Environmental Monitoring Report

Project Number: 45224-003
July 2017

Period: October 2016 – March 2017

IND: Rajasthan Renewable Energy Transmission Investment Program - Tranche 1

Subprojects: 400 kV Pooling Substation Ramgarh & augmentation works at Akal GSS (ICB-1)

Submitted by

Rajasthan Rajya Vidyut Prasaran Nigam Limited, Jaipur

Asian Development Bank

RKD

For logging PD
NK/VRK.

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Date: 20/07/2017 05:02 PM
Subject: Environmental monitoring report for ICB 1

KFA

Regards,

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

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From: J P RAMAWAT <jpramawat1967@gmail.com>
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Subject: Revised EMP

KFA revised EMP for ICB 1.

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ICB 1

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Environmental Safeguards Document

2nd Environment Monitoring Report
For ICB 1: 400 kV Pooling Substation Ramgarh& augmentation works at Akal GSS

Document Stage: Final Document
Project Number: 45224 (IND)
Period – **Oct, 2016 – March ,2017.**
Reporting –July -2017.

India: Rajasthan Renewable Energy Transmission Investment Program

Prepared for Asian Development Bank byRajasthan RajyaVidyutPrasaran Nigam Limited (RRVPNL), Government of Rajasthan.

Environment Monitoring Report

Compliance Status & Monitoring Report of Environment Safeguards

Period: Oct, 2016 – March ,2017

Submitted by: Rajasthan RajyaVidyutPrasaran Nigam Limited, Rajasthan

Table of Contents

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	Loan 3052-IND: Rajasthan Renewable Energy Transmission Investment Program - Tranche 1
II	Name of Monitoring/Reporting Agency and address	RRVPNL/VidutBhawan, Janpath, Jyoti Nagar Jaipur – 302005 Techno Electric and Engineering Co. Ltd., 47 Mission Compound, 1st Floor, Near Ajmer Pulia, Ajmer Road, Jaipur
III	Monitoring Period (Season/month)	Oct-2016 to april -2017
IV	Report No.	3
V	Report for the period	Oct-2016 to april -2017
VI	Date of reporting	july- 2017

A.2. Subproject details

	List of sub-projects	**Name of the Project site**
I	ICB 1: 400 kV Pooling Substation Ramgarh& augmentation works at Akal GSS	ICB 1: 400 kV Pooling Substation Ramgarh& augmentation works at Akalunder specification No. RRVPN / ADB / Tranche 1/ICB-1 (Supply & Service contract) to M/s. Techno Electric and Engineering Co. Ltd.
II		Contract Agreement signed 27.02.2015
III		
IV		
V		
VI		

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

S No	Stage of sub-project	Progress as on date of Report	Implementation Schedule
1	Design	100%	Progress report attached Annexer :4
2	Foundations	100%	
3	Supply order	100%	
4	ERECTION	95% (bcoz reactor not received till date)	
5	TESTING COMMISSIONING	97%	

Above Report based on the Approved L2 Schedule. Progress Report Enclosed

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	Not applicable since site is in desert area location
2	The Air (Prevention and Control of Pollution) Act, 1981	Air Pollution	Preventive measures are being adopted to avoid such pollution. Report attached(Annex-5)
3	The Environment (Protection) Act, 1986	Construction Practices	Not applicable since site is in desert area location
4	The Environment Impact Assessment Notification, 1994 as amended	EMP monitoring	Test report attached(Annex-5)
5	The Hazardous Wastes (Management and Handling) Rules, 1989 as amended	Transformer Oil	Not applicable at this stage
6	The Ozone Depleting Substances (Regulation and Control) Rules, 2000	Cleaning of electrical contacts using HFCs etc.	It shall be taken care during gas filling in CBs .
7	The Batteries (Management and Handling) Rules, 2001 as amended	Batteries	Dry type battery used
8	The Indian Forest Act, 1927 as amended	Reserve Forest areas, Right of way	Forest Land is not involved in the substation.
9	The Wild Life (Protection) Act, 1972 as amended	Critical habitats	No Wild life is involved in Project.
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.
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	Government Land
2	Clearance from trees	No trees on the site
3	Forest area and Nos. of trees.	No Forest land is being involved.
4	Damage to forest	No forest in the vicinity.
5	Wild life sanctuaries	No Wild life is involved in Project.

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	None
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	As per EMP implemented by EPC contractor	Preventive actions are being adopted to avoid such nuisance.

	construction		Measures to reduce dust, noise, vibrations and labor problems currently.

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 in the area.
3	Safeguard against critically endangered Flora and fauna.	Avoid	No Flora Fauna involved in project
4	Rain and Flood prone area.	Avoid	Not a flood prone area
5	Environmental parameters for air, noise, land and water during project construction	Environmental Monitoring Plan	Report attached

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 #**				
	As on date no complaint has been received				

B.2.5. Staffing, Institutional Arrangements and Grievance Redress

Sl.No.	Parameters	Commitment	Compliance Statement
1	Numbers of Staff deputed/employed for environment safeguards	One at -site	One Safety Officer
2	PIU established as per proposed institutional mechanism	Vide letter no.1252 20-8-2015dtd.	Start of date of construction is 21.08.15
3	GRC formation	Yes	Yes, complied
4	Grievance Redress Mechanism followed	Proper record	Currently no environment related grievance received.

B.2.6. Other measures:

I	Sub-Project #
1	
2	

B2.8 Annexures

I	Sub-Project #
1	Photographs of the following – foundation construction, stores, toilets, drinking water, kitchen, PPE etc.
2.	RVPNL Letter dated 19.02.2016 regarding EMP issues
3.	Baseline Report of Environmental Parameters (Pre-construction)
4.	Techno Engineering Reply to RVPNL Letter dated 19.02.2016 regarding EMP issues: Remedial measures take from Techno in response to Annexure 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	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	Village areas atleast 500 m away	NA			RRVPNL
Substation location and design	Noise generation Exposure to noise, Nuisance to neighbouring properties	Substation designed to ensure noise will not be a nuisance.	Expected noise emissions based on substation design, noise levels	Village areas atleast 500 m away	Digging of foundations mostly in soil and no rock is there	NIL		RRVPNL
	Disturbance to the adjacent lands and the people due to cut and fill operations	Maintained adequate clearance, construction of retaining structures, minimise cut and fill operations adjoining to the dwellings	Setbacks to houses and other structures					
Location of transmission towers and transmission line alignment and design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Tower location and line alignment selection with respect to nearest dwellings	House/dwelling area at least 500 Mtr away.	NA	NA	NA	RRVPNL
	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 substation land	NA	-	-	RRVPNL
Equipment specifications and design parameters	Release of chemicals and harmful gases in receptors (air,	PCBs free substation transformers or other project facilities or equipment.	Transformers and specifications and compliance with setback distances	Equipment Design for substation submitted to RRVPNL for review	Design approved			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
	water, land)		("as-built" diagrams)					
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	No ecological areas are involved in substation.		-	-	RRVPNL
Involuntary resettlement or land acquisition	Loss of lands and structures	Compensation paid for temporary/ permanent loss of productive land	Public complaints		NA	NA	-	RRVPNL
Encroachment into farmland	Loss of agricultural productivity	Use existing tower footings/towers wherever possible Avoid siting new towers on farmland wherever possible Farmers compensated for any permanent loss of productive land and trees that need to be trimmed or removed along RoW.	Tower location and line alignment selection Design of Implementation of crop and tree compensation (based on affected area) Statutory approvals for tree trimming /removal		NA	NA	NA	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	Substation foundations are spotted beyond the boundaries of water channel.		278	-	RRVPNL
Explosions/Fire	Hazards to life	Design of substations to include modern fire control systems/firewalls. Provision of firefighting equipment to be located close to transformers,	Substation design compliance with fire prevention and control codes	Design of substation equipment approved by RRVPNL	Design approved			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
		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 will be published into the local newspaper for electric utility shutdown.			-	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 after construction completed Repair /reinstate damaged bunds etc. after construction completed Compensation for temporary loss in agricultural production.	Land area of agriculture loss Usage of existing utilities Status of facilities (earthwork in m^3) Implementation of crop compensation (amount paid, dates, etc.)	No work locations in any farming area Top soil will be restored during the back filling work.	Completely	-	-	RRVPNL
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 will be published into the local newspaper for electric utility shutdown.			-	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
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.	Using cutting machine with less noise		-	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	No equipment supplied currently	SF6 gas cylinder already kept in store in a secured position			
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)	Top soil retained inside substation	Acces soil shifting out of sub staion .			
	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	None	Drain lay out approved.			
	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	Testing to be done as per EMP requirement in Sept 2016	No ground water disturbance			
Construction schedules	Noise nuisance to neighbouring properties	Minimize construction activities undertaken during the night and local communities informed of the construction schedule.	Timing of construction (noise emissions, [dB(a)])	Villages located about 500 m away from substation and mostly work carried out during day time.		-	-	RRVPNL/Techno
Provision of facilities for construction 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 involved	-	-	-	RRVPNL/Techno
	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. Workers have sufficient waste water collection system and septic camp.		-	-	RRVPNL/Techno
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	Location and amount (m^3) of fill disposal Soil disposal locations and volume (m^3)	Excess soil is dumped inside the substation and then used for fill inside.	Acces soil shifting out of sub staion	-	-	RRVPNL/Techno

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
		local community or landowners.						
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	Lack of water leading to no spraying of water to minimize dust releasing in case of windy and dry weather.	Water spraying done at site	-	-	RRVPNL/Techno
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)	Firewood used, however LPG cylinder will be provided to Labor.	LPG cylinder Used at site	-	-	RRVPNL/Techno
	Effect on fauna	Prevent work force from disturbing the flora, fauna including hunting of animal and fishing in water bodies. Proper awareness programme regarding conservation of flora, fauna including ground vegetation to all drivers, operators and other workers.	Habitat loss	Training program to be conducted to create awareness among the workers and staff to conserve the flora and fauna.	labour awareness plan done to conserve fauna.	-	-	RRVPNL/Techno
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 involved at the substation line		-	-	RRVPNL/Techno
	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	Soil erosion	No soil erosion involve during the construction activity of substation.	No soil erosion involved.	-	-	RRVPNL/Techno

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
		should be carefully designed to minimiseobstruction or destruction to natural drainage.						
Mechanised construction	Noise, vibration and operator safety, efficient operation Noise, vibration, equipment wear and tear	Construction equipment to be well maintained. Proper maintenance and turning off plant not in use.	Construction equipment - estimated noise emissions and operating schedules	Construction equipment is regularly maintained. Pollution under control certificate to be made available	Completely	-	-	RRVPNL/Techno
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.	Road work inside substation.	-	-	RRVPNL/Techno
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 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	Water and Air Quality	Dropping material in the road collected. Construction material stored at high level ground level at construction site. Construction material – sand will be covered at top to avoid air pollution and stacked top soil to be also covered at top to avoid blowing during windy conditions	Construction material stored inside S/s	-	-	RRVPNL/Techno

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
		free manner						
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)	NA	NA	-	-	
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. 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 lost-work days caused by injuries and sickness)	Conducting training courses and meeting for the workers on safety and environmental hygienic Providing personal safety devices for workers safety boots, helmet, gloves, mask	Training conducted at site	-	-	RRVPNL/Techno
Nuisance to nearby properties	Losses to neighboring land uses/ values	Contract clauses specifying careful construction practices. As much as possible existing access ways will be used.	Contract clauses Design basis and layout Reinstatement of land status (area affected, m^2) Implementation of Tree/Crop	Excavated material will be used for filling ground itself.	Soil shifted outside of S/S	-	-	RRVPNL/Techno

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
		Productive land will be reinstated following completion of construction Compensation will be paid for loss of production, if any.	compensation (amount paid)					
Operation and Maintenance Phase								
Electric shock	Death or injury to the workers and public	Security fences around substation Establishment of warning signs Careful design using appropriate technologies to minimise hazards	Proper maintenance of fences and sign boards Usage of appropriate technologies (lost work days due to illness and injuries)			Not applicable at this stage		
Noise generation	Nuisance to the community around the site	Provision of noise barriers near substation sites	Noise level			Not applicable at this stage		
Soil Erosion	Removal of top soil	Planting of buffer zone species suitable for arid climate.	Turbidity of water (Visual Inspection)			Not applicable at this stage		
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 at this stage		
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 at this stage		

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
Operation of Switchgear	Leakage of SF6 gas	Record of all substation switchgear located within secure casings	Switchgear casings and Substation bounding			Not applicable at this stage		

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		Baseline data available – Annexure 3			
	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	TECHNO		Report attached			
	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 instruments National Air quality standards of CPCB [PM10 or PM2.5						
2.Water Quality	A. Pre construction stage (Baseline development)	EC, TSS, DO, BOD, P^H Oil and grease, Pb,	Nearest well near substations	One time	National water quality standards of CPCB	RVPNL		Baseline data available – Annexure 3			
	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						

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
	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						
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		Baseline data available – Annexure 3			
	B. Construction Stage	Noise level [dB(A)]	Boundary of substation	Every one month of construction period	CPCB standards for Noise and vibrations	techno		Report attached			
	C. Operation Stage	Noise level [dB(A)]	Boundary of substation	One time during commissioning	CPCB standards 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		Baseline data available – Annexure 3			
	B. Construction Stage	Visible spills and/or soil staining, Oil & grease	1 location inside substation	One time	Hazardous Waste Management rules						
	C. Operation Stage	Visible spills and/or soil staining, Oil & grease	1 location inside substation	One time during commissioning	Hazardous Waste Management rules						
SF6	Operation Stage	Volumetric loss from GIS equipment	Substation equipment, circuit breakers	Online monitoring by data loggers	As per Approved Specifications of Equipment	Techno		Techno at Testing (95 % complete)and Commissioning Stage			

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 Dust at the site

1.2 Temporary drinking water at site

1.3 Use of firewood collected and open bathing and washing areas

1.4 Open work areas at site and no PPE used

1.5 Temporary labor camps

1.6 Firewood use inside kitchen

1.7 Storage of raw material at site

1.8 Un taped construction site.

	
1.9 Dust pollution during digging due to sandy soil	1.10 One toilet at the site
	
1.11 Augmentation at Akal Substation site	1.12 Foundation pit dug up at Akal Substation

Annexure 2:
RVPNL Letter dated 19.02.2016 regarding EMP issues

RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED
OFFICE OF THE SUPTDG. 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-I)/ICB-1/.D - 3089 Dated 19-02-16

M/s.Techno Electric and Engineering Co. Ltd.,
47,Mission Compound, 1st Floor,
Near Ajmer Pulia,Ajmer Road,
Jaipur

Sub:- To furnish information of environmental and social aspects in various ADB funded projects.(ICB-1).

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 safeguard requirements.

You are advised to take note of the following:-

1. Proper PPE are supplied to the working staff.
2. Adequate numbers of toilets for workers are available at site.
3. Clean drinking water be properly placed at site & supplied to the workers.
4. Danger tape demarcation for all deep pit/foundation/work area.
5. First aid & medical kits are available at workers camp & site office.
6. Installation of safety placards depicting safely practise at site.
7. Water sprinkling on the areas where vehicles are moving inside the project area to avoid dust formation
8. Gas is used by all your staff at site instead of fire wood.
9. Proper waste management from your kitchen and associated activities.
10. Air,water,noise & soil parameters test reports are provided to the projects incharge as per the format provided by the visiting team.

The ADB mission from Delhi office shall be visiting the respective sites to review the adherence of the activities at site in compliance with their social & environmental safeguard policy. Kindly ensure strict compliance of the above.

(A.K. Sharma)
Superintending Engineer (P&P)
RVPN, Jaipur

Copy submitted to The Superintending Engineer (400 kV GSS) , RVPN Ramgarh/Jaisalmer for kind information.

Superintending Engineer (P&P)

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

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

S. No	Component	No. of Sample	Report Reference No.	Sampling Location	Remark
1 and 2	**for Air and Noise Monitoring**	4 each	SS-1	GSS Sub Station Land, Khasara No. 8, Village: Bhadla, Post: Nuro Ki Burj, Tehsil: Phalodi, District Jodhpur	Report attached
			SS – 2	400 KVA GSS Site, Village: Meyon Ki Dhani, Post: Ramgarh, Jaisalmer	
			SS – 3	Near SE office 400 KVA (RRVPNL), Village: Akal, Post: Jodha, Jaisalmer	
			SS – 4	GSS 400 kVA Site, Village: Kakani, Post and Tehsil: Luni, Jodhpur	
3	**Water Analysis**	4	SS-1	Water sample collected from Bore well of Munna Ram Ji, Village: Bhadla (Khasra No.9), Post: Nuro Ki Burj, Tehsil: Phalodi, District Jodhpur	
			SS – 2	Water sample collected from Govt. Bore well (Nearest Bore well GSS Ramgarh), Village and Post: Sonu, Tehsil: Ramgarh, District Jaisalmer	
			SS – 3	Water sample collected from Govt. Bore well inside 400 KVA GSS (RRVPNL), Village: Akal, Post: Jodha, Jaisalmer 1	
			SS – 4	Water sample collected from Open Well of Babu Singh Champavat, Village: Kakani, Post and Tehsil: Luni, Jodhpur	
4	**Soil Analysis**	4	SS-1	Soil sample collected from the land of proposed GSS Sub Station, Khasara No. 8, Village: Bhadla, Post: Nuro Ki Burj, Tehsil: Phalodi, District Jodhpur	
			SS – 2	Soil sample collected from the proposed Ramgarh GSS 400 KVA, Village and Post: Sonu, Tehsil: Ramgarh, District Jaisalmer	
			SS – 3	Soil sample collected from the land of proposed GSS 400 KVA (RRVPNL), Village: Akal, Post: Jodha, Jaisalmer	
			SS – 4	Soil sample collected from the land of Proposed GSS 400 KVA, Village: Kakani, Post and Tehsil: Luni, Jodhpur	

A. AMBIENT AIR QUALITY MONITORING REPORT

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

Sample No	Site	Particulate Matter (PM 2.5)	Particulate Matter (PM 10)	Sulphur Dioxide (SO2)	Oxide of Nitrogen (NOX)	Carbon Monoxide as (CO)
SS - 1	GSS Sub Station Land, Khasara No. 8, Village: Bhadla, Post: Nuro Ki Burj, Tehsil: Phalodi, District Jodhpur	24.1 μg / m3	47.5 μg / m3	6.0 μg / m3	9.0 μg / m3	373 μg / m3
SS - 2	400 KVA GSS Site, Village: Meyon Ki Dhani, Post: Ramgarh, Jaisalmer	27.3 μg / m3	57.7 μg / m3	6.5 μg / m3	9.3 μg / m3	573 μg / m3
SS - 3	Near SE office 400 KVA (RRVPNL), Village: Akal, Post: Jodha, Jaisalmer	32.6 μg / m3	65.8 μg / m3	6.3 μg / m3	9.7 μg / m3	687 μg / m3
SS - 4	GSS 400 kVA Site, Village: Kakani, Post and Tehsil: Luni, Jodhpur	20.5 μg / m3	44.6 μg / m3	6.0 μg / m3	9.0 μg / m3	458 μg / m3
	Standard Value	60 μg / m3	100 μg / m3	80 μg / m3	80 μg / m3	2000 μg / m3
	Methods of Measurement	Gravimetric Method	Gravimetric Method	Improved West and Gaeke Method	Modified Jacob and Hochheiser Method	IS: 5182 – 1975 Part X

B. AMBIENT NOISE MONITORING REPORT

i.Ambient Noise Monitoring Report for Grid Substations (November 2011)

Sample No	Site	Ld (Day Equivalent)	Ln (Night Equivalent)	Ldn (Day-Night Equivalent)
SS - 1	GSS Sub Station Land, Khasara No. 8, Village: Bhadla, Post: Nuro Ki Burj, Tehsil: Phalodi, District Jodhpur	45.45	41.00	48.15
SS - 2	400 KVA GSS Site, Village: Meyon Ki Dhani, Post: Ramgarh, Jaisalmer	48.58	41.94	50.01
SS - 3	Near SE office 400 KVA (RRVPNL), Village: Akal, Post: Jodha, Jaisalmer	52.31	42.31	52.31

Sample No	Site	Ld (Day Equivalent)	Ln (Night Equivalent)	Ldn (Day-Night Equivalent)
SS - 4	GSS 400 kVA Site, Village: Kakani, Post and Tehsil: Luni, Jodhpur	53.17	41.75	52.74

All results are 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	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Note
1. Day time shall mean from 6.00 a.m. to 10.00 p.m.
2. Night time shall mean from 10.00 p.m. to 6.00 a.m.
3. Silence zone is defined as an area comprising 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.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

*dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
A "decibel" is a unit in which noise is measured.
"A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
Leq : It is an energy mean of the noise level, over a specified period.
Source: Ministry of Environment and Forests Notification, New Delhi, the 14 February, 2000 S.O. 123(E)

C. ANALYSIS REPORT OF SOIL

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 Kakani
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	(%)	0.05	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
Potassium as K	(%)	0.012	0.04	0.024	0.012
Zinc	Mg / 100 Gm	BDL	BDL	BDL	BDL
Copper	Mg / 100 Gm	BDL	BDL	BDL	BDL
Chromium	Mg / 100 Gm	BDL	BDL	BDL	BDL
Cadmium	Mg / 100 Gm	BDL	BDL	BDL	BDL
Nickel	Mg / 100 Gm	BDL	BDL	BDL	BDL
Lead	Mg / 100 Gm	BDL	BDL	BDL	BDL

BDL* - Below Detectable Limit
All results are on dry basis.

D. ANALYSIS OF WATER QUALITY

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

Sample No : SS-1: Water sample collected from Bore well of Munna Ram Ji, Village: Bhadla (Khasra No.9), Post: Nuro Ki Burj, Tehsil: Phalodi, District Jodhpur (for GSS Bhadla)

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	
1.1.1.1.1 Essential Characteristics-Physical Parameter				
Color, Hazen Units	< 1	5	25	IS: 3025 Part 4 - 1983
Odour	Unobjectionable	Unobjectionable	-	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	7.40	6.5 – 8.5	-	IS: 3025 Part 11 - 1984
Essential Characteristics-Chemical Parameters				
Total Hardness as CaCO3	548.00 Mg / L	300 Mg / L	600 Mg / L	IS: 3025 Part 21 - 1983
Iron as Fe	0.10 Mg / L	0.3 Mg / L	1.0 Mg / L	IS: 3025 Part 53 - 2003
Chloride as Cl	775.76 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 - 1986
Desirable Characteristics-Chemical Parameters				
Dissolved Solids	2,532.00 Mg / L	500 Mg / L	2000 Mg / L	IS: 3025 Part 16 - 1984
Calcium as Ca	110.40 Mg / L	75 Mg / L	200 Mg / L	IS: 3025 Part 40 - 1991
Magnesium as Mg	66.64 Mg / L	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
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	IS: 3025 Part 59 - 2006
Sulphate as SO4	166.34 Mg / L	200 Mg / L	400 Mg / L	IS: 3025 Part 24 - 1986
Nitrate as NO3	7.56 Mg / L	45 Mg / L	No relaxation	IS: 3025 Part 34 - 1988
Fluoride as F	1.33 Mg / L	1.0 Mg / L	1.5 Mg / L	IS: 3025 Part 60 - 2008
Phenolic Compounds as C6H5OH	< 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
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 relaxation	IS: 3025 Part 56 - 2003
Arsenic as As	< 0.005 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 37 - 1998
Cyanide as CN	< 0.02 Mg / L	0.05 Mg / L	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 Zn	< 0.02 Mg / L	5 Mg / L	15 Mg / L	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 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 52 - 2003
Mineral Oil	< 0.01 Mg / L	0.01 Mg / L	0.03 Mg / L	IS: 3025 Part 39 - 1991
Alkalinity	404.00 Mg / L	200 Mg / L	600 Mg / L	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
Boron as B	< 0.02 Mg / L	1 Mg / L	5 Mg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristics				
Coliform Organisms	6 CFU	10 CFU	10 CFU	IS: 1622 - 1981
E. Coli	Absent	Absent	Absent	IS: 1622 - 1981

Sample No. SS – 2: Water sample collected from Govt. Bore well (Nearest Bore well GSS Ramgarh), Village and Post: Sonu, Tehsil: Ramgarh, District Jaisalmer

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**	
1.1.1.1.2 Essential Characteristics-Physical Parameter				
Color, Hazen Units	< 1	5	25	IS: 3025 Part 4 - 1983
Odour	Unobjectionable	Unobjectionable	-	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	8.05	6.5 – 8.5	-	IS: 3025 Part 11 - 1984
Essential Characteristics-Chemical Parameters				
Total Hardness as CaCO3	276.00 Mg / L	300 Mg / L	600 Mg / L	IS: 3025 Part 21 - 1983
Iron as Fe	0.05 Mg / L	0.3 Mg / L	1.0 Mg / L	IS: 3025 Part 53 - 2003
Chloride as Cl	495.85 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 - 1986
Desirable Characteristics-Chemical Parameters				
Dissolved Solids	1,785.00 Mg / L	500 Mg / L	2000 Mg / L	IS: 3025 Part 16 - 1984
Calcium as Ca	70.40 Mg / L	75 Mg / L	200 Mg / L	IS: 3025 Part 40 - 1991
Magnesium as Mg	24.50 Mg / L	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
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	IS: 3025 Part 59 - 2006
Sulphate as SO4	113.49 Mg / L	200 Mg / L	400 Mg / L	IS: 3025 Part 24 - 1986
Nitrate as NO3	12.93 Mg / L	45 Mg / L	No relaxation	IS: 3025 Part 34 - 1988

Fluoride as F	1.47 Mg / L	1.0 Mg / L	1.5 Mg / L	IS: 3025 Part 60 - 2008
Phenolic Compounds as C6H5OH	< 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
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 relaxation	IS: 3025 Part 56 - 2003
Arsenic as As	< 0.005 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 37 - 1998
Cyanide as CN	< 0.02 Mg / L	0.05 Mg / L	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 Zn	< 0.02 Mg / L	5 Mg / L	15 Mg / L	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 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 52 - 2003
Mineral Oil	< 0.01 Mg / L	0.01 Mg / L	0.03 Mg / L	IS: 3025 Part 39 - 1991
Alkalinity	268.00 Mg / L	200 Mg / L	600 Mg / L	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
Boron as B	< 0.02 Mg / L	1 Mg / L	5 Mg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristics				
Coliform Organisms	7 CFU	10 CFU	10 CFU	IS: 1622 - 1981
E. Coli	Absent	Absent	Absent	IS: 1622 - 1981

Sample No. SS – 3: Water sample collected from Govt. Bore well inside 400 KVA GSS (RRVPNL), Village: Akal, Post: Jodha, District Jaisalmer

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**	
1.1.1.1.3 Essential Characteristics-Physical Parameter				
Color, Hazen Units	< 1	5	25	IS: 3025 Part 4 - 1983
Odour	Unobjectionable	Unobjectionable	-	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	8.36	6.5 – 8.5	-	IS: 3025 Part 11 - 1984
Essential Characteristics-Chemical Parameters				
Total Hardness as CaCO3	120.00 Mg / L	300 Mg / L	600 Mg / 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
Residual Free Chlorine	< 0.1 Mg / L	0.2 Mg / L	-	IS: 3025 Part 26 - 1986
Desirable Characteristics-Chemical Parameters				
Dissolved Solids	977.00 Mg / L	500 Mg / L	2000 Mg / L	IS: 3025 Part 16 - 1984
Calcium as Ca	27.20 Mg / L	75 Mg / L	200 Mg / L	IS: 3025 Part 40 - 1991
Magnesium as Mg	12.74 Mg / L	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
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	IS: 3025 Part 59 - 2006
Sulphate as SO4	131.75 Mg / L	200 Mg / L	400 Mg / L	IS: 3025 Part 24 - 1986
Nitrate as NO3	2.25 Mg / L	45 Mg / L	No relaxation	IS: 3025 Part 34 - 1988
Fluoride as F	0.83 Mg / L	1.0 Mg / L	1.5 Mg / L	IS: 3025 Part 60 - 2008
Phenolic Compounds as C6H5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	IS: 3025 Part 43 - 1991
Mercury as Hg	0.2 Mg / 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 relaxation	IS: 3025 Part 56 - 2003
Arsenic as As	0.005 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 37 - 1998
Cyanide as CN	0.02 Mg / L	0.05 Mg / L	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 Zn	0.02 Mg / L	5 Mg / L	15 Mg / L	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 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 52 - 2003
Mineral Oil	0.01 Mg / L	0.01 Mg / L	0.03 Mg / L	IS: 3025 Part 39 - 1991
Alkalinity	204.00 Mg / L	200 Mg / L	600 Mg / L	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
Boron as B	0.02 Mg / L	1 Mg / L	5 Mg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristics				
Coliform Organisms	6 CFU	10 CFU	10 CFU	IS: 1622 - 1981
E. Coli	Absent	Absent	Absent	IS: 1622 - 1981

Sample No. SS – 4: Water sample collected from Open Well of Babu Singh Champavat Village: Kakani, Post and Tehsil: Luni, District Jodhpur

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**	
1.1.1.1.4 Essential Characteristics-Physical Parameter				
Color, Hazen Units	< 1	5	25	IS: 3025 Part 4 - 1983
Odour	Unobjectionable	Unobjectionable	-	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	8.30	6.5 – 8.5	-	IS: 3025 Part 11 - 1984
Essential Characteristics-Chemical Parameters				
Total Hardness as CaCO3	108.00 Mg / L	300 Mg / L	600 Mg / L	IS: 3025 Part 21 - 1983
Iron as Fe	0.02 Mg / L	0.3 Mg / L	1.0 Mg / L	IS: 3025 Part 53 - 2003
Chloride as Cl	7.99 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 - 1986
Desirable Characteristics-Chemical Parameters				
Dissolved Solids	181.00 Mg / L	500 Mg / L	2000 Mg / L	IS: 3025 Part 16 - 1984
Calcium as Ca	33.60 Mg / L	75 Mg / L	200 Mg / L	IS: 3025 Part 40 - 1991
Magnesium as Mg	5.88 Mg / L	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
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	IS: 3025 Part 59 - 2006
Sulphate as SO4	27.22 Mg / L	200 Mg / L	400 Mg / L	IS: 3025 Part 24 - 1986
Nitrate as NO3	2.79 Mg / L	45 Mg / L	No relaxation	IS: 3025 Part 34 - 1988
Fluoride as F	0.18 Mg / L	1.0 Mg / L	1.5 Mg / L	IS: 3025 Part 60 - 2008
Phenolic Compounds as C6H5OH	< 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
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 relaxation	IS: 3025 Part 56 - 2003
Arsenic as As	< 0.005 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 37 - 1998
Cyanide as CN	< 0.02 Mg / L	0.05 Mg / L	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 Zn	< 0.02 Mg / L	5 Mg / L	15 Mg / L	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 Mg / L	0.05 Mg / L	No relaxation	IS: 3025 Part 52 - 2003
Mineral Oil	< 0.01 Mg / L	0.01 Mg / L	0.03 Mg / L	IS: 3025 Part 39 - 1991
Alkalinity	124.00 Mg / L	200 Mg / L	600 Mg / L	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
Boron as B	< 0.02 Mg / L	1 Mg / L	5 Mg / L	IS: 3025 Part 57 - 2005
Bacteriological Characteristics				
Coliform Organisms	3 CFU	10 CFU	10 CFU	IS: 1622 - 1981
E. Coli	Absent	Absent	Absent	IS: 1622 - 1981

Annexure 4: Techno Electric and Engineering Co. Limited Reply to RVPNL Letter dated 19.02.2016 regarding EMP issues

TECHNO ELECTRIC AND ENGINEERING CO. LTD.
47, Mission Compound • 1st Floor • Near Ajmer Pulia • Ajmer Road • Jaipur- 302 006 • Tel. 0141-4036962
Cell No. 9007059200 • E -Mail :basab.majumdar@techno.co.in
ENGINEERS & CONSTRUCTORS

0706RA/16-17/203
May 05, 2016

The Superintending Engineer (P&P)
Rajasthan Rajya Vidyut Prasaran Nigam Limited
Janpath, Jyoti Nagar
Jaipur – 302 005

Kind Attn: **Mr. A. K. Sharma**

Sub: **Site Visit by ADB's Officers at Ramgarh S/s**
Ref: **PO No. RVPN/Sr.AO/PPM/ICB-1/F.2039 (Supply)/D.1016 dtd. 27.02.15**
PO No. RVPN/Sr.AO/PPM/ICB-1/F.2039 (Service)/D.1017 dtd. 27.02.15

Dear Sir,

We would like to inform that officers of Asian Development Bank were visited at Ramgarh Site on 17.01.16 & they made comment on certain issues at site in which we have attainted the following:

1. Construct of New 06 No. Toilet for Workers-**Constructed**
2. Providing of Cooking Gas for workers (avoiding the use of firewood)-**Provided**
3. Providing Helmet, Safety Shoes, Mask, Eye Glass, Hand Gloves in all workers-**Procured the marerials & using by the worker**
4. Using of Caution Boards & Tape-**Maintained during Site Work**
5. Depute One No. Safety Engineer-**Available at Site**
6. Treatment of Waste Management-**Completed**
7. Purification of Drinking water for labour colony-**Done**
8. Providing separate Kitchen for workers-**Completed**
9. Water Sprinkling in site over dust-**Doing on regular basis**
10. Providing First Aid Box in labour colony-**Available**
11. Stacking of loose earths in one area-**Completed**
12. Provide tracking of vehicle movement in site-**Tracking on regular basis**
13. HIV awareness Program in monthly basis- **We are co-ordinating with the Local Doctor to visit at site once in a month**

This is for your kind information please & request you to kindly intimate to the ADB officers accordingly.

Thanking you & assuring of our best services at all times.

Yours faithfully,
For **TECHNO ELECTRIC & ENGG. CO. LTD.**

Arpan Dutta
Manager (Projects)

Registered Office: P-46A, Radha Bazar Lane • Kolkata 700001 • Tel 2225 4671/4472, 3021-2600 • Fax +91 33 2225 4478
Corporate Office & Electrical Division: 2F & 3F, Park Plaza, North Block, 71, Park Street, Kolkata-700 016 Tel: 3021-3000, 98318 56617-20, Fax: 033-2217-1167
Utility Projects Division: 6A, Park Plaza, South Block, 71 Park Street, 6th Floor, Kolkata- 700 016, Tel: 3021-4700, Fax: 033-3021-4772
New Delhi Office: 508-509, Skipper Corner • 88, Nehru Place • New Delhi 110 019 • Tel 2643 1602, 3054-2900 • Fax +91 11 2644 6098
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Annexure 4.

PROGRESS REPORT :-

RAJASTHAN RAJYA VIDHYUT PRASARAN NIGAM LTD.
OFFICE OF THE EXECUTIVE ENGINEER
400/220 KV GSS Ramgarh (Jaisalmer)
Civil progress report

SL. NO.	WORK DESCRIPTION	UNIT	SCOPE	PROGRESS STATUS			
1	Geo technical investigation		Lot	Completed			
2	Contour and site levelling	LOT	Lot	Completed			
3	400 KV Tower Foundation			Exca.	PCC	Raft	Column
	TOWER TC	Nos	16	COMPLETED			
	TOWER TG	Nos	1				
	TOWER TH	Nos	15				
	TOWER TI	Nos	2				
	TOWER TJ	Nos	26				
	TOWER TK	Nos	1				
	TOWER TL	Nos	7				
	TOWER TM	Nos	1				
	TOWER TN	Nos	7				
	LM	Nos	19				
4	400 KV EQUPMENT Foundation						
	CT	Nos	84	COMPLETED			
	CB	SET	20				
	ISO	Nos	60				
	LA	Nos	42				
	CVT	Nos	30				
	WT	Nos	24				
	METERING CT	Nos	6				
	METERING CVT	Nos	6				
	BPI	LOT	80				
5	220 KV Tower Foundation						
	TOWER AT4	Nos	31	COMPLETED			
	TOWER AT6 WITH PEAK	Nos	22				
	TOWER AT6 WITHOUT PEAK	Nos	2				
	TOWER AT1	Nos	16				
	TOWER AT3	Nos	3				
6	220 KV EQUPMENT Foundation						

	CT	Nos	60	COMPLETED			
	CB	Nos	16				
	ISO	Nos	58				
	LA	Nos	33				
	CVT	Nos	33				
	WT	Nos	24				
	METERING CT	Nos	12				
	METERING CVT	Nos	12				
	120 KV LA	Nos	3				
	BPI	LOT	168	COMPLETED			
	72.5 ISO	LOT	1				
	42KV,52KV CLASS LA	LOT	1				
	36 KV,52KV CLASS EMVT	LOT	3				
	72.5 KV POST INSULATAR	LOT	1				
7	**500 MVA 400/220 KV TRANSFORMER**	Nos	3	COMPLETED			
8	**50 MVAR 400 KV REACTOR FDN**	Nos	2	Completed			
	125 MVAR 400 KV REACTOR FDN	Nos	1	COMPLETED			
9	**CABLE TRANCH**	LOT	1				
	SEC - B			100% completed			
	SEC -C			100% completed			
	SEC - D			100% Completed			
	CABLE TRANCH CROSSING SEC -B	Nos	7	7	7	7	7
10	**ROAD WORK**	LOT	1				
	5 MTR	Mtr.	810	Completed			
	3.75 Mtr.	Mtr.	3500	COMPLETED			
	3.00 Mtr	Mtr.	150	COMPLETED			
11	**FIRE WALL**	Nos	2	COMPLETED			
12	**CONTROL ROOM BUILDING**	LOT	1				
	Footing&Column up to bottom of PL	LOT		COMPLETED			
	Plinth beam	LOT		COMPLETED			
	Column up to bottom of roof beam	LOT		COMPLETED			
	Roof slab (Ground floor)	LOT		COMPLETED			
	Column up to bottom of roof beam 1st floor			COMPLETED			
	Roof slab 1st floor			COMPLETED			
	Attic roof shuttering			COMPLETED			
	attic roof casting			COMPLETED			

	Wall Plastering			COMPLETED			
	False ceiling			COMPLETED			
	Tiles fixing			COMPLETED			
13	**400 KV BAY LEVEL KISOK**	SET					
	Footing&Column up to bottom of floor slab		8	COMPLETED			
	floor slab		8	COMPLETED			
	Column up to bottom of roof slab		8	COMPLETED			
	Roof slab		8	COMPLETED			
	brick work		8	COMPLETED			
	Wall Plastering		8	COMPLETED			
	wall Plastering		8	COMPLETED			
	False ceiling		8	COMPLETED			
	FAlse Flooring		8	COMPLETED			
14	**220 KV BAY LEVEL KISOK**	SET	9				
	Footing&Column up to bottom of floor slab		9	COMPLETED			
	floor slab		9	COMPLETED			
	Column up to bottom of roof slab		9	COMPLETED			
	roof slab		9	COMPLETED			
	brick work		9	COMPLETED			
	Wall Plastering		9	COMPLETED			
	wall Plastering		9	COMPLETED			
	False ceiling		9	COMPLETED			
	FAlse Flooring		9	COMPLETED			
15	**Fire Fighting Pump House Building**	Set	1				
	Footing & Column up to bottom of PL			13	13	13	13
	Plinth beam			COMPLETED			
	Column up to bottom of roof beam			COMPLETED			
	Roof Slab CASTING			COMPLETED			
	plastering			COMPLETED			
16	**Store Room Building**	Set	1				
	Footing & Column up to bottom of PL			COMPLETED			
	Roof Slab			COMPLETED			
	brick work			COMPLETED			
	plastering			COMPLETED			
	floor Concrete			COMPLETED			

17	**SECURITY BUILDING**	Nos	1				
	Footing & Column up to bottom of PL			COMPLETED			
	Column up to bottom of roof beam			COMPLETED			
	roof slab shuttering			COMPLETED			
	Roof slab casting			COMPLETED			
	brick work			Completed			
	plastering			completed			
18	**CAR PARKING SHEED**	Set	1				
	Footing & Column up to bottom of PL	Nos	14	14	14	14	14
	Plinth beam	Nos		COMPLETED			
	Column up to bottom of roof beam	Nos		COMPLETED			
	Roof casting			COMPLETED			
	plastering & flooring			completed			
19	**WATER TANK**						
	brick work			COMPLETED			
	Steel reinforc. Upto slab bottom			COMPLETED			
	wall casting			COMPLETED			
	inside plastering			COMPLETED			
	roof slab shuttering			COMPLETED			
	Roof Slab			COMPLETED			
19	**YARD FENCING & GRAVEL SPREADING**	Nos	1	90 % completed			

Progress Report : ERECTION works 400/220 KV GSS RAMGARH.

SL. NO.	WORK DESCRIPTION	UNIT	SCOPE	PROGRESS	BALANCE
1	**400KV Lattice Structure**				
a.	400KV TOWER	Nos	76	Completed	
	TC	Nos	16		
	TG	Nos	1		
	TH	Nos	15		
	TI	Nos	2		
	TJ	Nos	26		
	TK	Nos	1		
	TL	Nos	7		
	TN	Nos	7		
	TM	Nos	1		
b.	400KV BEAM	Nos	56		
	G1	Nos	16		
	G2	Nos	40		
2	**220KV Lattice Structure**				

a.	220KV TOWER	Nos	74	Completed
	AT1	Nos	16	
	AT3	Nos	3	
	AT4	Nos	31	
	AT8 (With Peak)	Nos	22	
	AT6 (W/O Peak)	Nos	2	
b.	220KV BEAM	Nos		
	AB1/AB2	Nos	61	Completed
	LM TOWER	Nos	19	
3	**400KV PIPE STRUCTURE**			
a.	CVT PIPE STRUCTURE	Nos	36	Completed
c.	BPI PIPE STRUCTURE	Nos	88	
d.	LA PIPE STRUCTURE	Nos	42	
e.	ISOLATOR PIPE STRUCTURE	SETS	60	
f.	WAVE TRAP	SETS	16	
g.	C.T LATTICE STRUCTURE	Nos	90	
h.	C.B LATTICE STRUCTURE	SETS	20	
4	**400kV STRINGING**	KMS	22	
5	**400kV EQUIPMENT ERECTION**			
a.	CVT ERECTION(P)	Nos	30	Completed
b.	CVT ERECTION(M)	Nos	6	
c.	ISOLATOR ERECTION	SETS	60	
d.	ISOLATOR ALLIGNMENT	SETS	60	
e.	LA ERECTION	Nos	42	
f.	BPI INCLUDING W.T	Nos	148	
g.	C.T ERECTION(P)	Nos	72	
h.	C.T ERECTION(M)	Nos	6	
i.	C.B MECHANISM BOX ERECTION	SETS	20	
j.	C.B POLE ERECTION	SETS	20	
6	**220KV PIPE STRUCTURE**			
a.	CVT PIPE STRUCTURE	Nos	45	Completed
b.	LA PIPE STRUCTURE	Nos	33	
c.	BPI PIPE STRUCTURE	Nos	120	
d.	ISOLATOR PIPE STRUCTURE	SETS	58	
e.	WAVE TRAP	SETS	16	
f.	CT LATTICE STRUCTURE	Nos	72	
7	**220kV EQUIPMENT ERECTION**			
a.	CVT ERECTION(P)	Nos	33	Completed
b.	CVT ERECTION(M)	Nos	12	
c.	ISOLATOR ERECTION	SETS	58	
d.	ISOLATOR ALLIGNMENT	SETS	58	
e.	LA ERECTION	Nos	33	
f.	BPI INCLUDING W.T	Nos	168	
g.	C.T ERECTION(P)	Nos	60	
h.	C.T ERECTION(M)	Nos	12	

8	**220KV STRINGING**	KMS	13		
9	**400KV PANEL ERECTION**				
a.	400 KV CRP	Nos	44	Completed	
b.	PLCC	**Nos**	32		
c.	220 kV CRP	**Nos**	25		
d.	PLCC	**Nos**	32		
10)	Cable Laying				
a.	Control Cable	**KMS**	130	Completed	
b.	Power Cable	**KMS**	47		
c.	F.O cable	**mtr**	4000		
c.	H.F cable	**mtr**	3200		
11	**LT SWITCHGEAR PANEL**	SET	1		
12	500MVA transformer	Nos	3	3	0
13	Testing of 500MVA transformer	Nos	3	3	
14	Testing of 220kV Bays	Nos	16	16	0
15	Testing of 400kV Bays	nos	20	20	0
16	Remote operation				
i.	400kV	nos	20	19	1
ii	220kV	Nos	16	10	6
17	Fire Fighting System				
	1. 400 KV Switchyard	Lot(set)	1	work in Progress	
	1. 220 KV Switchyard	Lot(set)	1	work in Progress	
18	Testing of Equipment	Entire Switchyard		Completed	
19	Testing of Relay				
	1. 400 KV Switchyard	Bay	20	80% completed	
	2. 220 KV Switchyard	Bay	16	60% completed	

Note : Reactor erection is pending because reactor not received till date .

Annexure 5.

Air and noise monitoring report:-

Regd. No.: 080152100218

MONI'S GROSAM ENGINEERING DESIGN & RESEARCH CONSULTANCY

An ISO 9001 : 2008 Certified Company

B-39, Industrial Estate, New Power House Road, JODHPUR - 342 003 (Raj.)
Telefax : 0291-2633401 • Mob. 94141-33401 • E-mail : guru_moni20@yahoo.com
Website : www.monisengineering.com

REF: MGEDR&RC/F&B/Noise-16/0054 DATE: 24.11.2016

M/s. Techno Electric & Engineering Co. Ltd,
400 KV. GSS RR VPNL
Ramgarh
JAISALMER

Sub.: Inspection as per Factory Act.

Dear Sir,

As per Factory Act 1948 and the Air Prevention Act 1981. The following readings were found:

Ambient noise due to Work Shop (Road Cutting Machine)

Work Shop
Location : 400 KV, GSS

Distance	Day time	End Time
(2 meters)	82.9 dB	70.2 dB
(4 meters)	87.8 dB	71.3 dB

Machine status: Sound Level Meter Make Lupton, Model: SL-4001, Sr. No: G 12413 internal calibration.

The sound level observed is up to mark w.r.t the norms laid in act / official gazette.

(Er. G.D. BISSA)
Competent Person under Factory Act.

Lic. No.
2/FA/DYCIF&B/16

Regd. No.: 080152100218

MONI'S GROSAM ENGINEERING DESIGN & RESEARCH CONSULTANCY

An ISO 9001 : 2008 Certified Company

B-39, Industrial Estate, New Power House Road, JODHPUR - 342 003 (Raj.)
Telefax : 0291-2633401 • Mob. 91141-33401 • E-mail : guru_moni20@yahoo.com
Website : www.monisengineering.com

JAS-ANZ RQ91/6237 ICS

REF: MGED&RC/F&B/Noise-16/0051 **DATE**: 24.11.2016

M/s. Techno Electric & Engineering Co. Ltd,
400 KV, GSS RR VPNL
Ramgarh
JAISALMER

Sub.: Inspection as per Factory Act.

Dear Sir,

As per Factory Act 1948 and the Air Prevention Act 1981. The following readings were found:

Ambient noise due to Control Room

Control Room
Location : 400 KV, GSS

Distance	**Day time**	**End Time**
(2 meters)	64.3 dB	58.2 dB
(4 meters)	65.9 dB	48.7 dB

Machine status: Sound Level Meter Make Lupton, Model: SL-4001, Sr. No: G 12413 internal calibration.

The sound level observed is up to mark w.r.t the norms laid in act / official gazette.

(Er. G.D. BISSA)
Competent Person under Factory Act.

Regd. No.: 080152100218

MONI'S GROSAM ENGINEERING DESIGN & RESEARCH CONSULTANCY

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Telefax : 0291-2633401 • Mob. 94141-33401 • E-mail : guru_moni20@yahoo.com
Website : www.monisengineering.com

JAS-ANZ RQ91/6237 ICS

REF: MGED&RC/T&B/Noise-16/0052 DATE: 21.11.2016

M/s. Techno Electric & Engineering Co. Ltd,
400 KV, GSS RR VPNL
Ramgarh
JAISALMER

ISO Reg. No. RQ 91/6237

Sub.: Inspection as per Factory Act.

Dear Sir,

As per Factory Act 1948 and the Air Prevention Act 1981. The following readings were found:

Ambient noise due to 400 KV

400 KV
Location : 400 KV, GSS

Distance	Day time	End Time
(2 meters)	64.2 dB	58.7 dB
(4 meters)	66.1 dB	48.5 dB

Machine status: Sound Level Meter Make Lupton, Model: SL-4001, Sr. No: G 12413 internal calibration.

The sound level observed is up to mark w.r.t the norms laid in act / official gazette.

(Er. G.D. BISSA)
Competent Person under Factory Act.

Lic. No. 2/PA/DYCIF&B/16

Regd. No.: 080152100218

MONI'S GROSAM ENGINEERING DESIGN & RESEARCH CONSULTANCY

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Telefax : 0291-2633401 • Mob. 94141-33401 • E-mail : guru_moni20@yahoo.com
Website : www.monisengineering.com

JAS-ANZ RQS116237 ICS

REF: MGED&RC/F&B/Noise-16/0053 **DATE**: 24.11.2016

M/s. Techno Electric & Engineering Co. Ltd,
400 KV, GSS RR VPNL
Ramgarh
JAISALMER

ISO Reg. No. RQ 9116237

Sub.: Inspection as per Factory Act.

Dear Sir,

As per Factory Act 1948 and the Air Prevention Act 1981. The following readings were found:

Ambient noise due to 220 KV

220 KV
Location : 400 KV, GSS

Distance	Day time	End Time
(2 meters)	63.8 dB	59.7 dB
(4 meters)	67.3 dB	49.5 dB

Machine status: Sound Level Meter Make Lupton, Model: SL-4001, Sr. No: G 12413 internal calibration.

The sound level observed is up to mark w.r.t the norms laid in act / official gazette.

(Er. G.D. BISSA)
Competent Person under Factory Act.

Lic. No. 2/PA/DYCIF&B/16

Regd. No.: 080152100218

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JAS-ANZ RQ91/6237 ICS

M/s. Techno Electric & Engineering Co. Ltd
400 KV, GSS RR VPNL
Raamgarh
JAISALMER

ISO Reg. No. RQ 91 / 6237

Sample Report No		MGED&RC/16-17/AM/0030			
Sample Drawn by	Environment		Sample received on	24.11.2016	
Sampling Procedure		As per IS/APHA/EPA Guideline			
Monitoring for		Ambient Air Monitoring			
Sampling Location		Control Room			
Lateral Distance		--			
Duration		30 minutes			
Time		1.0 PM to 1.30 PM			
Limits		National Ambient Air Quality Standards (NAAQS) for GSR 826 (E)			
Parameters	**DG**	**Limits**	**Units**	**Method**	
General Parameters					
Sulphur dioxide (SO_2)	30.17	Max.80	µg/m³	IS 5182 (Part 2):2001,RA 2006	
Nitrogen Dioxide (NO_2)	28.8	Max.80	µg/m³	IS 5182 (Part 2):1973,RA 2009	
Respirable Suspended Particulates Matter (PM_{10})	72.80	Max.100	µg/m³	IS 5182 (Part 23):2006	
Particulates Matter ($PM_{2.5}$)	41.10	Max.60	µg/m³	US EPA CFR 40 Part 50 Appendix I	
Carbon Monoxide (CO)	<0.5	Max.2	µg/m³	IS 5182 (Part 10):1999,RA ,RA 2009	

This report is issued without prejudice and purely based on observations at the time of test.

NOTE : -1. This certificate is valid for One year
2. Due date of inspection 23.11.2017

(Er. G.D. BISSA)
Competent Person under Factory Act.

Lic. No. 2/PA/DY CIF&B/15

Regd. No.: 080152100218

MONI'S GROSAM ENGINEERING DESIGN & RESEARCH CONSULTANCY

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Website : www.monisengineering.com

JAS-ANZ RQ91/6237 ICS

M/s. Techno Electric & Engineering Co. Ltd
400 KV, GSS RR VPNL
Raamgarh
JAISALMER

Sample Report No		MGED&RC/16-17/AM/0031	
Sample Drawn by	Environment	Sample received on	24.11.2016
Sampling Procedure		As per IS/APHA/EPA Guideline	
Monitoring for		Ambient Air Monitoring	
Sampling Location		400 KV	
Latera. Distance		--	
Duration		30 minutes	
Time		1.45 PM to 2.15 PM	
Limits		National Ambient Air Quality Standards (NAAQS) for GSR 826 (E)	

Parameters	DG	Limits	Units	Method
General Parameters				
Sulphur dioxide (SO_2)	29.15	Max.80	µg/m³	IS 5182 (Part 2):2001,RA 2006
Nitrogen Dioxide (NO_2)	27.7	Max.80	µg/m³	IS 5182 (Part 2):1973,RA 2009
Respirable Suspended Particulates Matter (PM_{10})	71.80	Max.100	µg/m³	IS 5182 (Part 23):2006
Particulates Matter ($PM_{2.5}$)	42.10	Max.60	µg/m³	US EPA CFR 40 Part 50 Appendix I
Carbon Monoxide (CO)	<0.5	Max.2	µg/m³	IS 5182 (Part 10):1999,RA ,RA 2005

This report is issued without prejudice and purely based on observations at the time of test.

NOTE : -1. This certificate is valid for One year
2. Due date of inspection 23.11.2017

(Er. G.D. BISSA)
Competent Person under Factory Act.

Lic. No.
2/PA/DYCIF&B/16

Regd. No.: 080152100218

MONI'S GROSAM ENGINEERING DESIGN & RESEARCH CONSULTANCY

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JAS-ANZ RQ91/6237 ICS

M/s. Techno Electric & Engineering Co. Ltd
400 KV, GSS RR VPNL
Raamgarh
JAISALMER

ISO Reg. No.
RQ 91/6237

Sample Report No		MGED&RC/16-17/AM/0032	
Sample Drawn by	Environment	Sample received on	24.11.2016
Sampling Procedure		As per IS/APHA/EPA Guideline	
Monitoring for		Ambient Air Monitoring	
Sampling Location		220 KV	
Lateral Distance		--	
Duration		30 minutes	
Time		2.30 PM to 3.0 PM	
Limits		National Ambient Air Quality Standards (NAAQS) for GSR 826 (E)	

Parameters	DG	Limits	Units	Method
General Parameters				
Sulphur dioxide (SO_2)	31.14	Max.80	µg/m³	IS 5182 (Part 2):2001,RA 2006
Nitrogen Dioxide (NO_2)	27.7	Max.80	µg/m³	IS 5182 (Part 2):1973,RA 2009
Respirable Suspended Particulates Matter (PM_{10})	70.80	Max.100	µg/m³	IS 5182 (Part 23):2006
Particulates Matter ($PM_{2.5}$)	40.10	Max.60	µg/m³	US EPA CFR 40 Part 50 Appendix I
Carbon Monoxide (CO)	<0.5	Max.2	µg/m³	IS 5182 (Part 10):1999,RA ,RA 2009

This report is issued without prejudice and purely based on observations at the time of test.

NOTE : -1. This certificate is valid for One year
2. Due date of inspection 23.11.2017

(Er. G.D. BISSA)
Competent Person under Factory Act.

Lic. No
2/PA/DYCIF&B/16

Regd. No.: 080152100218

MONI'S GROSAM ENGINEERING DESIGN & RESEARCH CONSULTANCY

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Website : www.monisengineering.com

JAS-ANZ RQ918237 ICS

M/s. Techno Electric & Engineering Co. Ltd
400 KV, GSS RR VPNL
Raamgarh
JAISALMER

ISO Reg. No. RQ 918237

Sample Report No	MGED&RC/16-17/AM/0033		
Sample Drawn by	Environment	Sample received on	24.11.2016
Sampling Procedure	As per IS/APHA/EPA Guideline		
Monitoring for	Ambient Air Monitoring		
Sampling Location	Transformer		
Lateral Distance			
Duration	30 minutes		
Time	3.15 PM to 3.45 PM		
Limits	National Ambient Air Quality Standards (NAAQS) for GSR 826 (E)		

Parameters	DG	Limits	Units	Method
General Parameters				
Sulphur dioxide (SO_2)	32.20	Max.80	$\mu g/m^3$	IS 5182 (Part 2):2001,RA 2006
Nitrogen Dioxide (NO_2)	29.65	Max.80	$\mu g/m^3$	IS 5182 (Part 2):1973,RA 2009
Respirable Suspended Particulates Matter (PM_{10})	73.60	Max.100	$\mu g/m^3$	IS 5182 (Part 23):2006
Particulates Matter ($PM_{2.5}$)	11.15	Max.60	$\mu g/m^3$	US EPA CFR 40 Part 50 Appendix L
Carbon Monoxide (CO)	<0.5	Max.2	$\mu g/m^3$	IS 5182 (Part 10):1999,RA ,RA 2009

This report is issued without prejudice and purely based on observations at the time of test.

NOTE : -1. This certificate is valid for One year
2. Due date of inspection 23.11.2017

(Er. G.D. BISSA)
Competent Person under Factory Act.

Lic. No.
2/PA/DYCIF&B/16

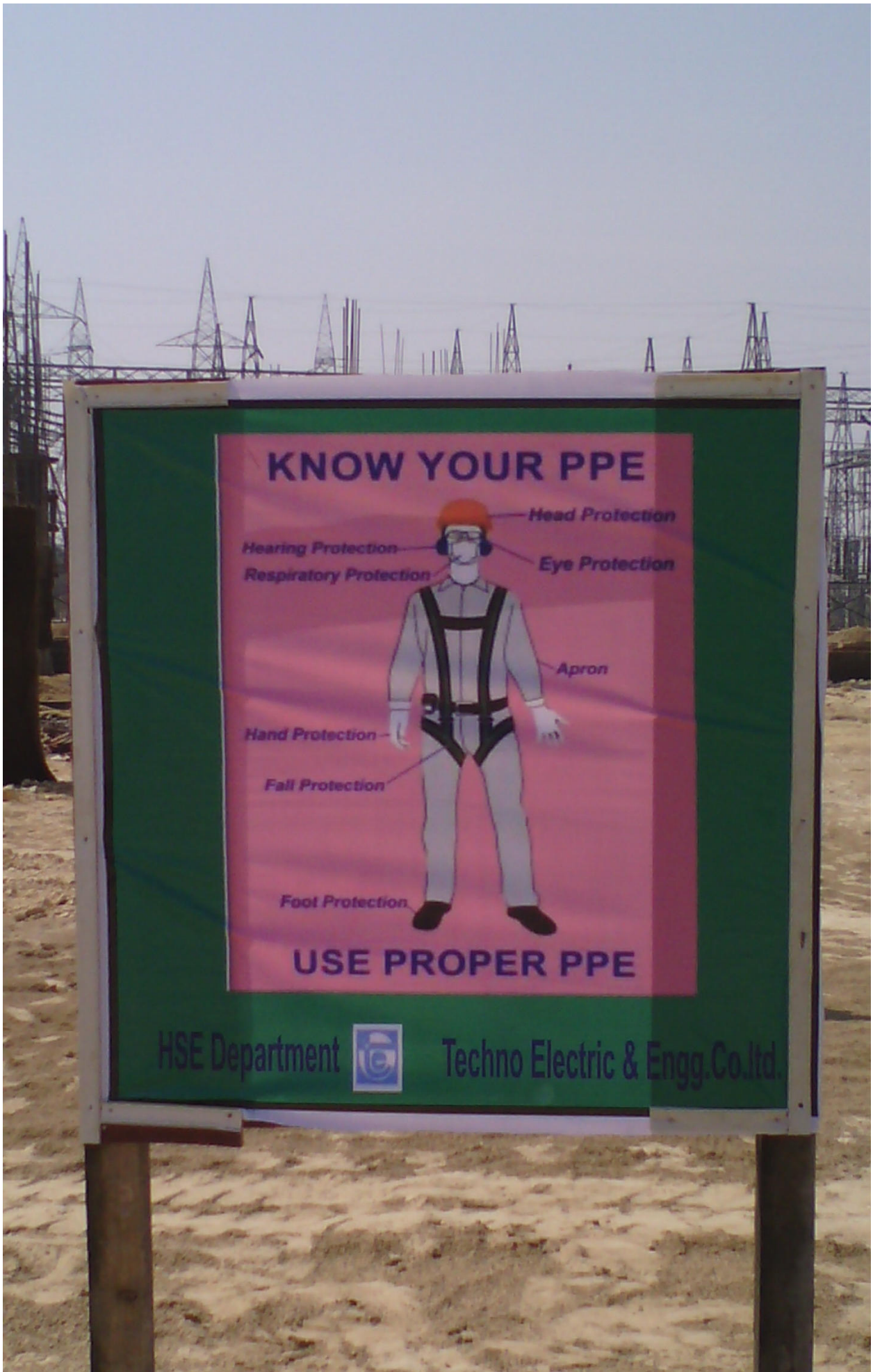
Medical camp pics:-


MEDICAL CAMP


MEDICAL CAMP

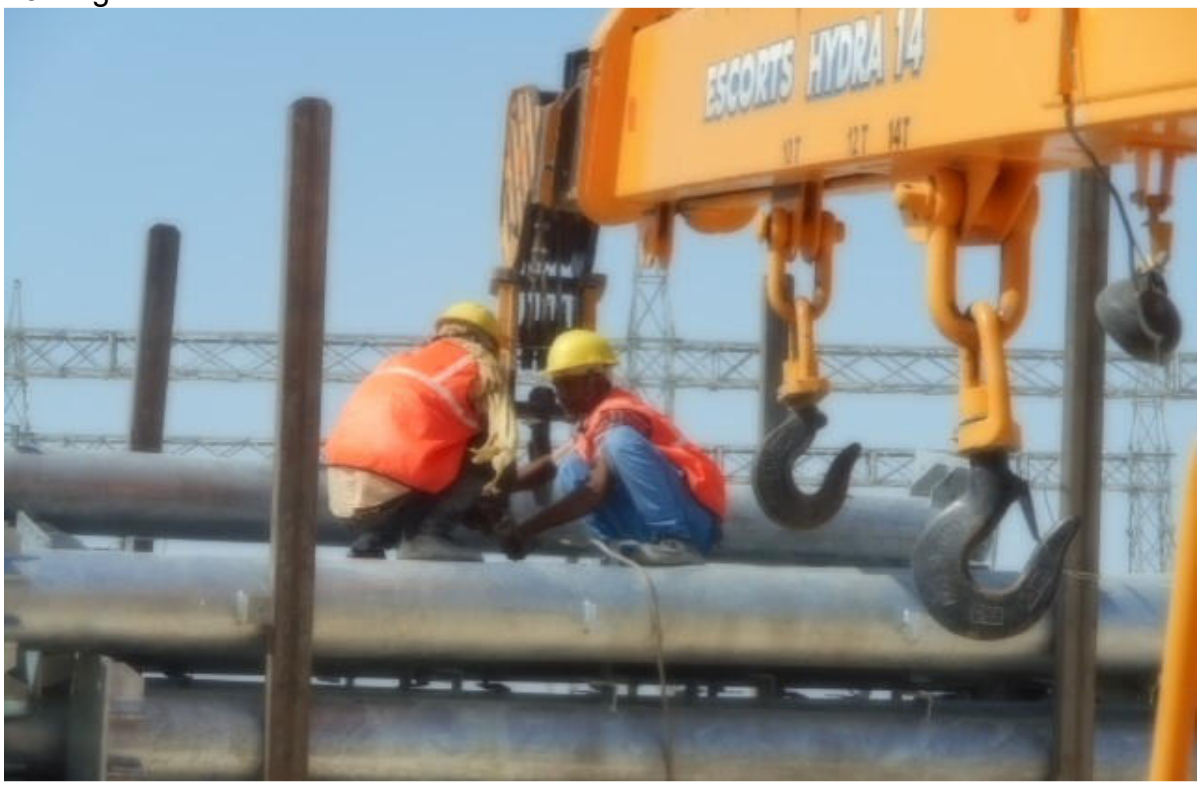
safety and working :-


-: सुरक्षा :-
दुर्घटना, खतरे एवं हानि से स्वतंत्रता !!!
धीरे चलोगे तो बार-बार मिलेंगे ।
तेज चलोगे तो हरिद्वार मिलेंगे ।।
सुरक्षा मेरा चुनाव, इसमें ही
है मेरा बचाव !!!
सफलता का यही एक मूल :
सुरक्षा, प्रगति साथ- साथ !!!


KNOW YOUR PPE
Head Protection
Hearing Protection
Eye Protection
Respiratory Protection
Apron
Hand Protection
Fall Protection
Foot Protection
USE PROPER PPE
HSE Department
Techno Electric & Engg.Co.ltd.

toilet

working:-



PHOTOGHAPHS OF 400kV GSS RAMGARH :-

Control room:

Parking:

400kV yard:

Transformer:

Kiosk :