigration by any wildlife in the area	Timing of Construction	No wild life area involved in the TL		Nil	Nil	RECUPNIZIPL
	Contamination of receptors (land, water, air)	Construction workforce facilities to include proper sanitation, water stipply and waste disposal facilities	Amenities for Afc:kforce facilities	All workmen are provided clean water for drinking/cooking/bethin g. Proper rentedfient accommodation are provided for their ancien.	Always	Nil	Nil	R:\$AbMr\1br
		*	¥.	Proper sanitation facilities are provided				

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective) for all the workmen.	Cumulative Progress to date	Corrective Actions Required	Further Follow- up required	institutional Responsibili Y
Surplus earthwork/soil	Runoff to cause water policition solid waste disposal	Excess fill from tower foundation excevation to be reused on site or disposed of next to roads or shound houses, in agreement with the local community or landowners.	Location and amount (m²) or till disposal special locations and volume (m²)	Excess soil is dumped on the bund of field and also comped to path after discussing with the local persons as per requirement.	282	Need to maintain the same practice up to completion of project.	Nil	RRVPNL/TPL
Air Pollution	Loose dust might blow in the area causing dusty conditions	Damping of dust by sprinkling of water within the work area and stack the loose soil and contain it with covers if required;	Soil stacking locations, access roads, tower locations substation site	Sprayed water to minimize dust releasing in case of wiridy and dry weather.  Excavated earth is covezed.	Ālways	-		ŘŘVPNI TPL
Wood/ vegelation hervesting, cut and fill ops/ations	i oss of vegetasion ফ্রন্ম deforestation	Construction workers prohibated from harvesting wood in the project area during their employment.	Illegal wood feegstatum fearvesting (area in m <sup>2</sup> number of incidents reported)	LPG cylinder provided to Labor for cooking purpose.	Always			RRVPNL/TPL
	Offection fauna	Prevent work force from disturbing the flora, fauna including hunting of animal and fishing in water odd as.	Hahital Joss	Training program conducted to create awareness among the workers and staff to conserve the flore and tuna.	Ahvays		-10	RRVFNL/TPL
		Proper awareness programme regarding conservation of Bora, fauna including ground						

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date		Further Follow- up required	institutional Responsibilit y	
		vegetation to all drivers operators and other workers.							
S le ciearance	Vegetation	Marking of vegetation to be removed onto to clearance and stact control on desting activities to ensure minimal clearance.	Vegelation marking and plegrange control (great in ref)	Vegetation land not involve through the TL	Always			R-SVPNI/TEL	
	Sor existor and surface runoff	Constituction hear seasonal livers, erosion and flood- prone areas (if any) should be restricted to the	Soll erusion	No soil presion involve during the construction activity of lower foundation.	Always			R RVPNL/TPL	
		dry season							
		Provision and maintenance of drams and							
		retention conds. Theat distring and filling areas							
		well lamage accereracion and							
		construction work should be carefully							
		designed to							
		obstruction or destruction to natural drainage.							
Mechanised construction	Mo.se, vibration and one ator safety, efficient	Construction equipment to be well maintained.	Construction equipment estimated noise emissions	Construction equipment is regularly mantained and time to time we maintain a test check of all the	Always	Work carried out with the standard norms.	Need to mail dam same practice up to completion of projent.	RRYPNI/TPI.	
	No se vibration	Proper meintenance and turning off plant pocinuse	and operating schedules				, ,,,,,,,		

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date		Further Follow- up required	Institutional Responsibilit v
	aquipment Waar and fear							
Construction of roads for accessibility	Increase in airborne dust particles Increased kand requirement for temporary accessability	Existing made and tracks used for construction and maintenance access to the situ wherever possible.  New access ways restricted to a single carriageway width within the Row	Access routes toads native (length and width of access rosos)	Existing road/path only used for the construction activity.	F- 282 Nos E - 217 Nos	Only existing path is used fur construction activity.	Need to maintai same practice u completion of pr	pro PL
Transportation and alorage of malerials	Nuisance to the general public	Transport loading and unloading of construction materials should not cause nuisance to the people by way of noise, vibration, and dust Avoid storage of construction materials beside the road, around water bodies, residential or public sens how locations.	Water and Air Questly	Dropping material in the road collected,  Construction meteral stored at high level ground level at construction site.  Construction waste removed from the construction site after work compretion	Always			RRVPNL/TPL
		Construction materials should be stored in covered areas to ensure protection from dust, emissions and such materials should be bund, so in environment						

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date		Further Follow- up required	Institutional Responsibilit Y	
		hiendly and nuisance free manner							_
Frimmingfaultin gightrees within RatV	Fire hazards Loss of vegetation end calorestation	Trees allowed growing up to a neight within the RoW by traints ming adequate, clearance between the top of tree and file conductor as per the regulations.	Species- specific free retention as approved by statutory authorities (average and maximum tree height at maturity, in metree)	The free and busnes coming within the 26 Meter cither side of central line has to be financed up height reduled for the clearance.  No vegetation filed involved during the construction, activity.	Alvays	Compensation of came should be given in time.	Non	RRYPNLATEL -	- RR NI. L
*		Trees that ear auroive triuming to comply with stance should be lopped and not felied.	Disposal of clashed wegetation as approved by the statutory authorities (area cleaned)	vonsu zanor aur vry.		v. v.			
		Fellad trees and other cleared or provided vegetation to be disposed of as authorised by the statularly codies.	in in ")						
Health and safety ADD PPE	Injury and sickness of workers and members of the public	Contract provisions specifying minimum requirements for construction camps from water bodies, reserved areas etc	Contract clauses (number of notidents and tolational- work days caused by rijures and sickness)	Conducting training rourses and according for the workers or safety and environmental hyglenic Providing personal safety devices for yorkers safety boots, helmet gloves, mask and protective doths.	Always	All wark is carrying out with PPE,	Neg	RRVENLTIPE	
	-	property and implement a meaith and safety	4		11.5				

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow- up required	Ineditational Responsibilit
		ptan and provice workers with required personal protective equipment (PPE) at ane. Contractor to arrange to health awareness programmes.						
Nuisance to hearby properties	Losses to neighboring land usest values	Contract clauses specifying careful construction prectices.  As much as possible existing access ways will be used.  Productive land will be reinstated following completion of construction.  Compensation will be paid for loss of	Contract clauses Design basis and layout Reinstateme nt of land status (area affected, m²) Implementation of Tree/Crop compensation (amount pand)	Expansive material is used for filling ground itself.  Access reads always used for construction activity.  Compensation paid against the crop damaged to farmers.	F - 282 Nos E - 217 Nos			RRVPNL/TPL
Operation an	d Maintenance F	production, if any.	Series of the Land	LEWIS IN A SHOWLEN	Circles and Section	SEASON SE	die 10 January	WARDARD AND SAVENES
Electric shock	Death or injury to the workers and public	Security fences around substation Establishment of warning signs	Proper maintenance or rences and sign boards	Not Applicable				
		Careful design using appropriate technologies to minimise hazards	Usage of appropriate tothno.ogies (lost work days due to Illness					

Project Activity	Potential Environmental Impact	Mitigation Action	Standards	Actions during reporting period (incl. corrective)	Cumulative Progress to date	Corrective Actions Required	Further Follow- up required	Institutional Responsibilit Y
			and injuries)					
Noise generation	Nuisance to the community around the site	Provision of noise barriers near substation sites	No se llevel	Not Applicable				
Soil Etasion	Removal of lop so:	Planting of builds zone species suitable for arid of mate.	furbidity of water (Visual Inspection)	Not Asplicable				
Maintenance of Transmission Sine	Exposure to electromagnet ic interference	Transmiss on line design to comply with the limits of electromagnetic nterference from divertiesd power fines	Required grownd clearance (metres)	Met Applicad s				
Substation mainterance	Exposuré to electromagnet is interference	Substation design to comply with the firsts of cleds on agreet or riterference within tloor area.	Required vibrations level, instrumentali on	Not Applicable				
Çil şoillage	Contain nation of land/nearby water bodies	Substation renaformers located within secure and impervious builded areas	Substation bounding ("as-built" diagrams)	Not Apolicable				
		with a storage capacity of at least 11 0% of the capacity of oil in transformers and associated reserve lauks.			к			
Overation of Switchgea	Leakage of SF6 <b>ga</b> 8	Record of all substation, switchgear located within secure casings	Switchgear casings and Substanch bounding	Not Applicable				

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8.3.2 Environment Monitoring Plan and Status on Implementation

Environment al companent	Project stage	Parameter s to be monitored	g	Monitoring Frequency	Regulatory Standards for parameter	Agency responsible for implementati on	Agency responsible e for supervisio	Test Result s	Observations/Comme nts	Actions for Complianc e	Further follow- up require d
	A. Pre construction stage (Baseline development)	PM <sub>10</sub> PM <sub>25</sub> SO <sub>2</sub> , NOx, SPM, CO (Visible flust)	Different loc in the TL	One time	Spot check using field portable instruments.  Netional Air quality standards of CPCB [PM10 cr. PM2.6]	RRVPNL	RRVPNL				
1 Air Quality	B. Construction Stage	PM <sub>10</sub> , PM <sub>28</sub> SO <sub>2</sub> , NOx, SPM, CO (Visible dust)	Oifferonk lac in the T_	Every one month of construction period	Spot check using field portable instruments. National Air quality stancards of CPC8 [PM10 or PM2.5]	TPL	RRVPNL	Reducts shall be aubmitted by Sep'2016			
	C. Operation Stage (Teshing and Commissioning)	PM <sub>10</sub> , PM <sub>25</sub> , SO <sub>2</sub> NOx, SPM, CO (Visible dest)	Oifferent loo in the TL	One time during commissioni	Spot check using field portable instruments  National Air quality standards of CPCS (PM10	RRYPNL	KRVPNL	Not Applicable			

al component	Project stage	Parameter s to be monitored	g	Monitoring Fraquency	Regulatory Standards for parameter	Agency responsible for implementati on	Agency responsibil e for supervisio	Test Result s	Observinjona/Comme nts	Actions for Complianc 8	Further follow- up require d	
	A, Pre construction stage (Baseline development)	EC, 188. 00, BCD P' Oil and grease, Pb.	Neares) well along the TU	One time	or PM2.5  National water quality standards of CPCB	RHVÞNL	RRYPNL					
2.Water Quality	6. Construction Stage		Nearest well along the TL	during cable	National water quality standards of CPCB	TPL	PRVPNL	Reports shall be submitte d by Sep*2618				
	C Operation Slage	50, 188 DO BOD, " <sup>3</sup> Oil and grease, Pb,	Nearest well along the Lu		Nutional water quality arenostds of CPCB	RRYPHIL	RRVPAL	Not Applicable				
	A. Pre- construction stage (Baseline development)	Noise leve' [uB(A)]	Different local the JL	One time	GPCB standards for Noise and vibrations	RRYPHL	RRVPNL					
3.Noise/ Vibration	B Construction Stage	Noise evel [dB(A)]	Different loc in the TL	month of	GPCB standards for Notes and vibrations	TPL	RRVPNL	Reports shall be submitted by Sep 2016				(8)
	C. Operation Stage	Noise level [d3(A)]	Different loc in the TL	One time during commissioning	OPCB standards for Noise and vibrations	RRVPNL	RRYPNL	Na: Applicable				
4. Soil	A. ∂re	V s bld	1 localion	One time	Hazardous						20	

Environment al component	Project stage	Parameter 9 to be monitored	g	Monitoring Frequency	Regulatory Standards for parameter	Agency responsible for implementati on	Agency responsible of for supervision	Test Result s	Observations/Cumner nts	Actions for Complians s	Further follow- up require d
	construction stage (Baseline development)	spills and/or soil stain, ng, Oli & grasse	along the TL		Wasts Manageme ntirules	RRVPNL	RRVPNL				
	B. Construction Stage	Visible spills and/or soil staining, Oil & grease	1 location axing the TL	Onstrie	Hazardous Waste Manageme at rules	TPL	RRVPNL	Reports Ansil be submitted by Sep'2018			
	C. Operation \$tage	Visione sulls and/or soi staining Oil & grease	1 location along the T <sub>-</sub>	One time during commissioni ng	Hazardoua Wasta Managarne nt rules	RRVPNL	RRVPNL	Not Applicable			
SF6	Operation Stage	Volumetric loss from BIS equipment	Substatio it equipment, circuit breakers	Online monitoring by data loggers	As per Approved Specifications of Equipment	RRVPNL	RRVPNL	Nol Applicable			

#### Abbreviations:

SO<sub>2</sub>-. Sulphur Draxide; NO<sub>2</sub> - Nitrager Dioxide; CO- Carpon Monazide. EC - Electric Conductivity;

Pb - Lead PM<sub>2.5</sub>, Particulate Matter <2.5; PM<sub>10</sub> - Particulate Matter <10 TSPM- Total suspended Particulate Matter,

EC - Electrical Conductivity; DO - Dissolved Oxygen; TSS - Total Suspended Solids;

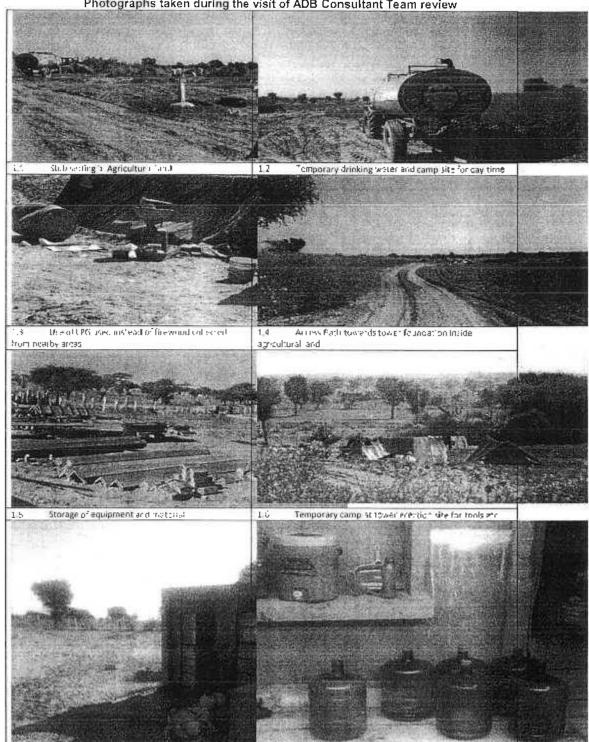
SF<sub>0</sub> – Sulphur Hexafluoride ges

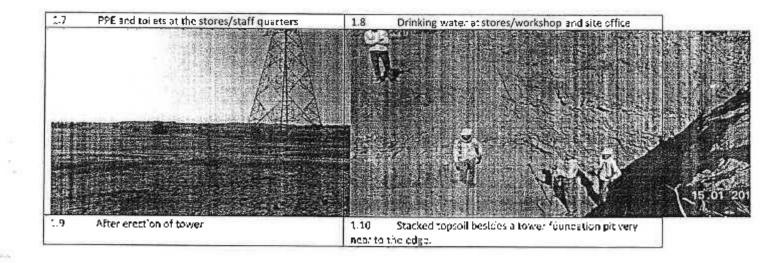
BOD - Biological Oxygen Demand; ORP - Oxidation Reduction Potential

NAACS - National Ambient Air Quality Standards specified by CFCB, Got;

NWOS - National Water Quality Standards specified by CPCB, Got.

Annexure 1: Photographs regarding EMP issues
Photographs taken during the visit of ADB Consultant Team review





# Annexure 2: RVPNL Letter dated 19.02.2016 regarding EMP



# RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED OFFICE OF THE SUPTOG. ENGINEER (P&P)

Corporate Identity Number(CIN): U 40109RJ2000SGC016485

Regd: Office: Vidyut Bhawan, Janpath, Jaipur, Rajasthan (India)-302005

Tel: 91-141-2740373 2740381 Ext1336, Fax: 91-141-2740794 E-Mail: se p&p@rvpn.co.in

NO.RVPN/SE(P&P)/XEN(ADB-II)/ICB-6/.D 3086

Dated 19-02-16

M/s Tata Project Ltd., Ground Floor, Tuyrer-B, Groen Beulevard, Plot No: B-9/A, Sector-62, Noida-201 307 (U.P.) E-mail: tpl@tataprojects.com, ritasingh@tataprojects.com Fax: 91-120 6199990 Phone: - 91-120-6199999

Sub:- To furnish information of environmental and social aspects in various ADB funded projects. (CB-6)

Dear Sir(s)

The ADB consultant team for social & environmental monitoring have visited your site and have advised you certain improvement in your work activities which are essential to meet the ADB's social & environmental sateguard requirements.

You are advised to take note of the fallowing:

- Gas is used by all sub-contractors instead of fire wood which is not allowed.
- Stacking of loose soll/rows should be at least one mater away from the loundation oit otherwise it may fall on the working staff.
- Ensure that temporary toilets are available for sub-contractor stoff.
- 2 Besides strict compliance of environment management plan (EMP) provided in the monitoring in mat by the ADR team, he ensured.

The ADB mission from Delhi effect shall be wisiting the respective sites to review the adherence of the activities at site in compliance with their purial & environmental safeguard colley. Kindly ensure strict compliance of the above.

(A.K. Sharma) Superintending Engineer [P&P]

RVPN, Jaipur

Copy is him credite. The Superintending Engineer (TCC-IV) (RVPN Jedhour for kind information.

Superintending Engineer (P&P)

## Annexure 3 Baseline Test Reports (Tests done during IEE assessment in 2011-2012)

Location of Sampling Inside the Bhadla Solar Park (November 2011)

<b>3.</b> N⇒	Component	No. of Sample	Report Reference No.	Sampling Location
1 and 2	Air Monitoring	6	AN - 1	Near Munna Ram's tube well
	and Noise		AN - 2	Noer Sargench (Metha: Khan's House) Chutor, Ki Dasti
	Monitoling	В	AN - 3	GSS Shadla Substation land
			AN - 4	Near AmigukiNedi
			AN - 5	New PremiokiNada
	100	Lance of	AN-6	Near Mile stone of 0 km Bhadla Farte on Nachna – Bhikampur mad
3	Water	3	WS-1	Munna Ram's tabe wea
	Analysis		WS-2	Govt, tube we ! Churon Ki Gasti
			WS - 3	Water tank at Kamuudees House in GamnukiBasi
4	Soll Analysis	3	SS-1	GSS Shadla Substation bad
			SS-2	Near Armyck-Nadi
			85 - 3	Near PannukiNadi

Location of Sampling along the associated Grid Substations (November 2011)

3. No	Component	No. of Sample	Report Reference No.	Sampling Location					
1 and 2	for Air and Noise	d each	2S-1	GSS Sub Station Land, 41 septer No. 8, Villago; Shadla, Post Noro 4i Burj. Tehst , Phalodi, District Josephan					
	Monitor 13	1	58 - 2	400 KVA GSS Site, Vilager Meyon Ki Dhani, Post: Ramgarth, Jalsalmer					
			SS-3	Near SE office IOB KVA (RRVPNL), Village: Akal, Post: Jodha, Jalssimer					
			\$3-4	GSS 400 kVA Sile, Village: Kakani, Post and Tehsil Luni, Jodhour					
3	Water Analysis	4	SS-1	Woler sample collected from Bore war of Munna Ram Ji, Videga: Bhabla ; Chasra No St. Post: Num K. Bud, Tahaf. Phatodi, Dathgu:					
			SS-2	Water sample collected from Covt. Bore well (Nearest Screwell GGS Ramparh), Village and Post, Song, Tahail Ramparh), Village and Post, Song, Tahail Ramparh					
					55-3	Water sample realisated from Govt. Sore was institle 400 KVA GSS (RRVPNL), Village, Akal, Post, Jodha, Jaisalmer			
					33-4	Water sample collected from Oper Welt of Dabu Singh Champavat, Village, Kakani, Post and Tensil, Luni, Jodhasa			
đ	Soll Analysis	4	4	4	4	4	4	SS-1	Soft sample collected from the land of proposed GSS Sub Station, Rhasara Nu. 8, Villago: Blanda: Post Nico Krisur, Tehsit Phatec, District Jedegur
			SE → 2	Sot sample collected from the proposed Rangart GSS 400 KVA, Vilage and Post Sonu, Tehall: Rangart, Disy of Jalastiner					
			3S -3	Sat sample collected from the land of proposed GSS 400 KVA (RRVPNU). Vilage, Akai, Post, Cothe, Jaladinish					
			55-4	Soil sample collected from the lant of Proposed GSS 400 AVA, Village: Katanii Post and Tehair Lorii, Jodhou:					

Location of Sampling along the Tranche -1 transmission lines (December 2011 to January 2012)

S. No	Component	No. Of Sample	Sample No.	Sampling Location
i and 2	for An auxi	17 éach	Sample Vo. 1	Village Jajiwa/Gehinton, Fosh Jajiwa vir Manage, Dighad Jeshgur
	Vc se		Sample No. 2	Village and Post, Urned Nagar, Tehst, Oswan, District Jedhour
	Monttoring		Sample No. 3	Near 44 No. Railway prosaing Bhilliamkhor, Tehsili Osiyan, Disinct Jodhuur
	1	12	Sample No.4	Williago: Arata (Near Kachan), Prist and Tehall: Phe edit District Jodhpur
	1		Sample No.5	Village: Khiriya, Post Hide Gol, Tanal, Pholog., Didirid Jodhgur)
		IV.	Sample No.6	Village: Kanssar, Pest. Bab, Tehsir Pherodi, District Jodhnuri)
	1	10	Sample No. 7	(Village and Post: Askandra, Tehsi: Pokharan, District Jaisalmar)
	1		Sample No. 8	Village and Post: Tadana, Tehali and Cistrict Jaise mer)
	1		Sample No. 9	Wilage: Nirudoon Ki Ohani. District Jalsalman
	1		Sample No.10	Village: Nehdal, Oistrict Jeisalmer
			Sample No.11	Village Tamosor, Disgrict Jaischnor
	1	100	Sample No. 12	Villager linga, Destrict La salmer
	1		Sample No. 13	Village: Parewer, Dialrichus saime-
	T .		Sample No. 14	Village: Asda, Dietrict Jaisaimer
	1	1	Sample No. 15	Village: Hacca, District Jalaaimer
		1	Sample No.16	Havnita Rly Station, Village: Theirer, District Jalsalmer)
			Sample No.1/	Villago: ShaguKeGaon, District Jalsalmer
9	Water Analysis	7	Santole No. 1	Wstellsamp c collected from Point, Villago: JajiwalGehiotan i Post: Jajiwal via Mandor, District Jadhour
			Sample No. 2	Water sample collected from Bore well of Sukh Ram Sid Shr BhagiretaRam, Village: Sim endl, Post and Tehsik Osiyan, District Jodhpur
			Sample No. 3	Water samp sice setted from Bore well of Manish Sio ShriPannatalli, Village, Amia, Post and Tehs': Phalodi, District Jodhour

			Sample No.4	Water sample collected from Govt, Bore well, Village and Post: Askendra, Teitell: Politistan, District Jaisalmer
	1	1	Sample Nu.5	Water sample collected from Water Tank of Babu Singh S/o Shi Bagh. Sinon, Village: Tanusar, Ja'salmer
	1		Sample No.6	Waler sample collected from Govt, Borg well, Village: Josafyan (Hadda), Post, Kanod, Tehsir, and District, Jaissimer
			Sample No.7	Water sample collected from Govt. Bore well, Village and Post: BhaguKaGaon, Tehs Land District Jasaime*
1	Stell Armlysis	Sample No. Sample No. Sample No. Sample No. Sample No. Sample No.	Sample No. 1	Suit suraple collected from the Princi of Village: JujiwalGelitotan, Fost. Japwal via Mander, District Jedineur
			Sample No. 2	Soil sample collected from the land of Soich Ram S/o ShriBhagirath Rang Village, Birmandi, Post and Teleil, Ossyan, Diship Jodhgur
	1		Sample No. 3	Soil sample collected from the band of Manish Sto StriPennsCaldi. ViRege: Anda, Poet and Tehsit Phatodi, Dishibt Jodhpor
			Sample No.4	Soll sample collected from the fand of Padam Singh 5/e ShriChandar Singh Ji, Village and Post: Askandra, Tehsil: Pokaran, District Jaissimer
	1		Sample No.5	Suit sample collected from the sand of Buder Single Sto ShriBagh Single, Village: Tanusar, Jalsalmer)
	1		Sample Ny.6	Soil sample collected from the land of Briera and Sto ShriVlanglarandi Village: Hadda Post, Kanod, Tehsil and District Jaissime:
			Sample No.7	Soir sample collected from the land of Barkat Khan Gid ShriJalu Khan. Villaga and Poet, BlaguKaGaon, Tafest and District, Jossafmer

A. AMBIENT AIR QUALITY MONITORING REPORT

3. No	Site	Particulate Matter (PM 2.5)	Particulate Matter (PM 10)	Sulphur Dioxide (602)	Oxide Of Nitrogen (NOX)	Carbon Monoxido as (CD)
A(4-1	Near House of Wanna Randli	26.5 µg / m3	53.1 pg / m3	8.2 jug/ in 3	9.2 ma / m3	573 µg / m3
AN -2	Near House of Methar Kiran (Sarpanch), Chudon Ki Basil	31.4 µg / m3	59.5 µg/m3	6.9 ug/m3	9.1 µg / m3	458 µg / m3
AN-3	GSS Sub Station Land	24.1 µg/m3	47.5 gg/m3	6.0 µg / m3	9.0 µg / m3	373 ug / m3
AN-4	Arraya Ki Nadi	29.4 pg / m3	56.8 µg / m3	63 µg/m3	9.2 mg/m3	458 .g / m3
AN 5	Panna Ki Nadi	25,3 pg / m3	30.9 pg / m3	60.g/m3	9,0 µg / m5	458 ig / m3
AN B	0 km Mile stane of Bhadla at Booting Familia	21.4 µg / m3	43 8 pg / m3	6.0 ug/m3	9.00 (19)	975 jg / in8
	Standard Value	60 pg / m3	7/00 jug / m/3	80 gr/ m3	20 pg / m3	2000 µg / m3
	Minthods of Minasurament	Gravimetric Method	Stav metric Method	Improved West and Gacke Method	Medified Jacob and Realifesiss Method	IS: 5182 – 1975 Part X

Ambient Air Quality Monitoring Report for Grid Substations (November 2011)

Particulate Particulate Martier Sulphur Oxide of Carbon Site Sample Matter (PM 2.5) (PM 10) Dioxide (SU2) ₩.Irogan Monoxide as No (NOX) (CO) GSS Sub Station Land, Klassara Nn. 8, Village: Bhadla, Post: Nuro Kjäurj, Tehaft: Phalodi, District SS t S,C pg / mS 373 FG / #3 24.t<sub>13</sub>/±3 47,5 rg/m3 80 լց/տ8 Jachbur 400 KVA GSS Site, Village: Meyon 27.3 pg / n.3 58-2 57.7 cg / m3 5.5 µg/m3 5,3 µg / m8 572 pg / m3 Ki Dhani, Post Ramgath, Javalmer Jalearmer
Near SE office 400 KVA
[RRVPNL], Villager Akal, Post:
Jodha Jalselmer
CSS 400 KVA Site, Villager Kakant 33-3 32.6 pg/m3  $65.8 \, \mathrm{pg}^{\,\mathrm{f}}$  m3 6,3 j 5 / m3 8.7 pg i m5 697 pg / m3 SS-4 7 ⊤ / شر 5 (20 44,5 Lg/m3 6.0 j 1 m3 \$,0 µg / m3 458 µg / m3 Post and Cabell, Luni, Codhgur Standard Value BB j.g / m3 Improved West and Gaeke Method 100\_ig / m3 Gravimettic Method 2000 µg / m3 IS: 5182 = Billing/m3 20 j.g / n:3 Modified Gravimetric Method Methods of Measurement Jacqui and 1975 Part X **Hachhelson** Mathod

Şamı ple No	Site	Particulate Matter (PM 2.5)	Particulate Matter (PM 10)	Suighur Dioxide (SOR)	Oxide of Nilrogen (NOX)	Carbon Monexide as (CO)
1	Near Nageshwa Mahadov Tomple Village: Jajiwal Geblotan, Post: Jajiwa via Mandor, District Jodhpur	39.6 ug / m.3	65,5 µg / in3	6.3 ± g / m3	8.7 ,g, (m8	458 ug / m3
2	Year 33 KVA Sub-Station, Village and Post Umed Nagar, Tenall: Dalyan, District Joulipus	36.2 µg / m3	(3.5 tO ) ing	8.6 j.; / m23	B.R. jg (in3	675 g J m3
3	Near 44 Mg. Rollmay omesing, Bhikamither, Tehsik Osiyan District Jedhour	39.5 ag/m3	62.3 pg f m3	89յց/m3	10,1 pg / m3	637 µg/m3

Sam pla No	Site	Particulate Matter (PM 2.6)	Perticulate Matter (PM 10)	Sulphu: Dioxida (SO2)	Oxide of Nitrogen (NOX)	Carbon Monoxide as (CO)
1	Near house of Marich S/c ShaPannal ett. Village: Amia (Near Richen), Pusi et d'Tehst: Phatos; District Jodhpur	24,1 µg / yn3	52.3 µg / m.5	1,2,9/m3	8.5 pg (±3	456 pg / m3
5	Near NayaTalab, Village, Khirwa, Post: HidalGul, Tonsil: Phalodi, Disirior Jodhour)	22,6 <sub>1</sub> g/m3	47,6 µg / m \$	6 1 µg / m3	9.3 pg / m3	456 µg / m3
6	(Near Pouse of Gopal S/o ShriPrem Pall Vishmoi, Village: Kanesar, Post: Bap, Tehsil: Phalodi, District Judinguri	30 5 grg / crit	62,3 pg / m3	6.3 µg / m3	9.6 j.g / m3	573 ⊢g r m3
I	Grossing point at Askanara — Nachra Road, Village and Post Askandra, Vehst: Pokharan, District Jaisalmer	415 µg x m3	76 å µg/m3	7.5 µg / m3	11.9 ug / m3	687 jg/m3
9,	Near Signe Quarry, Nachna — Tagana Road, Village and Post Tadana, Terkil and District Jalsakore)	24 hig ( m3	52.6 Lg / m3	6.7µ⊈/m3	9.6 µg / m3	450 µg/m3
9	Near Nirudeen Ki Ohan, District Jalsalmer)	13.6 ng ( m3	41.4 ug/m3	6.0 µg/m3	9.0 µg / m3	344 µg / m3
10	Noar Pand Dungari, Vi. sge: Nehdai, District Jalsalman	21.8 ug/m3	49.4 ug / m3	6.1 aq J m3	9,3 µg / m3	344 µg / m3
11	Mean house of Satu Singh G/o ShaBagh Singh, Villager Yarusar, District Jaisa/men	23.0 µg / m3	52.4 ,ig / m3	8 2 jug / mS	9.5 µg / m9	458 µg / nid
12	Village: Joga, Post. Saulwa, Tehsil and District Jaisalmer	25.7 jg / m3	39.8 ,g / m3	6,2 ag / m3	9.5 jug / m3	458 pg / m3
1.3	Near Tulsiram Ki Dhani, Village: Parewer, Tehsil and District Jaisalmer)	28 0 pg / m3	62.4 µg / m3	8.5 Jg Jm3	97 µg/m3	573 µg / m3
14	Nicor horizo of Fajel Khan S/o ShriVkam Khan, Village: Asrla, Post, Deva, Tgha'i and District Jaisalmen	32.6 µg / m3	62.5 pg / m3	6.3 Jg / m3	9.819 (113	5/33g/m3
15	Near Mile Stone 4M. 3 Village: Hadda, Post: Kanod, Tehsil and District Jaisalmer	34.2 jg/m5	71.7 yg / m5	Ej87,g7m3	10.9 рц ( п.5	587 µq / m3
16	Near Hamira Rly Station, Village. Thalyat, District Jaisalmer	31,5 kg/m3	67.1 µg / т.3	8m / gc, 3,9	9,7 pg / mS	573 pg / m8
17	Nrsw house of Barket Khan S/o ShriJalu Khan, Village and Post, Phaguks Gaor, Tehsil and Cispfal unisations	23.0 <sub>7</sub> .9 / m3	56.2 дg / n 3	6.5 µg / m3	9,5 µg / m3	573 µg / m3
- 1	Standard Value	60 ug / mJ	130 pg / m3	80 pg / n.3	9.0 ma / m3	2000 gg / m3
	Methods of Meas, remark	Cray matric Mothod	Grav metria Mothod	Improved West and Gaeke Method	Modified Jacob and Hochholser Method	.S. 5162 – 1975 Part X

AMBIENT NOISE MONITORING REPORT
Ambient Noise Monitoring Report for Solar Park (November 2011)
Ld (Day Equivalent)
Ln (Night Equivalent)
House of Munna Ram
47.15
41.57
House of Mathar Khan
47.35
41.87 i. Ambiant Noise Monitor
S. No Site
AN-1 Near House of Munna Ram
AN 2 Near House of Mathar Khan
(Sarpanch), Chudon Ki Basti
AN-3 GSS Sub Station Land
AN-4 Arniya Ki Nadi
AN-5 Panna Ki Nadi
AN-6 0 km Mile stone of Bhadla at
Badhla Fanta Ldn (Day-Night Equivalent) 49.16 49.42 41.00 41.71 40.77 40.31 45.45 48.15 47.53 47.47 49.40 48.87 44.20 47.27

Sample No	Site	stations (November 201 Ld (Day Equivalent)	En (Night	Ldn (Day-Nigh) Equivalent)
SS 1	GSS Sub Station Land, Khasara No. 8, Village Bhadle, Post: Nuro K. Burij, Tuheih Phe odij Ciatriet Icology r	45 45	41.0D	43 15
58-2	400 KVA GSS Site, Village Meyon Ki Dhani Proj: Ramgarh, Jalsamar	48.58	41,34	50.01
88-5	Near SE office 400 KVA (KRVPN), Village: Akal. Post, Joulta, Jaisalmer	52.31	42.31	25/3.
55-4	GSS 400 IrVA Site Village: Kakani, Post and Tehali: Luni, Jochaum	53.17	41.75	\$2.74

161.	iii. Ambient Noise Monitoring Report for Along the 3 400 kV transmission lines (December 2011 to January)			
Sample No	Sits	Ld (Day Equivalent)	La (Night Equivalents	Lan (Day Night Equivalent)
1	Village: Jajiwa Genintan, Post, Jajiwa- via Mandor, Distro: Jodhou	47.18	41 B1	49 70

Sample No	Site	Ld (Day Equivalent)	En (Night Equivalent)	Lon (Day-Night Equivalent)
2	Village and Rost: Umed Nagar, Tehall: Osiyan, District Jodhaur	52.82	401.64	53.11
3	Near 44 Mo. Railway crossing Bhilkamkhor Teheil. Cakean, Dietrici Joshpur	49.78	41 23	50.29
4	Village: Araka (Near Kidl an), Post and Tenail: Phalodi, District Jodhpur	54.Q <del>9</del>	42.03	53.51
n-	Village: Khirwa, Post: HidalGol, Tehst: Phalodi, District Jodhour)	51.05	41,38	51.34
6	Village: Kanazar, Post. Bsp. Teltail. Phalodi, District Jodhawr)	48.00	44 12	51.07
7	[Village and Post, Askardra, Tehsil: Poshisse; District Linesimen)	49.90	49.03	51.21
Б	Village and Post Tedans, Tehsil and District Jaisalment	52.64	42.43	52.57
9	Village: Nirusteen KI Dhani, Olsinct Jeiselmer)	44.5B	40.87	47.71
10	Village: Nehdpi, District Jaischner	50.58	42.08	51.14
11	Village: Lanusar District Jalaa mer	49.67	41.20	50.24
12	Village: Joga, C'Africi Jaisainter	47.29	41,42	49 13
13	Village: Parewer, District Jaisalmer	49.94	41.74	50.62
14	Villaga: Aada, District Jalsetimor	47.82	41:59	49 47
15	V≣age: Hadde, Disiriot Jaisaimer	45.Dt	41.79	49.68
18	Hausins Rly Station, Village, Thalyar, C strict Jalastmer)	52.63	42 40	52 65
17	Villaring Rhagai KaGanni, Pijatriot Ja kalinger	49.25	41.86	50 27

All results : in Decibel (dB) Unit

Ambient Air Quality Standards in respect of Noise

Area Code	Category of Area/Zone	Limits in dB(A) Leq *		
		Day Time	Mght Hmo	
(A)	Industrial area	75	70	
(B)	Commercial area	55	55	
(C)	Residential area	55	45	
(D)	STence Zone	50	40	

#### Nate

- 1. Day lime shall mean from 5.00 s.m. to 10.00 c.m.

  Night lime shall mean from 10.00 p.m. to 5.00 s.m.

  Silence zono is defined as un area comprising not less than 100 metres around neighbors educational institutions and courts.

  The silence zones are zones which are declared as such by the composing authority.
- Mixed gategories of access may be declared as one of the four above mentioned categories by the competent authority.

  [dB(A) Leg denotes the sine weighted everage of the level of sound in decibe sion scale A which is relatable to number having.

  A "decibel" is a unit in which noise is measured.

  A"decibel" is a unit in which noise is measured.

  A"decibel" is a unit in which noise is measured.
- Leg . It is an energy resam of the noise, evel, over a specified period.

Source: Ministry of Environment and Forests Notification, New Dethy, the 14 February, 2000 S.O. 123(E)

#### C. ANALYSIS REPORT OF SCIL

Analysis Report of Soil Io/ Solar Park [November 2011]

Parameters (Unit)	Unit	55 -1: C55 Sub Station	SS -2 Near Arniya Ki Nadi	SS -3: Near Pannu Ki Nadi
Color	Visual Comparison	Light Brown	Light Brown	Light Brawn
pH (1:5)	+	7.87	7.06	7.56
Conductivity(1:5)	(µS/cm)	14	132	291
Moisture	(%)	6.1	4.8	5.3
Chlorides as CI	(%)	0.004	0.002	0.004
Sulphate (u) SO4	(%)	0.005	0.001	0.005
Total Carbonates	(%)	0.05	0.04	0.05
Total Scluble Solids	(%)	0.064	0.038	0.136
Total Organic Matter	(%)	0.13	0.04	0.11
Nitrogen as N	(%)	0.07	0.03	0.09
Phosphorus as P	(%)	· 0.0005	< 0.0005	< 0.0005
Potassium as K	(%)	0.012	0.013	0.025
Zinc	Mg / 100 Gm	BOL	BDL	BOL
Copper	Mg / 100 Gm	BCI	BDL	BOL
Chromium	Mg / 100 Gm	BOL	BDL	BDL
Cadmium	Mg / 100 Gm	BDL	BDL	BDL.
Nickel	Mg / 100 Gm	SDL	BDL	BDL
Lead	Mg / 100 Gm	BDL	BDL	BOL

#### BDX." - Below Detectable Lim I

#### Analysis Report of Soil for Grid Substations (November 2011)

Parameters (Unit)	Unit	SS -1 Bhadla GSS	SS -2 Ramgarh GSS	SS -3 Akal GSS	SS 4 Jodhpur GSS at Kakan
Color	Visual Comparison	Light Brown	Light Brown	Light Brown	Light Brown
pH (1:5)		7.87	7.25	7.71	7.64
Conductivity(1:5)	(µS/cm)	141	823	203	388
Moisture	(%)	6.1	6.5	7.2	6.8
Chlorides as Cl	(%)	0.004	0.037	0.005	0.01
Sulphate as SO4	(%)	0.005	0.016	0.002	0.003
Total Carbonates	(%)	0.06	0.04	0.05	0.02
Total Soluble Solids	(%)	0.064	0.33	0.072	0.122
Total Organic Matter	(%)	0.13	0.14	0.07	0.08
Nitrogen as N	(%)	0.07	0.09	0.04	0.04
Phosphorus as P	(%)	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Polassium as K	(%)	0.012	0.04	0.024	0.012
Zinc	Mg / 100 Gm	BDL	BDL	BOL.	BDL
Copper	Mg / 100 Gm	BDL	BDL	6.73	BDL
Chromium	Mg / 100 Gm	BDL	BDL	RDI	BDL
Cadmium	Mg / 100 Gm	BDL	BOL	BOL	BDL
Nickel	Mg / 100 Gm	BDL	BDL	BOL	BDL
Lead	Mg / 100 Gm	BOL	BOL	BOL	BDL

BDL\* Polow Detectable Limit

159000		
Hi.	Analysis Roport of Spil sloop	Transmission lines (December 2011 to January 2012)
4444	wineskeep trahniff or drill minited	Transmission lines (December 2011 to January 2012)

Sample No	Torrest Torrest	1	2	3	14	5	T a	7
Parameters (Unit)	Unir	Results Japwa, Sehi otan, Jodhpur	Village: Sirmand Jodhpur	Village: Ambi, Jodhpur	Village Askandra, Jaissimen	Village: Taun, sar Jarsalmen	Resulta Villager Hadda Jaiselmer	Village: BhagiiKhG aon, Jaisalmei
Color	Vésual Conquarisan	Grey	Light Brown	Light Brown	Light Brown	Light Brown	Light: Brown	Light Srow
p → (1:5)	-	7.55	7.33	7.31	7.23	7.12	7.7	7.06
Consuptivity(1:5)	(nS/cm)	408	340	434	11C	2520	143	1735
Voiature	(%)	2.84	2.06	2.49	0.08	1.90	0.30	0.32
Chlorides as Cl	(%)	0.007	0.0.6	.0:16	0.003	0.006	0.004	0.372
Sulphate as \$04	(%)	0.014	0.012	0.004	0.008	3 156	C.009	0.368
Tutol Corbonates	(%)	13.88	1.17	6.05	2 91	21.9F	11.55	22.54
Total Solutile Soluts	(%)	0.201	0.159	0.165	0.186	1,198	G 109	0.708
Tuluf Organic Matter	(%)	0.187	0.037	0.091	0.056	0.025	C.034	0.004
Miregen as N	(56)	0.020	0.013	0.021	0.0008	0.005	0.009	0,119
Phosphorus as P	(%)	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.2005
Potessium as K	(35)	G:007	0.003	0.0C4	9.002	0.015	D.DE3	0.007
Z400	Ma / 100 Gm	BOL	BOL	BOIL	EDL	801	BDI	BDI
Сорде.:	Mg / 100 Cm	BOL	RC.	BOIL	BDL	BDL	ROL	BO!
Chromium	Mg / 100 Gm	BOL	BDL	BOH	SCH	BDI	HOL	BDL
Cadmium	Mg / 109 Cm	BDL	BOL	SOL	BDL	BOK.	BDL	SDL
Nickel	Mg / 100 Gm	BOL	307	BDL	BDL	BOL	DDL	BC/L
Lead	Mg / 100 Gm	PDL	3EL	90L	BDL	BDC	BDL	SDL

All results are on dry basis. BOL - Below Describe: Limit

#### AMALYSIS OF WATER QUALITY

#### Analysis of Water Quality Within Solar Park (November 2011)

Water sample collected from Govt. Bore well, ChurchkiBastl

Paremeter	Concentration	Standard Drinking -10500:1981 as a	Frelocol (Test Method)		
		Desirable Limit Permissible Limit in absence of siternate source			
Essential Characterist	les-Physical Parameter		1.0		
Color, Hazan Unita	<1	1.5	25	IS: 3025 Part 4 - 1983	
Odam	Unobject.cnable	Linobjectionalia		1S. 3025 Part 5 - 1953	
Tasts	Agreeable	Agreeable	-	15:3025 Part 7.5:1934	
Tr. coldity, NTU	< 1	5	10	IS 3025 Part 10 - 1934	
ρH	7.97	6.5 - 8.5		IS 3025 Part 11 - 1984	
Essential Characterist	ics-Chemical Parameters	3	1100		
Total Hardness as CaCO3	588 00 Mg /	200 Mg / C	600 Mg / L	18: 3025 Peri 21 - 1983	

Iron as Fe	C.08 Mg/L	0.3 Mg / C	1.0 Mg/L	IS: 3025 Part 53 - 2003
Or onde as C:	443,35 Mg / L	250 Mg / L	1000 Mg / L	IS: 3025 Part 32 - 1985
Residual Free Chlarine	< 3.1 Mg/L	0.2 Mg / _		15: 0025 Part 26 • 1988
Desirable Characteristic	s-Chemical Parameter	5		
Disc:/wed Solids	2,674,40 Mg / L	500 Mg / L	2000 Mg / L	IS, 3025 Part 18 - 1984
Calcium ses Ca	138.00 Va7U	75 Mg / L	200 Mg / I	15: 3025 Part 40: 1997
Machesium as Vig	50,7% Mg / L	30 Mg7 L	100 Ma / L	49: 0025 Part 49 - 1984
Copperas Cu	< 0.02 Vg / L	0.05 Mg / L	1.5 Mg / L	15: 3025 Part 42 - 1992
Manganese as Mri	< 0.01 Mg / L	0.1 Mg/L	0.3 Mg / L	IS: 3025 Part 59 - 2006
Sulphoie as SO4	137 03 Mg / L	200 Mg / 1	460 Mg / C	IS: 3025 Part 24 - 1996
Mitrate as ND3	8.54 Ma / L	43 Ma / L	Norslaxation	IS, 3025 Part 34 - 1968
Fluoride as F	1.31 Mg / L	1.0 Mg / L	1.5 Mg / L	18 3025 Part 60 - 2008
Phenolic Compounds as C6H5DH	< 0.001 Mg / t	0.001 Mg / L	0.002 Mg / L	15: 3025 Part 43 - 1991
Mercury as Hg	< 0.2 pc / L	0.001 Mg / L	No relaxation	15, 3025 Part 43 - 1994
Cadmium as Cd	< 0.005 Mg/L	0.01 Mg/	No relexation	IS: 3025 Part 41 - 1992
Selenium as Se	< 0.005 Mg / L	0.05 Mg / 1	No relaxation	IS: 3025 Part 56 - 2003
Arsenio es As	< 0.005 Ma7 L	1.05 Mg / L	No relaxation	IS 3025 Pail 37 - 1998
Cyanide as CM	< 0.02 Mg / I.	0.05 Mg / L	No relaxation	IS 0025 Part 27 - 1988
Lead as Pb	€ 0.010Mg / L	£.05 Mg / L	No relaxation	IS: 3025 Part 47 - 1994
Zingas Zn	< 0.02 Ma / L	5 Mg / L	15 Me / L	IS: 3025 Part 49 - 1994
Anionio Delergents as MBAB	< 0.1 (2) 7	0.2 V.3 / L	1.0 Ng/L	APFA 6540 C
Chromium as Cr+8	< 3.02 Mg / L	C.05 Mg / L	No relexation	IS: 5025 Part 52 - 2003
Maceral Oil	4.0 01 Mg / t	C.D. Mark	0.03 Ng/L	'S: 3025 Fed 39 - 1991
Alkalinity	372.00 Mg / L	200 Mg / L	B00 Mg / ∟	S: 3025 Part 23 - 1986
Aluminum as Al	< 0.005 Mg / L	6.03 Vg / 1	0.2 Mg / L	S: 2025 Part 55 - 2003
богол аз В	< 0.02 Mg / L	1 Mg / L	5 Mg7 L	IS: 3025 Part 57 • 2005
Bacteriological Characte.	ristics	A CONTRACTOR OF THE PARTY OF TH		
Coliform Organisms	19 CFU	10 CFJ	13 CFU	S: 1322 - 1961
E. Coi	Apsent	Absent	Absent	5, 1822 - 1981

-10500:1991 as amendment up to 3 July 2010 Desirable Limit Permisable Limit in absence of alternate **3**ource Essential Characteristics-Physical Parameter Color, Hazen Units 4.1 13: 3025 Part 4 - 1983 12: 3025 Part 5 - 1983 Odour Unahyschonable Linch eclionable 15: 3025 Part 7,8 -1954 15: 3025 Part 10 - 1984 15: 3025 Part 11 - 1984 Taste Agreeable Annecable Turbidity, NTU 10 pH 7.81 Essential Characteristics-Chemical Parameters 6.5 - 8.5300 Mg 7L 600 Mg / .. Total Hareness as 552-00 M<sub>8</sub> / L 15: 3025 Part 21 - 1953 CaCO3 0.06 Mg / L 951.74 Mg / L IS: 3025 Part 53 + 2003 IS: 3025 Part 32 • 1980 IS: 3025 Part 26 - 1988 1.0 Mg / u 1000 Mg / L nor as Fe 0.3 Mg / L Or cone as CI 951.74 Mg / L
Residual Free Chlorine < 0.1 Vg / L
Desirable Characterlatics-Chemical Parameters 250 Mg / L 0,2 Mg / L 2000 Mg / L 15: 3025 Part 16 - 1984 5: 2025 Fart 40 - 1991 18: 3025 Part 46 - 1994 Dissolved Solids Originm as Ca 2,652,00 Mg / L 500 Mg / L 200 Mg/L 100 Mg/L 75 Mg / \_ 30 Mg / \_ 118.40 Mg / L Magnesium as Mg 62.72 Va / C Copper as Cu < 0.02 Vg/ 0.05 Mg / L 1.5 Mg / L 13 3025 Part 49 - 1992 15: 3025 Part 59 - 2006 15: 3025 Part 59 - 2006 15: 3025 Part 24 - 1988 15: 3025 Part 34 - 1988 15: 3025 Part 90 - 2008 Mail.gen are as Mn Sulphate its SO4 < 0.01 Vg / --0.1 Mg/L DISMEY \_ 147,94 Mg / L 2011 Mig a 4 400 Mg / L Mihate as NOR Fluoride es F 3.94 Mg/L 1.21 Mc/1 No relaxation 1.5 Mg / L 1.002 Mg / L 45 Mg / 1.0 Mg / < 3004 Mg/L 0.001 Mg/L Pher elio Compounds as IS: 3025 Part 43 - 1991 CE-COH Mercury as Hg

0.001 Mg/L 0.01 Mg/

0.01 Mg/ .

0.05 Mg / L

Ochri Mg / L

0-25 Mg / L

0.2 Mg 1L

0.05 Mg / L 0.01 Mg / 1

200 Mg / £

0.08 Mks / L

1 Vall

5 Mg / L

Standard Drinking water Spec floation as per IS

No relexation

No ra axatino

No relexation

Nu relaxation

No relaxation

No relaxation

15 Mg / L

1.0 Mg/L

No relaxation 0.39 Mg / t

600 Mg/L C-2 Mg/L 5 Mg/T

Water sample collected from Cement Tank (Kharuddin S/o ShriKalu Khan, GamnokiBasti

Concentration

< 0.2 µg / L < 0.005 Mg / L

< 0.006 Mc / U

< 9.006 Mg / L

< 0.02 Mg / L

< 0.01 Mg/L

< 0.02 Mg / L

< 0.02 Mg / L

4001 Mg/L

292,00 Ma / L

< 0.005 Mg /

< 9/02 Mg / L

< 0.1 Mg/T

Parameter

Cadmium as Cd

Selenum sa So

Arsenic 9s As

Lead as P'o

Zinc as Zn

Mineral Oil

Form as B

Alkalinity Aluminum as Al

MEAS

Cyanide ASICY

Amonio Detergrada as

Chromium as Cr45

Protocol (Test Method)

15, 3025 Part 48 - 1994 15, 3025 Part 41 - 1992 15: 3025 Part 56 - 2003 15: 3025 Part 37 - 1998

IS: 3025 Part 27 - 1936 45: 3025 Part 47 - 1934

19: 3025 Part 49 - 1994 AP-1A 5540 C

IS: 3025 Part 52 - 2003 45: 3025 Part 39 - 1991 15: 3025 Part 23 - 1996 IS: 3025 Part 55 - 2003 IS: 3024 Part 57 - 2005

Bacteriological Charac	teristics			
Dollform Organisms	12 C=U	10 DFu	10 CFU	IS: 1622 - 1981
E. Celi	Absent	Absent	Absent	IS: 1523 - 1981

#### ਲੇ. Analysis of Water Quality Along the Grid Substation Sites (November 2011)

Sample No.: \$\$-1: Water sample collected from Bors well of Minna Ram Jr, Village: Bhac & (Kharara No.9), Fosc Noro Ki Burj, Turks., Phalodi, District Jodhpur (for GSS Chadle)

Perameter	Concentration	Standard Drinking 10500:1991 as am	Protocol (Test Method)	
		Desirable Limit	Permissible Limit in absence of alternate source	
1.1.1.1.1 Essential Chara	ictoristics-Physical (	Parameter		
Color, Hazen Units	41	5	25	IS: 3025 Part 4 - 1983
Odor	Unobjectionable	Unoblectionable		18: 3025 Part 5 - 1553
Taste	Agreeab e	Agreeable		18: 3025 Part 7.8 -1984
Turbidity, KTU	(1)	13	19	IS: 5025 Part 10 • 1984
c. I	7.40	6.5 - 8.5	4	IS: 3025 Part 11 - 1964
Essential Characteristics-Ch	emical Parameters			
Total Hardness 98 CaCO3	548.00 Mb / L	300 Mg / L	800 Mg / L	5: 3025 Part 21 - 1988
Iron as Fe	U.IU Mp/L	0.3 Mg / L	1.0 Mg/L	IS: 3025 Part 53 - 2003
Critonde as CI	775.76 Mp / L	230 Va/L	1000 Va/L	S. 3025 Part 32 1938
Resigue Free Chlorine	<0.1 Mg/L	0.2 Ma/L	-	S 3025 Part 26 - 1986
Destrable Characteristics-Ch		1 44 45	the state of the s	A STATE OF THE STA
Dissolved Solids	Z 532.00 Ma / L	500 Mg / L	2000 Ma / L	'S: 3025 Part 18 - 1984
Cakann as Ca	110 40 Mg / L	75 Mg / I	200 Mu / L	15: 3025 Part 40 - 1931
Magnesium as Mg	66.64 Mg / L	SD Ma / L	100 Mn / I	IS: 3025 Part 48 - 1994
Copper #3 Cu	< 0.02 Ma / L	0.05 Mg / L	1.5 Ma / L	IS: 3025 Part 42 - 1997
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mp / L	IS: 3025 Part 59 - 2005
Sulphate ## SO4	108.34 Ma / 1	200 Mg / L	400 Mo / L	IS: 3025 Part 24 - 1956
Niltraps as NO3	7.58 Mg / L	45 Mg/L	No relexation	(S: 3025 Part 34 - 1988)
Fluoride 99 F	1.33 Mg / L	1.0 Mg / L	1.5 Mg / L	IS: 3025 Part 50 - 2008
Phenoin Compounds as: CGH5CH	< 0.001 Mg / L	0 001 Mg/L	0.002 Mg / _	I\$: 3025 Pert 43 - 1951
Mercury as Ho	< 0.2 µg / L	0.001 Mg / L	No relexation	IS: 5025 Part 15 - 1994
Cadmium as Cd	< 3.005 Mg / L	0.01 Mg/L	No relaxation	IS: 3025 Part 41 - 1992
Selenium as Se	< 0.305 Mg/L	C.01 Mg / L	Nu relaxistion	15: 3025 Part 56 - 2003
Arseoic ss As	< 0.000 Mg/1	C 66 Mg / I	No relaxation	S: 3025 Part 37 - 1998
Cyanice as CN	<0.32 Null L	0.05 Mg/L	No relaxation	58: 3025 Part 27 1988
Lead as Pb	< 0.01 Mg / L	0.05 Mg / L	No re axallon	IS 3025 = 1147 - 1994
Zing as Z1	< 0.02 Mo / L	5 Mg/L	15Na/L	IS 3025 Fad 49 - 1994
Anionic Detergents as MBAS	< 0.1 Mg/L	0.2 No / L	1.0 Mg / L	APHA 5540 C
Chromium as Cr/6	< 0.02 Mbz / L	0.05 Mg/L	No relaxoton	13 3025 FBM 52 - 2003
Mineral Oil	< 0.01 Mg/L	0.01 Mg/L	0.03 Mn / L	IS 3025 Part 39 1991
Alkalinity	404 00 Ma /	200 Mc / t.	600 Mg / _	IS: 3025 Part 23 - 1986
Aluné wao as Al	< 0.005 Mg/L	0.33 Mg/L	0.2 Ma / L	19: 3025 Part 55 - 2003
Boror, as Fi	<0.02 Ma71	1 Mg/L	5 Ma/L	IS, 3025 Part 57 - 2005
Bacteriological Characteristi		A. Carlotte St. Ca		
Coliform Organism's	16 OFU	10 CFU	18 CFO	IS: 1622 - 1981
E Coli	Absent	Absort	Alisand	\$: 1622 - 1981

Sample No. \$\$ = 2: Water sample of lected from Covt. Boro well (Newrost Roro well GSS Rangarh), Village and Post Sonu, Tahsit. Rangath, District Javsain at

Concentration	Standard 9minking 10500:1991 4s am	Standard Oninking water Specification as per IS — 10500: 1991 as amendment up to 3 July 2010		
	Desirable Limit	Permissible Limit in absence of alternate source		
cferistics-Physical	Paromelut		U-DOCK WIDE IN CITY OF PROPERTY	
<1	5	25	IS: 3025 Part 4 - 1983	
Unumperhonati e	Underjectionable		IS 3025 Fart 5 - 1983	
Agreeable	Apreeable	190	IS: 3025 Part 7.8 -1984	
C1	5	16	IS: 3025 Part 10 - 1984	
8.05	8.5 8.5		JS: 2025 Part 11 - 1984	
emical Parameters				
278,20 Ma (1	300 May L	600 Mp / L	IS: 3026 Part 21 - 1983	
	0.3 Ma / L	1.0 Mg/ L	IS 3026 Yart 93 - 2005	
	250 Me / L	1000 Mg / L	IS; 0025 Part 52 - 1988	
< fl.1 Mg / L	0.2 Mg/L	120	15: 3026 Fart 26 - 1988	
֡֡֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜	cteristics-Physical <1 Uning-echonable Agreeable <1 3.05 emical Parameters 276.20 Mg / 1 0.05 Mg / 1 486 H3 Mg / 1	10500:1991 as am   Desirable Limit	10500:1991 at amendment co to 3 July 2010	

Dissolved Solids	1.785.00 Ng / L	500 Mg / L	2003 Mg / L	IS: 3025 Part 10 - 1964
Calicium as Co	70.40 Mg / L	75 Mg / L	200 Mg / L	r5: 3025 Part 40 - 1991
Magnesium as Mg	24.50 Mg / L	30 Mg / L	100 Mg / L	LS: 3025 Part 46 - 1994
Carrier as Cu	< 0.02 Mg / L	0,05 Mg/T	1.6 Mg/1	15: 3105 Pad 42 - 1982
Manganese as Mn	< 0.01 Mg/L	0.1 Mg / L	0.3 Mg/L	IS: 3025 Pail 59 - 2005
Sulprate as SO4	113,49 Mg / L	200 Vg / L	400 Mg / L	tS: 3925 Part 24 / 1986
Nitrate as NO3	12.93 Mg / L	45 Mg / L	No re axation	15: 3025 Part 34 - 1800
Pk. tribe as F	2,47 hAp f 1	1.0 Mg/L	1.5 Mg / L	15; 3025 Part 60 - 2008
Phenolic Compounds as C6H5OH	< 0.001 Mg/L	0.001 Mg7L	0.002 Mg / L	(S: 3025 Part 42 1991
Mercury as Hig	< 0.2 July / L	D.GC1 Mg7L	No re axation	35: 2025 Part 48 - 1994
Carlmium (±) Cd	< 0.005 Mo / L	0.01 Mg / I	Microscopición	3S: 3025 Part 41 1992
Selenium as Sa	< 6,005 Ma7 L	0,01 Mg / I,	No relayation	7S 3025 Part 96 - 2003
Arsenic as As	< 0.005 Mg / L	5.05 Mg / L	No relaxation	(S: 3025 Part 37 - 1998)
Cyanide as CN	< 0.02 Mg / L	0.05 Mg / L	No relaxation	IS: 3325 Part 27 - 1986
Leae as Po	< 0.01 Mo / L	0.05 Mg / L	Nire ne apvenion	IS: 3026 Part 47 1984
Zird as 7n	< 6,02 Mg / L	S Mo / L	15 Mg (*	IS: 3025 Part 49 - 1994
Anionic Detergents as MBAS	< 0.1 Mg/L	0.2 Mg/L	1.0 Ma / L	APRA 5540 C
Chromium as Crif	< C.D2 Mg/L	0.05 Mg / L	No re axagor	15: 3325 Part 52 - 2003
Mineral Oil	< C.D1 Mg/L	0.01 Mg/L	0.03 Mg / L	IS: 3025 Part 39 1991
Alkalinily	268 HH Mg /	200 Mg / L	500 No / 1	IS: 3025 Part 23 - 1996
Alumicum as Al	< 0.005 Ma / L	0.03 Mg / L	0.2 Ma/L	15, 3020 Part 55 - 2003
Boron as 8	< 0.02 Mg/L	1 Mg/L	5 Ma / L	IS: 3025 Pan 57 - 2005
Bacteriological Characteristic	:5			
Coliform Organisms	7 OFU	10 GPU	10 CFU	IS: 1872 1691
E. Cok	Absent	Absent	Absent	(S: 1622 - 1991

Sample No. 55 – 3. Water sample collected from Gov., Bore well misde 400 KVA GSS (RRVPNIII), Village: Akal. Phath.lorifia. District Jaiss men

Parameter	Concentration		water Specification as per IS = indicant up to 3 July 2010	Protocol (Test Method)
		Désirable Limit	Parmissible Limit in absence of allernate source	
1.1.1.1.3 Essential Chara	cteriatics-Physical P	arameter		7.77.
Color, Hazen Units	5.1	5	25	IS: 3025 Part 4 1985
Odour	Unobjectioneli'e	Unabjectionable		IS: 3025 Part 5 - 1983
Taste	Agreeable	Agreeable		15: 3025 Part 7,8 -1984
Tarbicity, NTU	<1	5	10	IS: 3025 Part 10 - 1984
pH	6,36	65-95	-	IS: 3025 Part 11 - 1984
Essect al Characteristics-Che	mical Parameters		***************************************	
Tels Hardness as CaCO3	120.00 Mg / L	360 Mg/L	800 Ma / L	IS: 3025 Part 21 - 1983
Iron as Fe	0.03 Mg / L	0.3 Mg / L	1.0 Mg / L	IS: 3025 Part 53 - 2003
Chloride as Cl	61.98 Mg/L	250 Mg / L	1000 Mg / L	IS: 3025 Part 32 - 1988
Residua. Free Chlorine	<c1 i<="" mg="" td=""><td>0.2 Mg [1]</td><td></td><td>IS: 3025 Part 26 - 1986</td></c1>	0.2 Mg [1]		IS: 3025 Part 26 - 1986
Desirable Characteristics-Chi	emical Parameters		Manual and the second s	ATTER STREET,
Dissolved Solide	977 10 Mg / L	SEC Mp / L	2000 Mo / L	IS: 3025 Part 16 - 1984
Calcium as Ca	27.20 Mg / L	75 Ma / L	200 Mg / L	IS: 3025 Part 40 - 1991
Magnesium as Mg	12.74 Ma7	30 Mn / L	100 Mp / L	18, 3025 Part 48 - 1994
Соорда ав Си	< 0.02 Mg/L	0.05 No / L	1.5 Mg / L	13:3025 Part 42 - 1992
Manganese as Mn	< 0.01 Mg/L	0.1 %s / L	J.3 Mg / L	IS: 3025 Part 56 2008
Sulphote as SO4	131.75 Ma / L	200 Mg / L	400 Mg / L	IS: 3025 Part 24 - 1986
Nurale as NO3	2.25 Mn / L	4E Mn / L	No relaxation:	18: 3025 Part 34 - 1988
Fluorico as F	J \ 0.83 Mg / L	1.0 Va / L	1.5 Ma / L	13: 3025 Part 60 - 2008
Phenolic Comprunds as CCI-SOIT	< 0.001 Mg / L	0.001 Mg / L	0,002 Mg / _	13: 3025 Part 43 109*
Mercury as Ho	0.2 Mp./ L	0.001 Mg/ L	No relaxation	13: 3025 Part 48 - 1994
Cadmium as Cd	0.005 Ma7 -	0.01 No/L	No relaxation	.5: 3025 Part 41 - 1992
Selenium as Se	0.005 Mg/L	0.01 Na / L	No relexation	15: 3025 Purt 56 - 2003
Araenic as As	C CO5 Mg/ _	0.05 Va/1	No relexation	15, 3028 Part 37, 1998
Cyanide as CN	C.C2 Mg / I	0.05 Va (1	Nu relaxation	18, 3025 Part 27 - 1986
Load as Pb	.C.C1 Mg / I	0 III Va/1	No relaxation	IS: 3025 Part 47 - 1994
∆nc as ∠r	C.C2 Mg / L	5Ng/L	15 Mg / -	S: 3025 Part 49 - 1994
Anionic Detergents as MBAS	C.1 Mg./ L	0.2 Mg/L	1.0 Mg / L	APHA 5540 G
Chromium as Crit 6	C.C2 Mg x E	0.05 Va / L	No relaxation	51:3005 Part 52 - 2003
Minera Cd	C.C1 Mg / L	0.01 Not1	D,03 Mg./ L	IS: 3025 Part 39 - 1991
Alkalinity	504 90 Mg /	200 Mg / I	600 Mg / L	IS: 3025 Part 23 - 1986
Aluminum as /J	C CC5 Mg / L	0.03 Mg / L	II 2 Mg i L	IS: 3025 Part 55 - 2003
Bonco as B	C.02 Ma / L	* W5 (L	5 Mg / L	IS: 3025 Part 57 2005
Bacteriological Characteristic	cs			
Octiform Organisms	6 CFL	:0 CFU	10 CFU	S: 1877 1981
E Col	Absent	Absent	Alisant	iS. 1622 - 1901

Sarryle No. SS – 4: Water sample to beled from Open Well of Butto Singh Changavat Village: Kakani, Post and Tehaik Luni, Dielrot accepture

Farameter	Concentration	Concentration Standard Drinking water Specification as parts ~ 10500:1991 as smendment up to 3 July 2010		Protocol (Test Method)	
		Desirable Limit	Permissible Limit in absonce of alternate source		
1 1 1.1.4 Essential Chara	cteristics-Physical P	á rametér			
Color, Hazen Units	1<1	1.5	25	IS: 3025 Part 4 - 1983	
Odour	Unobjectionable	Unablectionable		IS: 3025 Part 5 - 1983	
Taste	Agreeable	Apreesble		IS. 3025 Part 7.3 -1354	
Turbidity, NTU	1 < 1	16	1:0	IS: 3025 Part 10 - 1984	
Ha	0.30	6.5 - 9.5		IS: 3025 Part 11 - 1984	
Essential Characteristics-Ch	emical Parameters	1		A	
Total Hardness as CaCO3	108 00 Ma / L	1 300 Ma / L	1 800 Ma / L	IS: 3025 Part 21 - 1885	
Iron as Fe	0.02 Ma 11	0.3 Mp./ I	10 Mo/L	IS: 5025 Fart 53 - 2003	
Chloride as Cl	7.99 Mg / L	250 Mg / _	1000 Mg/L	75: 3025 P#132 - 1938	
Residual Floo Chlorino	< 0.1 Mg / L	0.2 Mg/L	4	KS: 3025 Part 26 • 1936	
Desirable Characteristics-Ch					
Dissolved Solids	131.00 Mg/L	500 Mg / L	2000 Mg / L	IS 3025 Part 16 - 1984	
Calcium as Ca	33.60 Mg/L	75 Ma / L	200 Mg /	IS: 3025 Part 40 - 1981	
Magnesium as Mg	5.88 Mg / L	30 Ma/L	100 Mg / s	IS: 3025 Pail 46 - 1981	
Copper as Cu	< 0.62 Ma / ·	0.05 Ma7L	1.5 Mg/L	IS: 3025 Paul 42 - 1992	
Manganese as Mn	< 0.01 Mg/L	0.1 Mg/L	C.3 Mg / L	IS: 3025 Part 53 - 2005	
Suiphale as SO4	27.22 Ma/L	202 Mc / L	400 t/a / L	IS: 3025 Part 24 - 1986	
Nitrale 83 NO3	2.79 Mg / L	45 Ma / L	No releasation	IS: 3025 Part 34 - 1989	
Fluoride as F	0.18 Mg/L	1.0 No./L	1.5 No.71	IS: 3025 Part 61 - 2008	
Phenolic Compounds 88 C6H5ÓH	< 0.001 Mg / L	3,361 Mg / L	0.002 Mg / 1	IS: 3025 Part 43 - 1991	
Mercury as Ho	< 0.2 Ja / L	0.001 Maj L	Ne relaxation	IS: 3025 Par. 48 - 1994	
Cacludian as Cd	4 0.005 Mg/L	D.D1 May L	No relaxation	IS: 3025 Part 41 - 1992	
Selenium as Se	0.005 Mg/	0.01 Mg / L	No rejacation	IS: 3025 Part 56 - 2003	
Arsenic as As	< 0.005 Mg / .	0.35 Mg / L	No relaxation	'S: 3025 Pail 37 - 1996	
Cyanide as CN	< 0.02 Mg / L	0.05 Mg / I	No relaxation	S: 3025 Part 27 + 1886	
Lead sa Pb	< 0.01 Mg / L	0.05 Ma / L	No relaxation	8: 3025 Part 47 - 1994	
Zinc as Zn	< 0.02 Mq / L	5 Mart	15 Mg / L	S: 3025 Part 49 - 1994	
Anionic Detergents as MBAS	< 0.1 Ma/L	0.2 Mg/L	1.0 Mg / L	APHA 5540 C	
Chromium as Cr>6	< 0.02 Mg/L	0.06 Mg/L	No relaxation	I3: 3025 Part 52 - 2003	
Minera, Oil	< 0.01 Mg/L	0.01 2/37 2	0.03 Mg / L	IS: 3025 Part 39 - 1991	
Alkalinity	124.00 Mg / L	238 Mg / L	600 Mg / L	IS: 3025 Part 23 - 1986	
Aruminum as Al	< 0.005 Mg/T	0.03 Mp / L	0.2 Mg / L	IS: 3025 Part 55 - 2083	
Boron as B	< 0.02 Mg / L	1 Mg/L	5 Mg/L	IS: 8026 Plant 57 - 2005	
Racteriological Characteristi		*		A COLUMN TO SERVICE AND A SERV	
Coliform Organisms	3 CFU	10 CFU	10 CFU	IS: 1622 - 1981	
F. Coli	Acsent	Absert	Abezait	IS: 1622 - 1981	

#### Analysis Report of Water Along the 3 nos, 408 kV transmission lines (December 2011 to January 2012)

2010 Desirable Limit Permissible Limit in absonce of alternate saurce Essential Characteristics-Physical Parameter IS: 3025 Part 4 - 1983 Color: Hazen Units iS: 3025 Part 5 - 1983 Odou-Unabjectionable Unotéctionable IS: 3025 Part 7,8 -1984 S: 3025 Part 10 - 1584 S: 3025 Part 11 - 1584 Taste Agreeable Agreeable 2.3 7.76 10 Turbidity, NTU 3 5.5 - 8.5 Essential Characteristics-Chemical Parameters iS: 3025 Part 21 - 1983 IS: 3025 Part 53 - 2003 IS: 3025 Part 32 - 1938 100.00 Mg / L 0.02 Mg / L 57.98 Mg / L 800 Mg / L 300 Ma7L Total Hardness as CaCO3 1 0 Mg / L 1000 Mg / L 0.3 Mg / L 250 Mg / L IS: 5025 Fatt 26 - 1996 0.2 Mg / L 2000 Ng / L 200 Mg / L IS: 3025 Part 16 - 1984 980,00 Mg / I 30 40 Mg / L 500 Mg / L 75 Mg / L Dissolved Solids IS: 3025 Part 40 1951 Саюшт ва Св 30 Varia 3.05 Mariu 3.1 Mg/L IS: 3025 Part 46 - 1994 10: 3025 Part 42 - 1992 HIC Mo. / I 5.88 Mg/L Magnesium as Mg t.5Ng/L < 0.02 Mg / L Coppe: as Co < 0.01 Mg / L 0.3 Mg/L IS: 3025 Part 59 - 2006 Mangar esa as Min 200 Mg/L IS: 3025 Parl 24 - 1966 400 Mg / L Sulpitate as SO4 33.30 Mg /

Nitraie as 6x03	3.12 Mg / L	45 Mg / I	No relaxation	I (5: 3025 Part 34 - 1988)
Fluorice es F	1,00 Mg / L	1.0 Ma/L	1.5 Mg / L	IS: 3025 Part 60 - 2008
Phenolic Compounds as OSE5OH	= 0,001 Mg/L	C,001 Mg / L	0.003 MB (1	:S: 3025 Part 43 1991
Mercury as Hg	< 0.2 µc / L	0.001 Mg / L	No refereilme	.S: 3025 Ps 1 49 - 1994
Cadmium as Cd	< 0.005 Mg / L	D.R1 Mg / 1	No refexation	.S. SC25 Pa 1 45 - 1992
Selenium as Se	< 0.005 Mg / L	0.01 Mg / L	No relaxation	S: 3025 Pat 55 - 2003
Arsenia as As	< 0.005 Mg / L	C.05 Mo / L	No relaxation	S: 3025 Part 37 • 1996
Cyanice as CN	< 0.02 Vg / _	G.05 Mg / L	No relexation	5: 3025 Part 27 - 1986
Lead as Po	< 0.01 Vq / _	0.05 Mg / I	No relaxation	5: S225 Pa t 47 - 1994
Zinc as Zin	< 0.02 Mg / _	5 Mg / L	15 Ma / L	St 3025 Part 49 - 1994
Anienic Detergents as MRAS	< 3.1 Mg/ i	0.2 Mg/L	1.0 Mg / L	APF-A 5540 C
Chrymigan as Créis	< 0.02 Vg / L	0.05 Me / 4	No relaxation	IS: 3025 Part 52 - 2003
Mineral Oi	< 0.01 Mg/L	0.01 Mg / L	0.03 Mg / L	15: 3025 Part 35 - 1991
Alkalinity	192.00 Mg/	200 Mg / L	BDII Mg / _	18: 3026 Part 23 - 1988
Aluminum as Al	< 0.005 Mg/L	0.03 Me / L	0.2 Mo / L	.S: 3025 Part 55 • 2000
Beron as B	< 0.02 Mg / L	1 Mg/L	5 Mg/L	IS: 3025 Part 57 - 2005
Bacteriological Characteristic	S			
Collom Ciganiens	BDICTU	10 GFU	10 CFU	TS: 1822 1981
E, Coli	Absent	Absent	Absent	TS 1692 - 1981

CFU-Colony Forming Unit

Sample No. 2: (Water sample collected from Bore well of Suich Ram Sfo Sho Shagirath Ram, Villaga; Stimandi, Post and Tahar; Osiyan; Diable: Jodhpur;

Paistrefor	Concentration	Standard Orinking per IS =: 0500: 1991 3 July 2010	Protocol (Test Method)	
		Desirable Final	Permissible Limit In absence of alternate source	
1.1.1.1.5 Easentlei Chara	cteristice-Physical Pa	rameter		
Color, Hazen Units	1 < 1	1.5	25	IS: 3025 Part 4 - 1983
Odour	Unobjectionable	Unabjectionable		IS: 3025 Part 5 - 1985
Tago	Agreeable	AgrecatAc	1.	IS: 3025 Part 7.9 1984
Turbidity, NTU	<1	5	10	IS: 3025 Part 10 - 1964
DH	7.88	6.5 - 8.5		IS: 3025 Part 11 - 1984
Essential Characteristics-Cho	mical Parameters			
Total Fordness as CaCCR	588.00 Mg / L	308 Mn / L	600 Mg /	(S; 30/25 Part 21 1963
Iron as Fe	0.08 Mg / L	0.3 Mg/L	1.0 Mig / L	S: 3025 Part 53 - 2003
Chlorde as CI	591.82 Mg / L	250 Mail	1000 Mg/L	'S: 3025 Part 32 - 1968
Residual Free Chloring	< 0.1 Mg/L	0.2 ML71		'S: 3025 Part 26 - 1989
Desirable Characteristics-Chi			-	
Disabled Solids	3,619.00 Mg / L	500 Mp / L	2000 Mg71.	S: 3025 Part 16 - 1984
Calcium as Ca	113.60 Mg / L	75 Ma / L	200 Mg/L	5: 3025 Part 40 - 1991
Macheaium es Mo	74,48 Mg/L	30 Mo / L	100 Mo / L	5: 3025 Part 46 - 1994
Copres as Cu	< 0.02 Mg / L	5.06 Mo./ L	15 Movil	S: 5025 Paul 42 - 1992
Manganésé ás Vin	< 0.01 Mg/L	0.1 No.12	1.3 Mg/L	S: 0025 Part 59 - 2005
Sulphate as 804	185,06 Mg / L	200 Ma / L	400 Ma / L	B: 3025 Part 24 - 1988
Nitrala as NO3	16.82 Mg / L	45 May / 1	No relevation	S 3025 Pert 34 - 1989
Flucius 98 F	1.50 Mg/L	1.0 No./ -	1.5 Mc / L	8:3025 Part 80 - 29.03
Phanniir Compounds as C6H5OH	< 0.001 Mg/L	COCH Mg / L	2 902 Mg / L	S. 2025 Part 43 - 1991
Mescury as Hu	<0.2 mg/L	3.001 Mu7 k	No re socioni	S: 3075 Part 48 - 1994
Cadmium as Cf	< 0.005 Ma71.	0.01 Mg/L	No relaxation	S: 3025 Part 41 + 1993
Selenom as Sa	< 0.003 Mg/L	0.01 Mg/L	No re exation	S: 3025 Part 56 - 2003
Arsenic as As	< 0.005 Ma / L	3.05 Mg / L	No relaxation	15: 3025 Part 97 - 1995
Cyanide as CN	< 0.02 Mg / I	C 05 Mg / I	No miskatinn	.S: 3025 Pail 27 1988
Load as #h	KHIOS Maff.	0.05 Mo.14	No re avation	(S. 9095 Part 47 - 1994)
Zina as Zn	< 0.02 Mp/ _	5 Ma / L	15 Vall	IS: 3025 Part 49 - 1994
Anionic Delegents as MBAS	< 0.1 Mg/L	0.2 Ma.//L	1.0 Mg / L	APHA 5540 C
Chromium as Gr+6	= 0.02 Mg / L	0.05 Nu./ L	No m axestion	IS-3625 Parl 52 2003
Minera O(	< 0.01 Mg / L	6.01 Mg/L	-0.03 Mg/L	IS: 3625 Part 39 - 199*
Also hilly	260.00 Mg / L	200 Mg ( L	500 Mg / L	5, 3025 Part 23 - 1986
Aluminum as Al	< 0.005 Mg/L	2.03 Ma / L	0.2 Mg / L	'S: 3025 Part 55 - 2003
Boron 29 5	< 0.02 Mg/:	I Ma / L	3 Mp/L	IS: 3025 Part 57 - 2008
Bacteriological Characteristic		THE RESERVE TO SERVE		
Coliforn On a risines	16 CFU	10 CFU	10 OFM	iS-1622 1981
F. Cali	Absec:	Absent	Akser:	S: 1622 - 1981

 $Si.\,r_{B}$  Ma, 3. (Water sample collected from Sore well of Martiah 3/o ShnParnaLauli, Milage, Amila Post and Tehs.) Pha 55: District Jedhpur)

ir a meri <del>ndisa</del>	Concentration	Standard Drinking per IS -10500:1991 July 2010	Protocol (Test Wathod)	
	-	Desirable Limit	Permissible Limit in absence of alternate source	
1.1.1.1.6 Essential Charac	teristics-Physical Par	rameter	MANAGE	
Cotor, Hazen Units	<1	5	25	IS: 3025 Part 4 - 1983
Odour	Unabjectionable	Unatectionable		IS: 3025 Part 5 - 1983
Taste	Auseeanie	Agreeable	100	IS: 3025 Part 7,8 -1984
Turnidity, NTC	<1	3	10	IS: 3025 Part 10 - 1984
pH .	7.13	6.5 - 8.5	2	IS: 3025 Part 11 - 1984
Essential Characteristics-Che	mical Parameters		Jan .	
Total Handness as CaCO3	300.00 Mg / L	30/1 Mn / 1	600 Ma / L	IS: 3025 Part 21 - 1983
lon : & Fe	0.04 Ma/L	0.3 Mg/L	1.0 Mg/L	IS: 3025 Fart 53 - 2003
Chlande as CI	127.98 Mg / L	250 Mg / L	1000 Mg / L	IS: 3035 Pert 32 1968
Residual Free Chlorine	< 0.1 Mg / L	0.2 Mg / L	- 2	IS: 3025 Part 26 - 1988
Desirable Characteristics-Che		A.C. Commission		
Dissolved Sofids	1 245,00 Mg / L	500 Mg / L	2000 Mg / L	IS: 3025 Part 16 - 1984
Calcium as Ca	73.60 Mb / L	75 Mg / L	200 Mg / L	IS: 3025 Part 40 - 1991
Magnesium as Mg	23.42 Mg / L	30 Mg / L	100 Mg / L	19: 3025 Parl 48 - 1994
Copper as Cu	< 3.02 Mg / L	0.05 Mg/L	1.5 V2 / L	IS: 3025 Part 42 - 1997
Manganese :16 Mn	< 0.01 Mg / L	0.1 Mg/L	0.3 702 / L	ISV 3025 Part 59 2006
Sulphate as SO4	77.41 Mal .	200 Na / L	400 Mg / L	IS: 3025 Part 24 - 1986
Netrate as NO3	19 66 Mg / L	45 Mg / L	No relaxation	IS: 3025 Part 34 - 1988
Lorde as F	1.16 Mg/L	1.0 Mg/L	1.5 Mg / L	IS: 3025 Part 60 - 2008
Phenoic Compounds as DBHSCH	< 0.001 Mg //L	0.001 Mg / L	0.002 Mg / L	IS: 3025 Part 43 - 1991
Marta ty as Hg	< 0.2 µg / L	0.001 Mg/L	No relexation	IS: 3025 Part 48 - 1994
Cadmium as CV	< 0.005 Mg / L	0.01 Mg/L	No relaxation	IS: 3025 Part 41 - 1992
Selenium as So	< 0.005 Ma / L	0.01 Mg / L	No relaxation	IS: 3025 Part 56 - 2003
Arsenio au As	< 0.005 Ma / L	0.05 Mg/L	No relaxation	15, 3025 Part 37 - 1599
Cyanide as CN	< 0.02 Mg / L	0.05 Mg / L	No relaxation	IS: 1025 Part 27 - 1285
Logit as Ph	< 0.01 Mg/L	0.05 Mg / L	No refaxation	S: 3025 Part 47 - 1994
Zinc ав Zл	4 0.02 Mp./ L	5 Marth	15 Mg / L	IS: 3025 Part 49 - 1994
Anionic Detergents as MBAS	< 0.1 Naft	0.2 Mg / L	10 Mg ( L	APHA 5540 C
Chramiam as Ciris	4 0.02 Mg / L	0.05 Mg / L	No refercition	1\$, 5025 Part 52 - 2003
Minera OI	< 0.01 Va / L	0.01 Mg / L	0.03 Mg / L	IS: 3025 Fad 38 - 1991
Alkalinity	352 00 Ma 71.	200 Mg / L	600 Mg / L	IS: 3025 Farl 23 - 1988
Aluminum as Al	< DCCS Ma/L	0.03 Mg / I	0.2 Mg / L	19: 0025 Part 55 - 2003
Boron ses B	< 0.02 Ma / L	1 Mg f L	5 Mg/L	15: 3025 Part 57 - 2005
Bacteriological Characteristic				
Coliforn Organisms	18 CFU	13 GFU	10 CFU	IS: 1622 - 1981
E Cofi	Absent	Absert	Absent	IS: 1622 - 1981

CFU-Colony Forming Unit

Sample No.4: (Water sample beliegter from Govt, Bore well, Village and Post, Askangon, Tichetic Fokharan, District as as mer)

Parameter	Concentration Standard Drinking water Specification a per IS -10500:1991 as amandment up to 3 July 2010			Protocol (Test Method)	
		Desirable Limit	Permissible Limit in absence of alternate source		
1.1.1.1.7 Essential Chara	acteristics-Physical Pa	arameter			
Color, Hazen Units	1 < 1	5	25	IS: 3025 Part 4 - 1983	
Ocour Ocour	Unobjectionable	Unobjectionable		IS: 3025 Part 5 - 1983	
Taste	Agreeable	Agreeable		15: 3025 Part 7,8 1984	
Turoidity, NTU	< 1	5	:0	18 3025 Part 10 - 1984	
pH 7.78		6.5-8.5		IS: 3025 Part 11 - 1984	
Essential Characteristics-Cl	hemical Parameters				
Total Hardness as CaCO3	600.00 Mg / _	300 Mg/L	600 Na7'.	IS: 3025 Part 21 - 1983	
Iron as Fe	2.11 Mg/L	0.3 Mg/ L	1.0 Mg / .	IS: 3025 Part 53 - 2003	
Chlande se Cl	404.87 Mg / I	290 Mg/ -	1000 Mg/T	IS 3025 Part 32 - 1986	
Residuel Free Chlorine < 0.1 Mg / L		5.2 Mg / L	*	IS: 3025 Part 26 - 1966	
Desirable Characteristics-C	hemical Parameters				
Dissolved Sollda	3,081.00 Mg / L	500 Mg / L	2000 Mg / L	IS: 3025 Par 16 - 1984	
Calcium as Ca	104.00 Mg / L	75 Mg / I	200 Mg / L	IS 3025 Part 40 - 1991	
Magnesium as Mg	83.30 Mg / L	30 Mg / L	105 Mg / L	IS: 3025 Part 46 - 1994	
Corper as Cu	< 0.02 Mq / 5	2.05 Mg/L	1.5 Mg / L	IS: 3025 Part 42 1992	
Management as M1	< 0.01 Mg / L	0.1 Mg / L	G.3 Mg/L	13: 3025 Part 50 - 2003	
Sulphate as SO4	152.63 Mg / L	200 Mg/L	400 Mg / L	IS: 3025 Part 24 - 1986	
Nitrate as NO3	173.90 Moft	45 Mg / L	No relaxation	IS: 3025 Part 34 - 1988	
Fluoride as F	1.30 Ma./ L	1.0 Mg / L	1.5 Mg / I	'\$: 3025 Part 60 - 2008	

Phenalic Compounds as G6H5OH	< 0.001 Mg / L	2,001 Mg71	a cha Mairi.	IS 3025 Pert 43 - 1991
Meyoury as Ho	< 0.2 kg/L	0.001 Mo7 L	No resessation	IS 3025 Part 48 - 1094
Cathuum as Qi	< 0.005 Mg / fL	0.01 Mg / L	No relexation	IS: 3025 Part 41 - 1992
Selenium as Se	K 0.005 Mg / L	0.01 Mg / L	No refaxation	IS: 3025 Part 56 - 2003
Arsenic as As	< 0.005 Mg / 2	0.05 Mg / L	No relexation	IS: 3025 Part 37 - 1998
Cyanide as CN	< C.DZ Muv L	0.05 Mg / L	No refaxation	IS: 3025 Part 27 - 1986
Lordias Pl:	< C.D1 Mg/L	0.05 Mg / L	No relexation	IS: 3025 Part 47 - 1994
Zino sa Zri	< 0.02 Mg / L	5 Mg/L	15 Mo / L	IS. 3025 Pert 49 - 1994
Anionic Datergents as MBAS	<0.1 Mg/L	0.2 Mg /	1.0 Mg / L	APHA 3570 C
Ohromium as Cr+6	< 0.32 Mg / L	0.35 Mg / L	No retaxation	IS: 3025 Pert 52 - 2003
Viareal Oil	< 0.01 Mg/H	0.01 Mg / L	0.00 Mg / L	IS: 0025 Part 39 - 1991
Alkalicity	040.00 Mp/ L	200 Mg / L	800 Mg/1	IS: 3025 Part 23 1986
Aluminum as Al	< 0.005 Mg / L	0.05 Mg/L	9.2 Mg / L	IS: 3025 P34 55 - 2003
Boron as B	< 0.02 Mg/L	1 Mg/L	5 Mg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristic	S	Alcowdero .	199	
Coliform Organisms	13 CFU	10 CFU	;0 CFU	IS: 1622 - 1981
E. Coli	Absent	Appaint	Absent	5: 1572 - 1981

CFU-Colony Forming Unit

Semale No.5: (Water semale collected from Water Tork of Babu Singh Sto ShriBagh Bingh, Village Tanusar, Disylet Jalyalmer)

Zarameter	Concentration	Standard Crinking -10580:1991 as an	Protocol (Test Method)		
		Desirable Limit	Permissible Limit in absence of alternate source		
1.1.1.1.3 Essential Chara	octaristics-Physical Pa	rameta:			
Color, Hazen Units	1.51	5	25	IS: 3025 Part 4 - 1983	
Odour	Unobjectionable	Unchiectionable	PAL .	IS: 3025 Parl 5 - 1983	
Taste	Agreeable	Asreespla	· ·	IS: 3025 Part 43, 1984	
Turbidity, NTU	51	5	10	IS: 3025 Part 10 - 1984	
pH	7.39	8.5 - 8.5	1	IS: 3025 Part / 1 1984	
Essential Characteristics-Ch	emical Parameters				
Total Hardness as CaCO3	344.00 Mar./ _	300 Mg/L	600 Mg / L	iS: 3025 First 21 - 1983	
Iron as Fe	0.04 Mg/ _	0.3 Mg/L	1.0 Ma/1	IS: 3025 Pert 53 - 2003	
Chloride gas Cl	33.98 Mu i L	250 Mn / L	1000 Mg / I	IS: 3025 Fait 37 1988	
Regidual Free Chlorine	< 0.1 Mg / L	3.8 Ma7L		IS: 3025 Perf 25 - 1996	
Desirable Characteristics-Ch					
Dissolved Solids	748.00 Mg ! _	500 Mg / L	2000 We / L	IS: 3025 Part 16 - 1934	
Calcium as Ca	97.60 Mg/L	75 Mg / L	250 MK 7 L	18: 3025 Furt 40 - 1991	
Magnesium as Mg	24.50 Mg/ L	GO Mr. / C	100 Mc / L	IS: 3025 Part 46 - 1984	
Copper as Co	< 0.02 Mg/L	0.05 Na7L	1.5 No. 1.	IS: 3025 Fart 42 - 1962	
Manganese as Mn	< 0.01 Mg/1	ii vit /_	0.3 Vol.	IS: 3025 Part 59 - 2006	
Suphere se SO4	49.97 Vol.1	200 Mg / L	400 Mg / L	13: 3025 Fart 24 - 1986	
Nitrata as NO3	13.95 Nu/ -	45 Mg / L	No retaxation	IS: 3025 Part 34 - 1238	
Fluor de as F	0.55 Mc / L	10 Vo.	1.5 Mg/'.	18, 3025 Part 30 - 2008	
Phanelle Compounds as CBH5QH	< 3.001 Mg / L	0.007 Mg / I	5.002 Mg / L	IS: 3025 Part 43 - 1991	
Mercury as Hu	< 0.2 ua/L	0.001 Mg/L	No relaxation	IS: 3025 Paul 48 1994	
Cadmium as Cd	< 9.005 Mo71	DID Mo / L	No relexation	IS: 3025 Part 41 - 1992	
Selenium as Se	< 0.005 Mg/ .	0.01 Alg / L	No releasables	IS: 3025 Part 56 - 2003	
Acsenic as As	< 0.005 Mg7	frué Mn71	No relexation	IS: 3025 Part 37 - 1998	
Cyanide as CN	< 0.02 Ma/ L	DIUG Mo./ L	No relaxation	IS: 3025 Part 27 - 1986	
Lean as Pb	< 0.0° Mg/L	5.05 Mp./ L	No relaxation	15: 3025 Part 47 - 1994	
Zinc as Zn	< 0.02 Mg / L	5 Mg / L	15 Mg / L	IS: 3025 Parl 49 1994	
Anionic Detergents as GPAS	< 0.1 Mg / L	0.2 Mg/L	1.5 Mg / 1	APHA SOUD C	
Chromium as C.+6	< 0.02 Mg (1	7.05 Mg / L	No relaxation	18: 3025 Paul 52 2008	
Mineral Oil	< 0.01 Mg/L	J DT Mg J I	G 1/3 Roley a 1	18: 30% Part 39 - 1991	
Alkalinity	240 03 Mp / L	200 Ma / 1	600 Mg / .	IS: 3025 Part 25 - 1986	
Aluminum as Al	< 0.005 Me /	5.03 Mo / L	-0.2 Mg/1.	IS: 3025 Part 55 - 2003	
Ecron as B	< 0.02 Mov L	f Mki / L	5 Mg / L	IS: 3028 Part 57 - 2005	
Becœrio egical Characteristi			1.7.7.2.7.8	10.00001 010. 2000	
Coliform Organisms	23 C J	10 CFU	10.050	IS. 1622 - 1981	
E Cel:	Absent	Absent	Absent	IS: 1622 + 1981	

CFU-Colony Forming Unit

Gample No.5 (Water sample collected from Covt, Boze well, Millage; Joshiyan (Lladda), Post; Kanod, Tehsi ; and District: Jaisalmer)

Parameter	Concentration	Standard Drinking w 10500:1991 as amen	Protocol (Test Method)
		Desirable Limit	Permissible Limit in absence of alternate

			50LFG8	
1.1.1.1.9 Essential Charac	cteristics-Physical P	acamotor.		N
			rw.	Lie 2005 D. 1 1 1000
Color, Hazen Units	<1	5	25	IS: 3025 Part 4 - 1983
Odeur	Unobjectionable	Unobjectionable		18: 3025 Part 5 - 1983
Tasic	Agresable	Agreeable		IS: 3025 Part 7 3 -1984
Lorbicity, NTU	<1	5	10	IS: 3035 Part 10 - 1984
pH	7.71	6.5 + 8.5		IS. 3025 Part 11 - 1984
Essential Characteristics-Che	mical Parameters			WE-1/2
Trainf Hardness as CaCO3	396.00 Mg/1	300 Mg/L	600 Mg / L	IS: 3025 Part 21 1983
Iron as Fe	0.09 Mg/L	0.3 Mg/L	10 Mg/I	IS: 3025 Part 53 - 2000
Chicride as Cl	427.87 Mg / L	250 Mg / L	1000 Mg/L	JS: 3025 Part 32 1988
Residual Free Chlorine	< 0.7 Mu/L	0.2 Mg/L	*	IS: 3025 Part 26 - 1986
Desirable Characteristics-Che	emical Parameters		- De	
Dissolved Solids	3,161.00 Va7L	500 Mg / L	2000 Mg/L	IS: 3025 Part 16 - 196-
Calcium as Ca	84.80 Ma / L	75 Mg / L	200 Mg / L	.S: 3025 Part 40 - 199
Macatesium as Mo	45.08 Mg / L	30 Mg / L	100 Mg / L	S: 2025 Part 46 - 1994
Copper as Cu	< 0.02 Mg / L	0.05 Me / L	1.5 Mg/T	S: 3/325 Part 42 - 1995
Manoanese as Mn	< 2.01 Mg / L	0.1 Mg/L	0.3 Mg/L	JS: 3025 Part 59, 2000
Selenate as SO4	173.52 Mu / L	200 Mg / L	400 Ma / _	IS: 3025 Part 24 - 1986
Nitrate as NO3	0.74 Mn / F	45 Mg / L	No relaxation	13: 5.025 Fart 34 - 198
Fragilité as F	1.72 Mo / L	1.3 Mg / L	1.5 Mg/L	IS: 5025 Fart 60 - 200
Phacolic Compounds 88 C6H5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	IS. 3025 Fe4 43 - 100
Mercury as Hg	3020aft	0.001 Mg / L	No relaxation	LS: 3026 Part 46 - 199
Capming as Cd	< 0.005 Mg / 1,	0.01 Mg/L	No relaxation	IS: 3025 Part 41 - 199:
Selecture as Se	< 0.005 Mg/L	0.01 Mg / L	No relexation	IS, 3025 Part \$6 - 2003
Ausenia 35 A6	< 0.005 Mg / L	0.05 Mg/L	Nu refeasellon	IS: 3025 Part 37 - 1959
Cyanide as CN	< 0.02 Mg/L	0.05 Mg / L	No relaxation	IS: 3025 Part 27 - 198
∟eac as Pb	< 0.01 Mg / L	0.05 Mg / L	No refaxation	IS: 3025 Part 47 - 199-
Zinc as Zn	≤ 0.02 Mg7 .	5 Mg/L	15 Mg/L	IS: 3025 Part 49 - 199-
Anior o Detargents as MRAS	< 0.1 Mg/1	0.2 Mg/L	1.0 Mo / L	AnHA 5540 C
Chremium as Cr+6	< 0.02 Mg / L	3.05 Mo/L	No relaxation	13, 3026 Part 52 - 200
Mineral C	< 0.01 Mg / L	0.01 Mg/L	0.03 Mg / L	IS: 3025 Part 39 - 199
Allerants	452.00 Mg/L	200 Mg/L	620 Mg / L	IS, 3025 Part 23 - 198
Aluminum as Al	< 0.005 Mg/L	0.03 Mg/L	0.2 Ma (1	15: 3025 Part 55 - 200
Boron as 3	< 0.02 Mg/L	1 Mg/L	1 Mg / I	IS: 3025 P:s: 57 - 200
Bacteriological Characteristic		1	1	
Californ Organisms	10 CFU	10 C-U	10 CFU	5: 1622 - 1981
E Culi	Absent	Absent	Attaent	S: 1672 - 1501

Sample No.7. (Water sample collected from Govt, Prire wall, Village and Post: BheguKaCach, Tons Land Dishiot. Sasalmer)

Parameter	Concentration	Standard Ortoking 10500:1391 as amo	Protocol (Test Method)	
		Des jrable L'mût	1.1.1.1.10 Permissible Limit in absence of alternate source	
5.1.1.1.11 Essential Char	acteristics-Physical P	arameter		
Color, Hazen Units	(5)	-5	25	IS: 3025 Part 4 - 1983
Odo.ii	Undisied onable	Upoh actionable		5. 3025 Part 5 - 1903
l'arate	Aureeable	Agreeable		'S: 5025 Part 7,8 -1984
Earlodity, NPC	1 < 1	5	10	.S: 3025 Part 10 - 1364
пН	8.22	6.5 - 6.5		IS: 3025 Part 11 1984
Essential Characteristics-Ch	nemical Parameters			
Тота! Науслеза ва СаСОЗ	120.00 Ma71	300 Mg / L	600 Mg / L	IS: 3025 Part 21 - 1983
101 as Fe	< 0.01 Mg (1)	D.3 Mg/L	1.0 Mg / U	IS 3025 Part 33 - 2003
Oblaride as Cl	129.96 Ma71	250 Mg f L	1000 Mg / L	IS 3029 Part 32 - 1988
Residual Free Chlorine	< 0.1 Mg/L	0.2 Mg/L		IS: 3025 Part 26 - 1986
Desirable Characteristics-Cl		discount of the same of the sa		
Dissolved Solids	1,455.00 Mg / L	600 Va / L	2000 Mg / L	IS: 3025 Part 16 - 1984
Calcium as Ca	24.90 Mg / L	75 Mg / L	200 Mg / I.	(S: 3025 Part 40 - 1993)
Медлевит ав Мо	14.70 Ma / L	30 Mg / L	100 Mg/ L	IS: 3025 Part 46 1594
Copper as Cu	< 0.02 Mg /	0.05 Mg / L	1.5 Mg/T	18: 3026 Part 42 - 1992
Manganese as Mr.	< 0.01 Mg/ .	2.1 Mg/ I	0.3 Mg/L	IS. 3025 Part 59 - 2005
Sulphale as SO4	121.67 Mg / L	200 Ma/ L	400 Mg / L	IS: 3025 Part 24 - 1908
Nitrate as 903	0.32 Mg / L	45 Mg / I	No relaxedon	IS: 3025 Part 34 - 1988
Fluorice as F	1 98 Mn / I	10 Ng/L	1.5 Ng/L	1310025 Pa + 60 - 2006
Phenolic Compour dis as. C6HSOH	< 0.001 Mg / =	0.001 Mg/L	0.002 Mg / L	15, 3025 Part 43 - 1991
Mercury as Hg	< 0.2 µg / L	0.003 Mg / L	No relaxation	IS: 3025 Part 48 - 1994
Cadmium as Co	< 0.005 Mg / _	0.01 Wa71	No relaxation	15: 3025 Part 41 - 1992

Selenium as Se	< 0.005 Mg / u	0.01 Mg/_	No relaxation	JS: 3025 Pan 56 - 2003
Arsenic as As	< 0.006 Mg / _	0.05 Mg / L	No relaxation	IS: 3025 Part 37 - 1998
Cyanida as CN	< 0.02 Mg / L	0.35 Mg/L	No re swallon	IS: 3025 Part 27 - 1986
-6ad as ≥b	S DOL MO / L	0.35 Mg / L	No re avallor.	15, 3025 Fart 47 - 1994
Zincias Zr	< 0.02 Mg / L	5 Mg/1.	15 Wa71	IS: 3025 Part 49 1994
Animure Detergants as MRAS	< 0.1 Mg / 1	0.2 Mg / L	1.0 Mg / L	APHA 5540 C
Chromium as Cr+6	< 0.02 Mg / L	0.05 Ms / C	No re svalion	IS: 3025 Part 52 - 2003
Mineral Dil	< 0.01 Mg / L	0.01 Mb / C	3.00 Mo7 L	IS: 3025 Part 39 - 1991
Alkalinity	364.00 Mg/_	200 Mg/L	8D0 Mg / L	IS: 3025 Part 23 - 1986
Alumirum as A	< 0.006 (45)	0.03 Mg / L	0.2 Mu / L	IS: 3025 Part 55 - 2003
Sorom as B	< 0.02 Mg / L	1 Mg / L	5 Mg / L	18: 3025 Part 57 - 2005
Bacteriological Characteristic	8	7/		
Colforn Organisms	28 CFu	IG CFU	10 CFU	15: 1622 - 1931
E. Call	Absort	Assent	Absent	JS: 1622 - 1981

Section of the section of the section of	MARKET STREET, CHARLES SHOW	
Sinnificance	of Water applysis	ù

Parameter	Results	Desirable Limit	Permissible Limit in absence of alternate source	Instrument Detection Limit	Undesirable effect outside the Desirable Lämit
Color, Hazer Units	< 1	5	75	1	Above 5 consumer acceptance decreases
Turt dity, NTU	c1	5	10	1	Above 5 consumer acceptance decreases
Residual Free Calonas	< 0.1 Mg / L	0.2 Mg / L		0.1 Mg/L	To be applicable when water is chlorinated
Capper as Cu	< 0,02 Mg ∫L	0.05 Mg/L	1.5 T/kg / iL	0.02 Wg / L	Encrustation in water supply structure and adverse effects unconnectionse.
Manganese as Mn	< 0.01 Va	D. f. Mg / L	0.3 Mg) 1	0.04 Mg/L	Seyond this limit tästerappearance are affected that adverse affection comestic uses and water supply shortures.
Phenolic Compounds as CSH5OH	< 0.001 Mg / L	0.00 FMg / L	0,002 Vg/I	nikin Mg/L	Heyond this, it may cause objection anile tasts and relevin
Mercury as Fig.	< 0.2 pg / L	0.001 Mg /	No relaxation	€ 2 µg / L	Seyond this, the water begon as toxic
Gadminim as Cd	< 0.005 Mg / L	0.01 Mg/L	No relaxation	0.005 Ng / L	Beyond fals, the water becomes (cxld
Schröum as Se	< 0.005 Mg/L	0.01 Mg/L	No relaxation	C.005 Ng / L	Bayond this, the water becomes toxic
Arsenic as As	< 0.005 Mg / L	3,05 Mg / L	Nu elaxation	0.005 Mg/L	Deyord this, the water becomes toxic
Cyar de as CN	4 0.02 Mg	0.45 Mg / 4	No rolaxation	0.02 W47L	Deyord this, the water becomes route
Leud as ₹)	≮COTMg /L	0.05 Mg/L	No relatation	0.01 Mg / L	Reynort this, the water becomes toxic
Zing as Zu	< 0.02 Mg / L	5 Mg/L	15 Mg / L	0 C2 Vg/L	Beyond this limit it can cause astringent asseand an openioscope in water
Ariprád Dejargents as MBAS	×0.1 V ; J L	0.2 Mg/ L	1.5 Mg / L	C.1 Mg / L	Bayond the limit it can cause a light foll in water
Chromium as Crifs	< 0.02 Mg / I	0.05 Mg / F	Mo relaxation	0.03 AU/T	May be cardinogenic above this limit
Mineral Oll	< 0.01 k/k; /L	0 01 Mg / I	0:00 bag /1.	0.61 Vg/L	Beyond this limit undesirable testo and other often chlorination take place Toxic
Airminum as Al	< 0.005 Mg / L	0,03 Mg / L	0.2 Mg / L	6.605 Mg / L	Beyond (bis int), tacke lucromes unplease it Cum. stive effect is imported in cause demential.
Вологі на В	₹ 0.02 Mg //L	: Mg/L	5 My / L	0.02 Mg / L	
			1-1		
					92.3

- 1 PX 0 1 -

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#### Annexure 4: Tata Projects Limited Reply to RVPNL Letter dated 19.02.2016 regarding EMP issues



Ref: TPDRVPN/CB-06/16-17/158

Date: 09:09:2016

This Superintending Engineer (Contracts.) RVPN-MM Building of KVPN Old Power House Premises, Near Ram Mandin. Bant Park, Jaijor 302006.

Projects

Construction of 400kV D/C Twin ACSK Moose Transmission Line from 400/220kV Powling Starkin (Shadle) to LILO point at 400kV S/C Lodhpur Morta line (Supply and Bervice Contract)

References

RVPN/SB(PAP)/XBN(ADB-T)/ICR-6/03086 dated 19 00 0016;

Subject:

Information regarding environmental and social aspects of ADS funded project.

Door Sir.

With reference to the above kindly inform that Environmental and Social Monitoring report is already art yet betwegges there everyone art neglegal for eith au and the sample of au of the both codes

ADU team, We have taken the tollowing setion on suggested improved nents-

- Gas cylinders are being used to svoid the usage of wood for cooking.
- 2. Lonse solf redden regular material is being kept minimum 1.5M away from accasarate in hand proper \$8/feeding tage is being used for safety precautions.
- At Wirkplace like stores, we have provided Toilet facilities to our workman.
- 4. Ensure the strict adherence of Environment Management plan.

This is for your kind reference and reports.

Thanking you and east/lag you of our best services al. times.

Yours Faithfully. For 1 sts Projects Limited

RPb Stych

Rifa Singh Senior Manager (Projecta)

Copy to: 1. The Superintending Engineer (T&C- Kakan'), RVPN Joshboo.

#### TATA PROJECTS LIMITED

1st Piper Tower-1, Okaya Cevitor P.S. Sector by, Noida-201081, Utan Praviesi Financ 1-91-120-510 6599 Pax 1-81-120-619 8800

Segistered Offic. I Middle Parage 11, 3,7-bb to 37. Previderghast Sapro, Serounde Jours 500 203 Februaria bids.

Prevident 191-40 (662) 380 mFac. +91-40-40 to 200.

City - Uksylo (APHITOP) City - 443 - empt - bil/2 bitsprojects com / model spagistereds com