Environmental Monitoring Report

Project Number: 45224-003
April 2017

Period: April 2016 – September 2016

IND: Rajasthan Renewable Energy Transmission Investment Program - Tranche 1

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

Submitted by

Rajasthan Rajya Vidyut Prasaran Nigam Limited, Jaipur

Asian Development Bank

RVS

for loging pls

NK/VRK.

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Date: 31/03/2017 04:55 PM
Subject: Envionmental monitoring report

KFA

Regards,

J.P.Ramawat
TA to ACE (Contracts),
RVPN, Jaipur
Mobile : +91-9413345569

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Environmental Safeguards Document

Environment Monitoring Report

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

Project Number: 45224 (IND)

Period – April 2016 –September 2016.

Reporting – October -2016.

India: Rajasthan Renewable Energy Transmission Investment Program

Prepared for Rajasthan RajyaVidyutPrasaran Nigam Limited (RRVPNL), Government of Rajasthan.

Environment Monitoring Report

Compliance Status & Monitoring Report of Environment Safeguards

Period:
Submitted by: Rajasthan RajyaVidyutPrasaran Nigam Limited, Rajasthan

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Abbreviations

AP's	Affected Persons
C/o	Construction of
Deptt.	Department
Distt.	District
FCA	Forest Conservation Act
GIS	Gas Insulated Switchgear
GoI	Govt of India
GRC	Grievance Redressal Committee
Ha.	Hectare (10,000 sq. m. land)
IE Rule	Indian Electricity Rule
MOEFCC	Ministry of Forest, Environment and Climate Change
MPAF	Main Project Affected Family

Project Information

A.1. General

I	Name of Project	**Rajasthan Renewable Energy Transmission Investment Program**
II	Loan Number	
II	Name of Monitoring/Reporting Agency and address	RRVPNL/VidutBhawan, Janpath , Jyoti Nagar Jaipur – 302005 Tata Projects Limited , Mithon Towers -1 , Prenderghast Road , Secunderabed - 500003
III	Monitoring Period (Season/month)	April -2016 to September -2016
IV	Report No.	2
V	Report for the period	April -2016 to September -2016
VI	Date of reporting	October -2016

A.2. Subproject details

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

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 KM	April -15 – Sep -15
2	Foundation	271 Nos	May -15 to April - 16
3	Erection	256 Nos	Aug-15 to July -16
4	Stringing	40.041 KM	Dec -15 to Sep -16

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

S No	Legal Requirements/Acts/Rules/Guidelines	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 Nov'2016. Testing Agency conducting test at site.
2	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 Nov'2016. Testing Agency conducting test at site.
3	The Environment (Protection) Act, 1986	Construction Practices	Report shall be submitted by Nov'2016.
4	The Environment Impact Assessment Notification, 1994 as amended	EMP monitoring	Report shall be submitted by Nov'2016.
5	The Hazardous Wastes (Management and Handling) Rules, 1989 as amended	Transformer Oil	Not applicable
6	The Ozone Depleting Substances (Regulation and Control) Rules, 2000	Cleaning of electrical contacts using HFCs etc.	Not applicable
7	The Batteries (Management and Handling) Rules, 2001 as amended	Batteries	Not applicable
8	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 km's away from Forest Land.
9	The Wild Life (Protection) Act, 1972 as amended	Critical habitats	No Wild life is involved in Project. Line is more than 4-5 km's away from Forest Land.
10	The Biological Diversity Act, 2002	Wetland	No Wetland is involved.
11	The Forest (Conservation) Act, 1980 as amended	Construction work in forest areas	Forest Land is not involved; we have avoided the forest area in complete Line. Line is more than 1.0 km's away from Forest Land.
12	The National Environmental Policy, 2006 of GoI	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, GHG emissions	Not being affected.

B.2: General Implementation Status

B.2.1. Forest Clearance.

SN o.	Measures/ stipulation	Compliance Status
I	**Sub-Project #**	
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	26 Mtr either side of central line.

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
I	**Sub-project #**		
1	Compensation for crop	As per EPC contractor bid	All seasonal cultivated crops if damaged during the work shall be 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	Till 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 Nov'2016.

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

SNo.	Product Activity/Stage	Parameter to be monitored	Compliance Status
I	**Sub-Project #**		
	Construction		
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	Flora Fauna not involved in project
4	Rain and Flood prone area.	Avoid	Whole 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 Nov'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
I	**Sub-Project #**				
	NA				

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	3 Nos
2	PMU established as per proposed institutional mechanism	Date	18-5-2015
3	GRC formation	Date	Project Engineer, safety head, Patwari and RVPNL JEN
4	Grievance Redress Mechanism followed	Proper record	No tree cutting involved. Currently no environment related grievance received.

B.2.6. Other measures:

I	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

I	Sub-Project #
	Photographs of the following – foundation construction, tower erection, stores, toilets, drinking water, kitchen, safety workshop, training material for HSE, flora fauna etc.

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	Institutional Responsibility
Pre-construction								
Temporary use of land	Impact to the existing environment	Selection of lands adhering to local laws and regulations Construction facilities should be placed at least 500 m away from water bodies, natural flow paths, important ecological habitats and residential areas	water and air quality	Inventory activity of tree, 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.	271	Excess soil after foundation Kept on bund.	Need to maintain same practice up to completion of project.	RRVPNL
Substation location and design	Noise generation Exposure to noise, Nuisance to neighbouring properties Disturbance to the adjacent lands and the people due to cut and fill operations	Substation designed to ensure noise will not be a nuisance. Maintained adequate clearance, construction of retaining structures, minimise cut and fill operations adjoining to the dwellings	Expected noise emissions based on substation design, noise levels Setbacks to houses and other structures	Not Applicable				
Location of transmission towers and transmission line alignment and	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of	Tower location and line alignment selection with respect to	Tower Location on 26 Meter either side is away from House/dwelling	199.151km	46 Mtr corridor from center of tower is maintained during survey	Need to maintain up to completion of project.	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 Responsibility
design		power frequency and the regulation of supervision at sites.	nearest dwellings	area. Line is minimum 500 Mtr away from such dwelling area.		work to avoid house & for 500 mtr for reserve.		
	Impact on water bodies / land/ residences	Consideration of site location to avoid water bodies 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)	All the water bodies/dwellings are more than 500 mtrs away from the Line	F-271 E – 256 Str – 40.041KM	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 ecological areas	Loss of precious ecological values/ 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 habitats loss	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 before starting of project.	Non	RRVPNL
Involuntary resettlement and acquisition	Loss of lands and structures	Compensation paid for temporary/ permanent loss of productive land	Public complaints		Compensation is implemented for the crop damaged. Compensation shall be paid for the cultivated crop	Land acquisition not required for work.	Crop compensation 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 Responsibility
					damaged as measured jointly by RVPNL, Patwari and Tata project site incharge			
Encroachment into farmland	Loss of agricultural productivity	Use existing tower footings/towers wherever possible	Tower location and line alignment selection		Compensation is implemented for the crop/tree damaged during construction activity.	F- 271 E- 256 Str – 40.041 Km	Non	RRVPNL
		Avoid siting new towers on farmland wherever possible	Design of Implementation of crop and tree compensation (based on affected area)		Avoided, though some are unavoidable	Discuss with owner	RVPNL to provide proper crop compensation	
		Farmers compensated for any permanent loss of productive land and trees that need to be trimmed or removed along RoW.	Statutory approvals for tree trimming /removal		During Foundation and erection work no trees are not involved.		Non	RRVPNL
Interference with drainage patterns/Irrigation channels	Temporary flooding hazards/loss of agricultural production	Appropriate sighting of towers to avoid channel interference Appropriate provision or excess soil dug up from the foundations/trenches	Site location and line alignment selection	All tower are spotted beyond the boundaries of water channel.		271	Non	RRVPNL
Explosions/Fire	Hazards to life	Design of substations to include modern fire control systems/firewalls. Provision of firefighting equipment to be	Substation design compliance with fire prevention and control codes	**Not Applicable**				

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 Responsibility
		located close to transformers, power generation equipment.						
Construction								
Removal or disturbance to other public utilities	Public inconvenience	Advance notice to the public about the time and the duration of the utility disruption Use of well trained and experienced machinery operators to reduce accidental damage to the public utilities Restore the utilities immediately to overcome public inconvenience	Disruption to other commercial and public activities / Public complaints	Advance notice published into the local newspaper for electric utility shutdown.	F- 271 E-256 Str – 40.041Km	Nil	Advance notice published in daily newspaper.	RRVPNL
Acquisition of cultivable lands	Loss of agricultural productivity	Avoid faming season wherever possible for the project activities. Ensure existing irrigation facilities are maintained in working condition Protect /preserve topsoil and reinstate	Land area of agriculture loss Usage of existing utilities Status of	We have avoided the work for the locations where there is farming season. Compensation provided to land owner against the crop damaged.	F – 271 Nos E – 256 Nos Str -40.041 Km	Non	Non	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 Responsibility
		after construction completed Repair /reinstate damaged bunds etc. after construction completed Compensation for temporary loss in agricultural production.	facilities (earthwork in m^3) Implementation of crop compensation (amount paid, dates, etc.)	Top soil is restored during the back filling work.				
Temporary outage of the electricity	Loss of power supply to the local community when distribution lines crossing the new transmission line are switched off	Advance notice to the public about the time and the duration of the utility disruption Restore the utilities immediately to overcome public inconvenience	Power disruption to houses and commercial premises of power disruption	Advance notice published into the local newspaper for electric utility shutdown.	E – 256 Advance notice published into newspapers.	Non	Non	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 - 271 Erection – 256 Str -40.041 km	Non	Non	RRVPNL
	SF6 leakage during storage and erection of Switchgear	Record of all substation switchgear, storage cylinders located within secure casings	Switchgear casings and substation bounding	Not Applicable				
Substation construction	Loss of soil	Fill for the substation foundations obtained by creating or improving local drain system.	Borrow area sighting (area of site in m^2 and estimated volume in m^3)	Not Applicable				
	Interference in drainage of rain	Removal of silt and trash choking the	Drains choked with rain/water	Not Applicable				

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 Responsibility
	and waste water at site	drainage of the substation land	due to silt and trash					
	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 schedules	Noise nuisance to neighboring properties	Minimize construction activities undertaken during the night and local communities informed of the construction schedule.	Timing of construction (noise emissions, [dB(a)])	All Construction activity carried out during day time. (Report shall be submitted September -16 still awaited) We have avoided the work for the locations where there is farming season.	F – 271 Nos E -256 Nos Str – 40.041 Km	Non	Non	RRVPNL/TPL
Provision of facilities forconstruction workers	Nuisance to wildlife if the line construction crosses their migratory path	Restrict construction work during the known period of migration by any wildlife in the area	Timing of Construction	No wild life area involve through the TL	F -271 E - 256 Str -40.041 Km	Non	Non	RRVPNL/TPL
	Contamination of receptors (land, water, air)	Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Amenities for Workforce facilities	Covered and fence wall around the worker living area. Worker have sufficient waste water				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 Responsibility
				collection system and septic camp.				
Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Excess fill from tower foundation excavation to be reused on site or disposed of next to roads or around houses, in agreement with the local community or landowners.	Location and amount (m^3) of fill disposal Soil disposal locations and volume (m^3)	Excess soil is dumped on the bound of field and also dumped to path after discussing with the local persons as per requirement.	F – 271 E – 256 Str – 40.041 km	Need to maintain same practice up to completion of project.	Non	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 -271 E – 256 Str – 40.041 km	Need to maintain same practice up to completion of project.	Non	RRVPNL/TPL
Wood/ vegetation harvesting, cut and fill operations	Loss of vegetation and deforestation	Construction workers prohibited from harvesting wood in the project area during their employment.	Illegal wood /vegetation harvesting (area in m^2, number of incidents reported)	LPG cylinder provided to Labor.	Always	Non	Non	RRVPNL/TPL
	Effect on fauna	Prevent work force from disturbing the flora, fauna including hunting of animal and fishing in water bodies. Proper awareness programme regarding	Habitat loss	Training program conducted to create awareness among the workers and staff to conserve the flora and fun. (Provide	F – 271 E – 256 Str – 40.041 km	Non	Non	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 Responsibility
		conservation of flora, fauna including ground vegetation to all drivers, operators and other workers.		annexure if available).				
Site clearance	Vegetation	Marking of vegetation to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	Vegetation marking and clearance control (area in m^2)	Vegetation land not involve through the TL.	Always	Non	Non	RRVPNL/TPL
	Soil erosion and surface runoff	Construction near seasonal rivers, erosion and flood-prone areas (if any) should be restricted to the dry season. Provision and maintenance of drains and retention ponds. Treat clearing and filling areas against flow acceleration and construction work should be carefully designed to minimise obstruction or destruction to natural drainage.	Soil erosion	No soil erosion involve during the construction activity of tower foundation.	Always	Non	Non	RRVPNL/TPL
Mechanised construction	Noise, vibration and operator safety, efficient operation Noise, vibration, equipment wear	Construction equipment to be well maintained. Proper maintenance and turning off plant	Construction equipment - estimated noise emissions and operating schedules	Construction equipment is regularly maintained.Pollution under control certificate	Always	Work carried out with the standards norms.	Need to maintain same practice up to completion up to project.	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 Responsibility
	and tear	not in use.		available				
Construction of roads for accessibility	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 width within the Row.	Access roads, routes (length and width of access roads)	Existing road/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 – 271 E – 256 Str -40.041 km	Only existing path is used for construction activity	Need to maintain same 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 Avoid storage of construction materials beside the road, around water bodies, residential or public sensitive locations	Water and Air Quality	Dropping material in the road collected. Construction material stored at high level ground level at construction site. Construction waste removed from the construction site	Always	Non	Non	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 Responsibility
		Construction materials should be stored in covered areas to ensure protection from dust, emissions and such materials should be bundled in environment friendly and nuisance free manner		after work completion. Construction material – sand will be covered at top to avoid air pollution near houses, and stacked top soil to be also covered at top to avoid blowing during windy conditions				-
Trimming/cutting of trees within RoW	Fire hazards Loss of vegetation and deforestation	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 pruned vegetation to be disposed of as authorised by the statutory bodies.	Species-specific tree retention as approved by statutory authorities (average and maximum tree height at maturity, in metres) Disposal of cleared vegetation as approved by the statutory authorities (area cleared in m^2)	The tree and bushs coming within the 26 Meter either side of central line 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
Health and safety ADD PPE	Injury and sickness of workers and members of the	Contract provisions specifying minimum requirements for construction camps	Contract clauses (number of incidents and	Conducting training courses and meeting for the workers on	Always	All work is carrying out with PPE	Non	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 Responsibility
	public	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	total lost-work days caused by injuries and sickness)	safety and environmental hygienic Providing personal safety devices for workers safety boots, helmet ,gloves, mask and protective cloths				
Nuisance to nearby properties	Losses to neighbouring 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 completion of construction Compensation will be paid for loss of production, if any.	Contract clauses Design basis and layout Reinstatement of land status (area affected, m^2) Implementation of Tree/Crop compensation (amount paid)	Excavated material is used for filling ground itself. Access roads always used for construction activity. Compensation paid against the crop damaged to farmers.	Completely	NA		RRVPNL/TPL
Operation and Maintenance Phase								
Electric shock	Death or injury to the workers	Security fences around substation	Proper maintenance of		**Not Applicable**			

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 Responsibility
	and public	Establishment of warning signs Careful design using appropriate technologies to minimise hazards	fences and sign boards Usage of appropriate technologies (lost work days due to illness and injuries)					
Noise generation	Nuisance to the community around the site	Provision of noise barriers near substation sites	Noise level		**Not Applicable**			
Soil Erosion	Removal of top soil	Planting of buffer zone species suitable for arid climate.	Turbidity of water (Visual Inspection)		**Not Applicable**			
Maintenance of Transmission line	Exposure to electromagnetic interference	Transmission line design to comply with the limits of electromagnetic interference from overhead power lines	Required ground clearance (metres)		Not Applicable			
Substation maintenance	Exposure to electromagnetic interference	Substation design to comply with the limits of electromagnetic interference within floor area	Required vibrations level, instrumentation					
Oil spillage	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 capacity of oil in transformers and associated reserve tanks.	Substation bounding (“as-built” diagrams)		Not Applicable			
Operation of Switchgear	Leakage of SF6 gas	Record of all substation	Switchgear casings and		Not Applicable			

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 Responsibility
		switchgear located within secure casings	Substation bounding					

B.3.2 Environment Monitoring Plan and Status on Implementation

Environmental component	Project stage	Parameters to be monitored	Sampling Location	Monitoring Frequency	Regulatory Standards for parameter	Agency responsible for implementation	Agency responsible for supervision	Test Results	Observations/Comments	Actions for Compliance	Further follow-up required
1.Air Quality	A. Pre-construction stage (Baseline development)	PM_{10}, $PM_{2.5}$, SO_2, NOx, SPM, CO (Visible dust)	Boundary of substation	One time	Spot check using field portable instruments National Air quality standards of CPCB [PM10 or PM2.5]	RVPNL					
	B. Construction Stage	PM_{10}, $PM_{2.5}$, SO_2, NOx, SPM, CO (Visible dust)	Boundary of substation	Every one month of construction period	Spot check using field portable instruments National Air quality standards of CPCB [PM10 or PM2.5	TPL		RRVPNL			**Reports shall be submitted by Nov'2016**
	C. Operation Stage (Testing and Commissioning)	PM_{10}, $PM_{2.5}$, SO_2, NOx, SPM, CO (Visible dust)	Boundary of substation	One time during commissioning	Spot check using field portable instrument sNational Air quality standards of CPCB PM10 or PM2.5	RVPNL					
2.Water	A. Pre-	EC,	Nearest	One time	National	RVPN**L**					

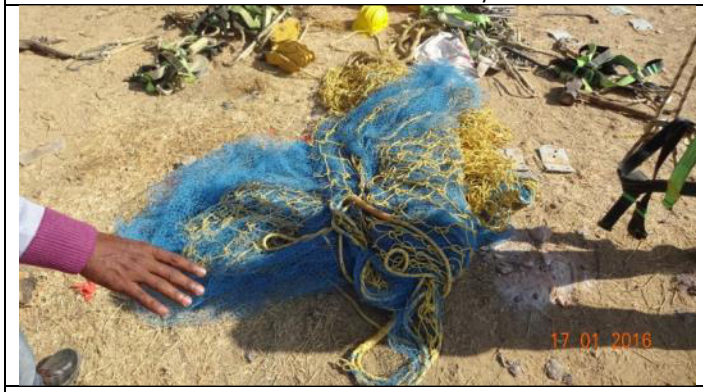
Quality	construction stage (Baseline development)	TSS, DO, BOD, P^H Oil and grease, Pb,	well near substations		water quality standards of CPCB		
	B. Construction Stage	EC, TSS, DO, BOD, P^H Oil and grease, Pb,	Nearest well near substations	One time during cable laying	National water quality standards of CPCB	TPL	Reports shall be submitted by Nov '2016, Testing agency conducting testing at site.
	C. Operation Stage	EC, TSS, DO, BOD, P^H Oil and grease, Pb,	Nearest well near substations	One time during commissioning	National water quality standards of CPCB	RVPNL	
3.Noise/ Vibration	A. Pre-construction stage (Baseline development)	Noise level [dB(A)]	Boundary of substation	One time	CPCB standards for Noise and vibrations	RVPNL	
	B. Construction Stage	Noise level [dB(A)]	Boundary of substation	Every one month of construction period	CPCB standards for Noise and vibrations	TPL	Reports shall be submitted by Nov'2016 .
	C. Operation Stage	Noise level	Boundary of	One time during	CPCB standards	RVPNL	

		[dB(A)]	substation	commissioning	for Noise and vibrations		
4. Soil	A. Pre-construction stage (Baseline development)	Visible spills and/or soil staining, Oil & grease	1 location inside substation	One time	Hazardous Waste Management rules	RVPNL	
	B. Construction Stage	Visible spills and/or soil staining, Oil & grease	1 location inside substation	One time	Hazardous Waste Management rules	TPL	Reports shall be submitted by Nov'2016
	C. Operation Stage	Visible spills and/or soil staining, Oil & grease	1 location inside substation	One time during commissioning	Hazardous Waste Management rules	RVPNL	
SF6	Operation Stage	Volumetric loss from GIS equipment	Substation equipment, circuit breakers	Online monitoring by data loggers	As per Approved Specifications of Equipment	Not Applicable	

Abbreviations:

SO_2- Sulphur Dioxide; NO_2 - Nitrogen Dioxide; CO- Carbon Monoxide; EC – Electric Conductivity;
Pb – Lead; $PM_{2.5}$ - Particulate Matter <2.5;PM_{10} - Particulate Matter <10; TSPM- Total suspended Particulate Matter;
EC - Electrical Conductivity; DO - Dissolved Oxygen; TSS - Total Suspended Solids;
SF_6 – Sulphur Hexafluoride gas
BOD - Biological Oxygen Demand; ORP – Oxidation Reduction Potential
NAAQS - National Ambient Air Quality Standards specified by CPCB, GoI;
NWQS - National Water Quality Standards specified by CPCB, GoI.

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

	
1.1 General terrain along the tower line. Usage of village cart roads	1.2 Temporary drinking water and camp site for day time
	
1.3 Use of firewood collected from nearby areas	1.4 First aid kit at site
	
1.5 Safety Net and other accessories	1.6 Temporary camp at tower erection site for tools etc.

	
1.7 Use of PPE during tower erection	1.8 Display of Safety Boards at construction site.
	
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 (Reply of observation in January 2016 of ADB consultant Team during construction practice review.

Ref: TPL/RVPN/R-A/ICB-5/246

Date: 09.09.2016

To
The Superintending Engineer (Contracts-I)
RVPN-MM Building of RVPN
Old Power House Premises, Near Ram Mandir,
Bani Park, Jaipur-302006.

Project: Construction of 400kV D/C Twin ACSR Moose Transmission Line from Ramgarh – Akal Transmission Line.

Reference: RVPN/SE (P&P)/XEN(ADB-II)/ICB-5/D3087 dated 19.02.2016.

Subject: Information regarding environmental and social aspects of ADB funded project.

Dear Sir,

With reference to the above kindly inform that Environmental and Social Monitoring report is already submitted after visit of ADB delegates at our site and implemented the improvement suggested by the ADB team. We have taken the following action on suggested improvements-

1. Gas cylinders are being used to avoid the usage of wood for cooking.
2. Loose soil/rock/excavated material is being kept minimum 1.5M away from excavated pit and proper barricading tape is being used for safety precautions.
3. At Workplace like stores, we have provided Toilet facilities to our workmen.
4. Ensure the strict adherence of Environment Management plan.

This is for your kind reference and records.

Thanking you and assuring you of our best services all times.

Yours Faithfully,
For **Tata Projects Limited**

Kommi Siva Kumar.
Senior Manager (Projects)

Copy to: 1. The Superintending Engineer (T&C), RVPN Jaisalmer.

TATA PROJECTS LIMITED
Ground Floor, Tower-B, Green Boulevard, Plot No. B-9/A
Sector-62, Noida-201307, Uttar Pradesh
Phone : +91-120-619 9999 Fax : +91-120-619 9990

Registered Office : "Mithona Towers-1", 1-7-80 to 87, Prenderghast Road, Secunderabad-500 003 (AP), India
Phone : +91-40-6623 8801 Fax : +91-40-6617 2535

Annexure 3
Test Reports

Testing for the Ambient Air Quality, Ambient Noise, Drinking of Water and Soil are under progress, Spectro analytic Lab Limited move to site for testing purpose. Result shall be submitted Nov -2016.