



27th November, 2017

Ref. No. KW PCL/EMD/November/ 10

✓ To,

Director (S)
Ministry of Environment Forest, Climate Change
Regional Office (WCZ)
Ground Floor, East Wing
New Secretariat Building, Civil Lines
Nagpur - 440001 (Maharashtra)

Sub.: Six Monthly Compliance Status of Environmental Clearance for 600 (1x600) MW Coal based Thermal Power Plant along with Environmental Monitoring reports.

Ref.: EC Letter No.: J-13012/57/2008-IA-II (T) dated 20th May, 2010 & Amendment dated 16th April, 2015

Dear Sir,

With reference to above subject, please find enclosed herewith Six Monthly Environmental Clearance (EC) compliance status report along with environmental monitoring results like Ambient Air Quality, Water Quality, Noise level, Soil Quality, Green belt development, CSR report during the period of **April'2017 to September' 2017**.

As you are kindly aware and we have informed vide our letter dated 12th June 2017, to CPCB New Delhi, Regional Office CPCB Bhopal, MS CECB Raipur that our KW PCL Unit Generator is under major break down (Force Majeure) which will take 13/14 Months for repair and rectification of unit.

This is for your kind information & record please.

Thanking you with regards,

Your's faithfully
for Korba West Power Company Ltd.

(Gattu Rambhav)
Chief Operating Officer

Encl: As above

- cc: 1) **Member Secretary**, Central Pollution Control Board, Parivesh Bhavan, East Arjun Nagar, Kendriya Paryavaran Bhavan, New Delhi-110032
2) **The Director**, Zonal Office, Central Pollution Control Board, 3rd Floor, Shahkar Bhavan, North TT Nagar, Bhopal-462003
3) **Member Secretary**, Chhattisgarh Environment Conservation Board, Kabir Nagar, Raipur.
4) **Regional Officer**, Chhattisgarh Environment Conservation Board, TV Tower Road, Raigarh.

Korba West Power Company Limited

(CIN : U40102MP1995PLC009177)

(A subsidiary of Avantha Power & Infrastructure Limited)

Village Chhote Bhandar, P.O. Bade Bhandar, Tehsil Pussore, District Raigarh - 496 100 Chhattisgarh, India

Registered Office : 301 "Rajnigandha", Green Garden Estate, City Center, Gwalior - 474 011, Madhya Pradesh, India

Corporate Office : 6th and 7th Floor, Vatika City Point, M.G. Road, Gurgaon - 122 002

Tel : +91-124-439000/01, Fax : +91-124-4376496, E - Mail : communications@avanthapower.com www.avanthapower.com



AVANTHA
GROUP COMPANY

SIX MONTHLY COMPLIANCE REPORT
OF ENVIRONMENTAL CLEARANCE

**600 (1×600) MW THERMAL POWER
PLANT**

At

**BADE BHANDAR VILLAGE, PUSSORE TEHSIL
RAIGARH DISTRICT
CHHATTISGARH**

Submitted to:

**Ministry of Environment Forest, Climate Change
Regional Office (WCZ)
Ground Floor, East Wing
New Secretariat Building, Civil Lines
Nagpur – 440001 (Maharashtra)**

Submitted By:

**Environment Management Department
Korba West Power Company Limited
Bade & Chhote Bhandar Village, Pussore Tehsil
Raigarh District, Chhattisgarh**

PERIOD: April'2017– September'2017

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COMPLIANCE STATUS ON ENVIRONMENTAL CLEARANCE

Vide Letter no.: F. No. J 13012/57/2008-IA.II (T), dated: 20th May 2010.
And amendment dated: 16th April 2015.

A. SPECIFIC CONDITIONS		
Sr. No.	CONDITIONS	COMPLIANCE STATUS
i	Detailed hydro-geological study shall be conducted and submitted within six months from an institute/organization of repute to assess impact of surface water regime. Specific mitigation measures shall be spelt out and action plan for implementation of the same shall be provided. It shall be ensured that the area drainage is not disturbed due to the proposed power plant.	Complied. Hydro-geological study has been done by reputed institute "National Institute of Hydrology, Roorkee" and report has already been submitted. The entire plant area is almost flat. There are no streams within the plant premises. Regular water quality monitoring being carried out by an agency accredited by MoEF.
ii	Hydro-geological study of the area shall be also reviewed annually and results submitted to the Ministry and concerned agency in the State Govt. In case adverse impact on ground water quantity and quality is observed at any stage, immediate mitigating steps to contain any adverse impact on ground water shall be undertaken.	Being Complied. The ground water quality and ground water level monitoring being carried out on regular basis monitoring report is enclosed as Annexure - I . Immediate necessary mitigating measures will be taken in case of any adverse condition is observed.
iii	Source of water for meeting the requirement during lean season shall be specified and submitted to the Regional Office of the Ministry within three months.	20 MCM Water allocations from Mahanadi River from Water Resources Dept. Govt. of Chhattisgarh. This quantity is adequate to meet the plant's requirement, including the lean season. Vide letter no. 1628/F4-66/31/S-2/OJPRE/07/ Raipur dated 20.03.2008.
iv	No ground water shall be extracted for use in operation of the power plant even in lean season.	Noted, Compliance assured.
v	No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/operation of the power plant.	Noted There is no water body within the power plant premises.
vi	COC of 5.0 shall be adopted.	COC of 5.0 is being maintained.
vii	Local employable youth shall be trained in skills relevant to the project for eventual employment in the project itself. The action taken report and details thereof to this effect shall be submitted to the Regional Office of the Ministry and the State Govt. Dept. concerned from time to time.	Being Complied. Local employable youths were identified and were sent for ITI training in two batches of 43 and 15 in nos. respectively, training starting from Aug'11 for electrical and fitter trade for their employment in the company. 41 and 14 youths respectively from the first and second batch successfully completed

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		<p>the training and 39 were given employment in the company.</p> <p>They were also given one month's extensive "Power Plant Familiarization training" from OMS TPRI, Bhubaneshwar.</p> <p>Also 20 youths were given construction skill training. Employment given to 5 youths who successfully completed the training.</p> <p>Employment camps in nearby villages have been organized by the company to identify potential candidates.</p> <p>Cooperative of local people has been formed wherein total 93 people were given employment as plantation/ greenbelt development activities etc.</p> <p>Besides above 58 number of local people given employment from nearby villages.</p>
viii	Additional soil for levelling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.	The entire plant area is almost flat. There are no streams within the plant premises.
ix	Provision for installation of FGD shall be provided for future use.	Space for FGD is provided in plant layout.
x	A stack 275 m with flue gas velocity of 25 m/s shall be installed.	Complied. Flue Stack of 275 meter constructed. The designed flue gas velocity is more than 25 m/sec.
xi	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm ³ .	A High Efficiency Electrostatic Precipitators has been provided (ESP) to meet particulate emission less than 50 mg/Nm ³ .
xii	Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	Adequate dust suppression system like water sprinkling system, dust extraction system, dry fog dust suppression system has been installed throughout coal handling chain and bag filters in LHS, RHS bunkers and crusher house, The high concentrated slurry disposal system and closed transferring pipelines have installed for ash disposal in dyke.
xiii	Utilization of 100% Fly Ash generated shall be made from 4 th year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	Ash utilization plan/schedule has been incorporated in the EIA report. Implementation status of fly ash utilization is enclosed herewith. Please refer Annexure - III .
xiv	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed-off in the ash pond in the form of slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the	Being Complied. We have established two nos. of silo (Intermediate and Main) with capacity of 1000 MT & 2500 MT respectively for utilization of dry fly ash. High concentration slurry disposal system is provided for disposal of unutilized ash in ash pond. Ash

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	existing ash pond. No ash shall be disposed off in low lying area.	water circulation system is provided. Monitoring of Mercury and other heavy metals (As, Cr, Pb etc.) are being carried out regularly and reports are attached as Annexure - I.
xv	Ash pond shall be lined with HDP/LDP lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	Well-designed Ash pond with LDPE lining has been established as per guidelines of MoEF/CEA/CPCB. Safety measure such as bund with toe wall and lining of side slope done to prevent any leachate.
xvi	For disposal of Bottom Ash in abandoned mines (if proposed to be undertaken) it shall be ensured that the bottom and sides of the mined out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	Compliance assured.
xvii	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not less than 2500 per ha with survival rate not less than 75 %.	Green belt / plantation are being developed. Approximate 1, 95,940 trees have been planted. Local plant species being preferred for the plantation as fast growing with thick canopy cover adequate height with longer duration of foliage, Perennial and evergreen along with fruit bearing plants in adequate have also been planted. Greenbelt development plan has been approved by DFO, which has already been submitted. Please refer Annexure - II.
xviii	Two nearest village shall be adopted and basic amenities like development of roads, drinking water supply, primary health centre, primary school etc shall be developed in co-ordination with the district administration.	Being Complied Four project villages are adopted. Development of basic amenities such as construction of approach road, community hall, school room, safe drinking water facilities have been completed in all the adopted villages. Pond deepening work has been under taken in village Badebhandar and Sarwani. The CSR activities are ongoing.
xix	The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for providing fluoride free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	CSR activities being carried out in consultation with district administration for the development of neighbouring villages. Also actively participating in GOI flagship program "Swachh Bharat Abhiyan" in coordination with district administration. Extended support for Mason and helper for construction of 141 individual household toilets in five nearby villages. Water analysis report attached is showing fluoride data in nearby ground water regime. Please refer

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		Annexure - IV for the period of Apr'17 – June'17.
xx	A good action plan for R&R (if applicable) with package for the project affected persons be submitted and implemented as per prevalent R&R policy within three months from the date of issue of this letter.	The project is out of Abadi area. The R&R plan has already been prepared, implemented, under progress and submitted to MoEF & CECB, Raipur.
xxi	An amount of Rs 6.0 Crores shall be specially earmarked for development activities for tribals of the nearby villages as committed by the project proponent vide its letter dated 23.03.2010. Specific schemes for upliftment of tribal families mentioning sustainable livelihood schemes shall be submitted to the Ministry within three months with time bound implementation and in-built monitoring programme. The above amount shall be over and above the fund earmarked for CSR activities.	The requisite amount for tribal development has been spent and the expenditure report of 6.52 crore has been submitted. Specific livelihood schemes like poultry, mushroom production and vegetable cultivation is being carried out for upliftment of the tribal families. Tailoring training is also undergoing where interested tribal women is attending the training. Self-Help-Groups (SHGs) of women have been formed in the villages to take up various livelihood schemes. Two tribal cooperatives formed to take up various livelihood schemes. These are registered cooperative society. Besides above, infrastructure development activities like construction of CC road, community hall, sanskritik manch, drinking water facility etc. have been undertaken in the tribal villages for their upliftment.
xxii	Further an amount of Rs 15.0 Crores shall be earmarked as one time capital cost for CSR programme as committed by the project proponent vide its letter dated 23.03.2010. Subsequently a recurring expenditure of Rs 3.0 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	Being complied The CSR activities are ongoing. The CSR activities undertaken for: 1. Infrastructure development in the villages, 2. Livelihood Enhancement and training, 3. Quality Education, 4. Community Health and 5. Promotion of Sports and Culture. Activities under Swachh Bharat Abhiyan also executed in neighbouring villages. Extended support for Mason and helper for construction of 141 individual household toilets in five nearby villages. Two community shed constructed in two villages. CSR progress report is enclosed as Annexure - IV for the period of Apr'17 – June'17.
xxiii	While identifying CSR programme the company shall conduct need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of	Need Assessment Study conducted and submitted with previous compliance report The CSR activities are ongoing, CSR progress report is being submitted to Collector Raigarh & RO, CECB every month.

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	<p>society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.</p>	<p>Please refer Annexure – IV for the period of Apr'17 – June'17. Income generating activities consists of poultry farming, mushroom production, vegetable cultivation, dairy farming, cross breeding of non-descriptive cattle, grocery shops etc. 19th batch of 4-months tailoring training is running, by end of 18th batch total 472 women has been trained out of which 110 belongs to ST. Three cooperative societies formed for income generation named Surbhi Dugdh Utpadan Samiti, Gram Vikas Kamgar Samiti and Mahanadi Gramin Mahila Bahudesiye Sahkari Samiti. Executed MOA under PPP for up-gradation of ITI Saria, Raigarh district, constituted IMC.</p>
xxiv	<p>It shall be ensured that in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time.</p>	<p>Social audit conducted and report submitted previously along with compliance report.</p>
xxv	<p>Harnessing solar power within the premises of the plant particularly at available roof tops shall be undertaken and status of implementation shall be submitted periodically to the Regional Office of the Ministry.</p>	<p>Noted, Compliance assured.</p>
xxvi	<p>A long term study on radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.</p>	<p>Compliance assured. The work for carrying out radioactive analysis is awarded to Board of Radiation and Isotope Technology, Department of Atomic Energy, Govt. of India. The results are awaited. We are using e-auction coal for operation of the unit, once the linkage coal will be supplied on full fledge the study and in-built continuous monitoring system will be carried. The heavy metal analysis in coal, fly ash and bottom ash is being carried on periodic basis. The results are enclosed as Annexure. I.</p>
xxvii	<p>Mercury emissions shall also be monitored on periodic basis.</p>	<p>Being complied Mercury concentration in stack emissions and ambient air quality is being monitored on periodic basis by MoEF approved laboratory. The report is attached as Annexure. I. However the plant is under long breakdown since 22nd May 2017, hence data of stack emission may not be generated and furnished.</p>

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xxix	Fly ash shall not be used for agricultural purpose. No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, proper detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.	Noted, Compliance assured, if the activity is undertaken.
xxx	Green Belt shall also be developed around the ash pond over and above the Green Belt around the plant boundary.	Plantation / greenbelt development is being carried out along the plant boundary as well as Ash Pond area.
xxxii	An Environmental Cell comprising of at least one expert in environmental science/ engineering, ecology, occupational health and social science, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement/ mitigation measures.	Noted, Complied
xxxiii	The project proponent shall formulate a well laid Corporate Environmental Policy and identify and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.	Noted. Complied
B. GENERAL CONDITIONS		
i	The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not get mixed.	ETP has been established to treat effluents and treated water is being reuse within the premises. The concept of "Zero Discharge Condition" is implemented. Separate drainage network is established for storm water. Effluent water quality report is enclosed as Annexure - I .
ii	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.	Sewage Treatment Plants has been installed and the treated effluent is being used for plantation/greenbelt. Analysis report of STP is enclosed as Annexure - I .

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iii	Rainwater harvesting should be adopted. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of clearance and details shall be furnished.	A rain water harvesting & recharging system has already been constructed. 08 nos. of rain water harvesting ponds have been constructed within premises.
iv	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.	Adequate safety team has been established in the plant site to take preventive control measures. Fire hydrant system provided for prevention of spontaneous fires in coal yard, especially during summer season.
v	Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	The fuel such as LDO and HFO are properly stored in minimum risk area & in consultation with Department of Explosives, Nagpur after getting NOC for the same. Disaster management plan (DMP) has been prepared to handle the any eventuality in case of an accident taking place due to storage of oil.
vi	Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg, Cr, As, Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.	Piezometric wells installed and the monitoring results is enclosed as Annexure - I.
vii	Monitoring surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	The surface water samples being collected and analysis report is enclosed as Annexure - I.
viii	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	First aid and sanitation for labours was provided during the construction.
ix	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided.	Necessary action has been taken to maintain noise levels in work zone area within 75 dB (A) from source during the plant operation. The personal protective equipment's (PPE) are provided to workers

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	Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non-noisy/less noisy areas.	& employees working in noisy areas. Noise level monitoring is carried out regularly. Periodic audiometric check-up is being carried out.
x	Regular monitoring of ground level concentration of SO ₂ , NO _x , PM _{2.5} & PM ₁₀ and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.	Regular monitoring of SO ₂ , NO _x , PM _{2.5} & PM ₁₀ and Hg is being carried and records are being maintained during construction phase as well as operational phase. Environmental monitoring report is enclosed as Annexure - I . Three online Continuous Ambient Air Quality Monitoring Station (CAAQM) System and one mobile Van for Ambient Air Quality Monitoring have been establish within plant premise in consultation with Regional Office, Chhattisgarh Environment Conservation Board, Raigarh.
xi	Provision shall be made for the housing of construction labour (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied. All necessary facilities were provided during construction for contractual labours.
xii	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in .	Complied. Advertised in three newspapers Hindustan Times, Dainik bhaskar & Nai Duniya on 28.02.2010
xiii	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/ representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Complied. Copy of Environment Clearance has been provided to concerned authority. Compliance status updated in company website. http://www.avanthapower.com
xiv	A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	Being Complied. We have already established an Environment Management Cell with well qualified staff for implementation of the stipulated environmental safeguards.

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xv	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM (PM _{2.5} & PM ₁₀), SO ₂ , NO _x (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	Being Complied. Regular Environmental Monitoring report is being submitted to Regional office, MoEF, CPCB and CECB, Chhattisgarh. The environmental parameters display board provided at main gate of the plant. Compliance status updated in company website. http://www.avanthapower.com
xvi	The environment statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	The environment Statement for the year 2016-17 has been submitted to Chhattisgarh Environment Conservation Board (CECB) vide letter no. KWPC/EMD/Sept./15, dated-25/09/2017.
xvii	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	Being Complied. Six monthly Environmental Clearance compliance status report is regularly submitted to MoEF, CPCB and SPCB. The same is sent by email also. Last compliance report for the period of Apr'17 - Sept'17 had been submitted to your good office via our latter no. KWPC/EMD/May/22 dated- 22/05/2017. Compliance status being updated on company website. http://www.avanthapower.com
xviii	Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least six monthly basis. Criteria pollutants levels including NO _x (from stack & ambient air) shall be displayed at the main gate of the power plant.	Noted, Being complied

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xix	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	Being Complied A separate fund has already been allocated for implementation of environmental protection.
xx	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	Complied.
xxi	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/ SPCB who would be monitoring the compliance of environmental status.	Noted, Full co-operation shall be extended to all concerned authorities.
C. Conditions of EC Amendment Letter		
i	The coal shall be transported on road through mechanically covered trucks.	Noted. The vehicles are engaged for coal transporting are mechanically covered and periodic refresher training is also being imparted on traffic for safety and environment rules.
ii	Avenue plantation of 2/3 rows all along the road for transportation of coal shall be carried out by the project proponent at its own expenses in consultation with the State Government Authorities.	Plantation / greenbelt activities is being planned in consultation with state forest department on both sides of road. However, the proposed coal transportation road is under widening and construction by NHAI.
iii	Periodic maintenance of the roads used for transportation of coal shall be carried out by the project proponent at its own expenses and shall also facilitate the traffic control on the roads in consultation with State Government Authorities.	Noted, Being followed. However, the proposed coal transportation road is under widening and construction by NHAI.

ANNEXURE-I

1st Quarterly Environmental Monitoring Report



Submitted To:

**M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade Bhandar,
Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh)**

Conducted by:

**M/s Vardan EnviroLab
Village- Samaspur, Opposite Amity School, Sector-51,
Gurgaon (Haryana)**

(Recognized by MoEF & CC, NABL Government of India)

PREFACE

The growing concern for environmental protection and the passing of various environmental legislations have increased the responsibilities of Ministry of Environment, Forests & Climate Change, Pollution Control boards in many folds. Besides enforcing the various environmental legislations MoEF&CC, CPCB & SPCB strive to propagate the necessity awareness regarding the various legal provisions and environmental protection measures in the country.

Electric Power scenario has occupied a significant place in the development program of the country. Development and environment can neither be separated nor ignored. In fact, they are complimentary to each other. These issues have become a concern of the community, particularly the environment impact due to industries in the developing countries.

However, the prerequisite for sustainable development is judicious planning of environmental status, likely impacts of the approach adopted on the environment including inhabitants of the locality, availability of the eco-friendly technology, emerging waste disposal and waste utilization processes, techniques of land reclamation for the restoration of aesthetic beauty and soon.

*Korba West Power Company Limited (KWPCCL), Village Chote Bhandar, Post Office Bade Bhandar, Raigarh-496100, India, has engaged **M/S Vardan EnviroLab, Gurgaon, (HR)** to provide Environmental Services in respect of ambient air quality monitoring, stack emission, noise level monitoring & Sampling and Analysis of ground water quality, surface water quality, treated effluent sewage, effluent water from ETP, and soil for **KWPCL, Raigarh district of Chhattisgarh**, as per guidelines of MoEF&CC and CPCB Gazette notification.*

***M/S Vardan EnviroLab, Gurgaon, (HR)** has deployed entirely its own personnel, facilities and expertise for doing this service. Sampling / Monitoring Stations were identified by the Environmental Officer of KWPCCL. The samples were analyzed **partly** at site and partly at our MoEF Recognized laboratory situated at Gurgaon (HR).*

*This report presents the data generated for the period from 13th June 2017 to 17th June 2017 , **i.e. for First quarter which** includes sampling locations, Methodology, testing procedure and compilation for the Environmental parameters i.e. Air, Water & Noise with a view to evaluate the impact due to the thermal power plant activities.*

During the course of our operations for the above task, the staff and management of KWPCCL were extremely co-operative. We are grateful to them for their invaluable support and assistance rendered to us during the course of the sampling and monitoring.

Date :

Authorized Signatory

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Chapter – 1.0

INTRODUCTION

Korba West Power Company Limited (KWPCCL), a subsidiary of Avantha Power & Infrastructure Limited, is a power generation company based at Raigarh in the State of Chattisgarh. KWPCCL has recently commissioned its Thermal Power Plant first 600MW Unit at Village Chote Bhandar, Post Office Bade Bhandar, Raigarh- 496100, India. The second unit of 600MW is under implementation. KWPCCL is also committed towards the environment and the community it operates in. It has successfully implemented several community welfare schemes in the field of livelihood, infrastructure, community health and education which has so far benefited over 60,000 people from close to 75 villages.



Figure No.1. Korba West Power Company Limited (KWPCCL)

Chapter – 2.0

PROJECT PROFILE

2.1 Topography & Drainage

Topography of this area is generally undulating. The area is drained by Mand River approximately 3 km. away from plant in North direction and Mahanadi River approximately 5 km. away from plant in South direction.

2.2 Location

Plant is bounded by Northern Latitudes of 21° 44' 00" to 21° 44' 42" and Eastern Longitude of 83° 16' 30" to 83° 17' 18". This area falls in the survey of India toposheet no. 64 O/1, 64 O/2, 64 O/5 and 64 O/6. The location of the mine area is shown in **Fig. No. 2**

2.3 Climate

The climate of the area is Sub-tropical type. It is in the zone of humid tropic climate where temperature and humidity of air are very high. The temperature varies from the minimum - maximum temperature range between 29.5°C - 49 °C in summer, and 8°C - 25 °C in winter. The humidity varies from 35% to 82%. The annual average rainfall in the area is about 1300 mm.

2.4 Communication

The nearest railway station is Kirodimal, which is at a distance of ~23 Km towards North direction. The area is well connected with N.H. No. 216. Nearest Airport is Raipur ~250 km in SW direction. Nearest village is Bade Bhandar ~ 1 km. in North direction and nearest town is Raigarh ~21 km. in North-East direction.

2.5 Location Map

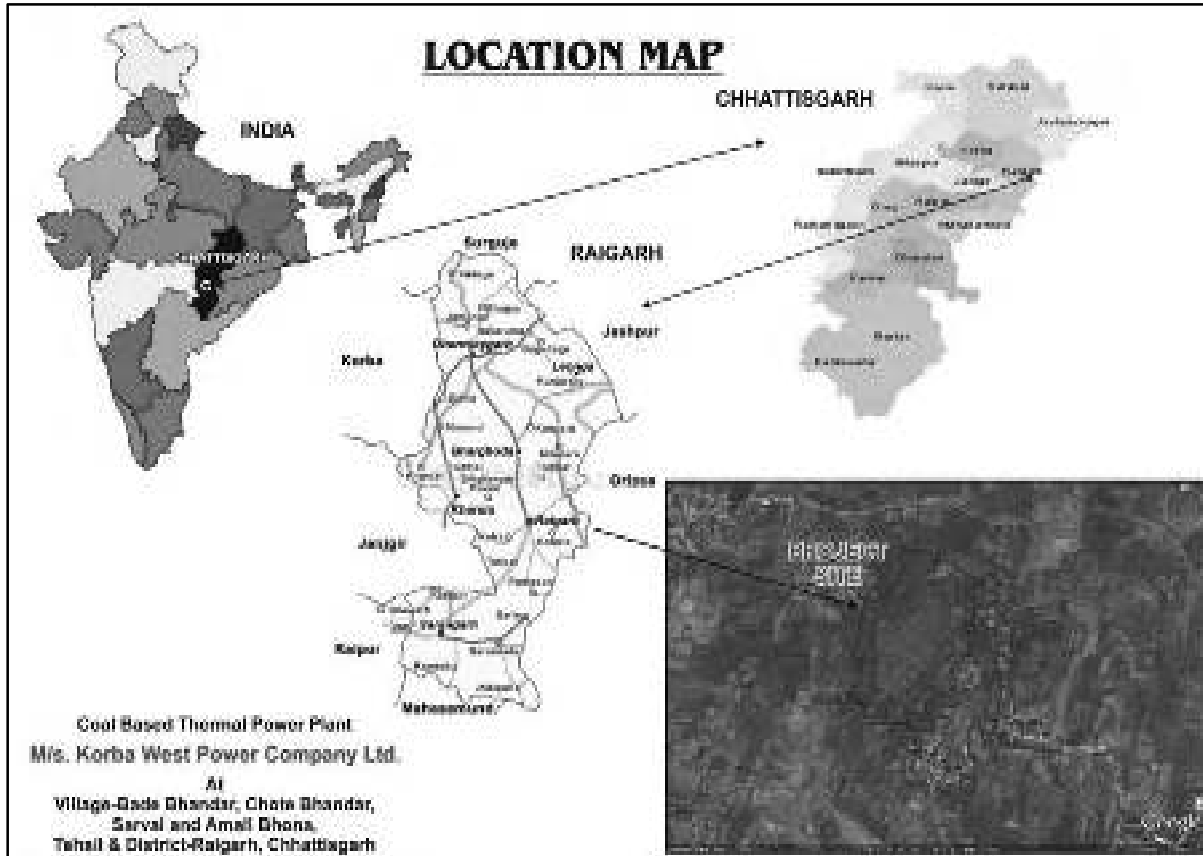


Figure No.2. Location Map

Chapter – 3.0

SCOPE OF STUDY AND METHODOLOGY

3.1 Scope of Study

The scope of study includes Environmental Services in respect of ambient air quality monitoring, noise level monitoring & Sampling and Analysis of ground water quality, surface water quality, treated effluent sewage, effluent water from ETP and soil.

3.2 Methodology

As mentioned in the scope of work covering the various Environmental components monitoring and sampling and its analysis was carried out on the basis of guidelines of Ministry of Environment Forest & Climate Control of Government of India & Chattisgarh State Pollution Control Board. Sampling procedure method reference and Analysis procedure method reference are mentioned in monitoring reports.

3.2.1 Ambient Air Quality Monitoring

The ambient air quality has been carried out at various sources of air pollution surrounding and in the Plant. The prime objective of the ambient air quality monitoring is to assess the existing air quality of the area.

The ambient air quality monitoring was carried out for 24 hours at each station. At all stations SO₂, NO₂, PM₁₀, PM_{2.5}, CO and Mercury were monitored. All the samples collected were analyzed for quantitative analysis of various pollutants.

The ambient air quality sampling locations were identified by the Environmental Officer of KWPCCL.

3.2.2 Water Environment

The ground water samples, surface water samples were collected from selected locations in two liter sterilized plastic cans. These samples were analyzed as per IS 10500:2012. The domestic effluent and Industrial effluent samples were collected and analyzed for parameters: pH, Total suspended solids, Biochemical Oxygen Demand, Chemical Oxygen Demand and Oil & Grease.

3.2.3 Noise Environment

Sound level meter was used to know the sound levels generated due to plant activities at different locations. The measurements were taken for Equivalent sound level over a time period for day and night which is expressed in dB(A).

3.2.4 Soil

The Soil samples were collected from selected locations. These samples were analyzed for Physico-Chemical parameters including heavy metals.

Chapter – 4.0

SAMPLING LOCATION MAP AND ANALYSIS REPORTS

4.1 Ambient Air Quality Monitoring

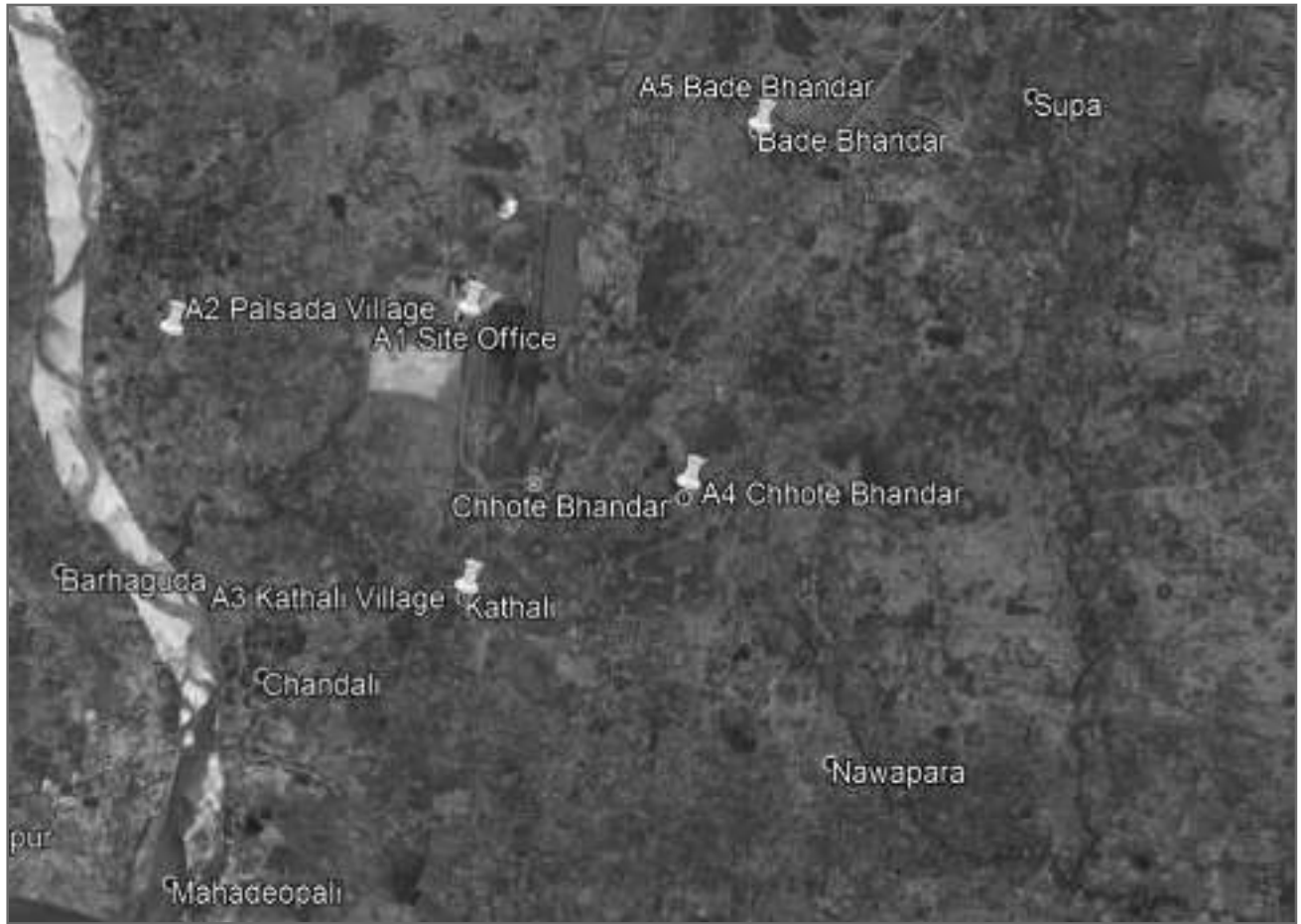


Figure No.3. Plan Showing Ambient Air Quality Location Map

Location Code: -
A1- Site Office
A2- PalsadaVillage
A3- Kathali Village
A4- Chote Bhandar Village
A5- Bade Bhandar Village



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 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
 (ISO 9001|ISO 14001|OHSAS 18001|MoEF & CC Recognized|NABL Accredited|HSPCB & RSPCB Approved)

Test Certificate

Sample Number: VEL/KWPCL/A/01
 Issued To: M/s Korba West Power Company Limited
 Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)

Report No.: VEL/A/1706/001
 Format No.: 5.1F-01
 Party Reference No.: NIL

Reporting Date: 22/06/2017
 Receipt Date: 18/06/2017

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Client Representative (Name & Designation) : Mr. Amit Soni
 Sample collected by : Vardan EnviroLab Representative
 Sampling Location : Site office
 Latitude : 21°44'27.01" N
 Longitude : 83°16'32.8" E
 Instrument Used : RDS with PM 2.5 attachment
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 14/06/2017 to 15/06/2017
 Time of Monitoring : 24 hours
 Ambient Temperature (°C) : Min. 21.2, Max. 39.5
 Surrounding Activity : Human, Vehicular and Power plant activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : -----
 Sampling & Analysis Protocol : IS-5182
 Parameter Required : PM_{2.5}, PM₁₀, NO_x, SO₂, CO, Hg

TEST RESULTS

S. No.	Parameter	Protocol	Result	Unit	NAAQS*
1.	Particulate Matter (PM _{2.5})	PM2.5 sampler (Gravimetric)	47.50	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	84.02	µg/m ³	100
3.	Nitrogen Dioxide (NO _x)	IS: 5182 (P-6), 1975 Reaffirmed-1998	30.15	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), 2001	12.54	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), RA 2003	0.83	mg/m ³	2
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

*NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec-3(i)] 16.11.2009

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Test Certificate

Sample Number: VEL/KWPCL/A/02
 Issued To: M/s Korba West Power Company Limited
 Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)

Report No.: VEL/A/1706/002
 Format No.: 5.1F-01
 Party Reference No.: NIL

Reporting Date: 22/06/2017
 Receipt Date: 18/06/2017

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Client Representative (Name & Designation)	: Mr. Amit Soni
Sample collected by	: Vardan EnviroLab Representative
Sampling Location	: Village Palsada
Latitude	: 21°44'07.3" N
Longitude	: 83°15'01.4" E
Instrument Used	: RDS with PM 2.5 attachment
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 14/06/2017 to 15/06/2017
Time of Monitoring	: 24 hours
Ambient Temperature (°C)	: Min. 21.1, Max. 39.2
Surrounding Activity	: Human and Vehicular activities
Scope of Monitoring	: Regulatory Requirement
Control measure if Any	: -----
Sampling & Analysis Protocol	: IS-5182
Parameter Required	: PM _{2.5} , PM ₁₀ , NO _x , SO ₂ , CO, Hg

TEST RESULTS

S. No.	Parameter	Protocol	Result	Unit	NAAQS*
1.	Particulate Matter (PM _{2.5})	PM _{2.5} sampler (Gravimetric)	40.20	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	76.10	µg/m ³	100
3.	Nitrogen Dioxide (NO _x)	IS: 5182 (P-6), 1975 Refirmed-1998	22.60	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), 2001	8.20	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), RA 2003	0.74	mg/m ³	2
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

*NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009

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Test Certificate

Sample Number: VEL/KWPCL/A/03
Issued To: M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)

Report No.: VEL/A/1706/003
Format No.: 5.1F-01
Party Reference No.: NIL

Reporting Date: 22/06/2017
Receipt Date: 18/06/2017

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Client Representative (Name & Designation) : Mr. Amit Soni
Sample collected by : Vardan EnviroLab Representative
Sampling Location : Village Kathli
Latitude : 21°43'27.5" N
Longitude : 83°16'25.2" E
Instrument Used : RDS with PM 2.5 attachment
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 14/06/2017 to 15/06/2017
Time of Monitoring : 24 hours
Ambient Temperature (°C) : Min. 21.0, Max. 39.4
Surrounding Activity : Human and Vehicular activities
Scope of Monitoring : Regulatory Requirement
Control measure if Any : ---
Sampling & Analysis Protocol : IS-5182
Parameter Required : PM_{2.5}, PM₁₀, NO_x, SO₂, CO, Hg

TEST RESULTS

S. No.	Parameter	Protocol	Result	Unit	NAAQS*
1.	Particulate Matter (PM _{2.5})	PM _{2.5} sampler (Gravimetric)	41.20	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	78.62	µg/m ³	100
3.	Nitrogen Dioxide (NO _x)	IS: 5182 (P-6), 1975 Reffirmed-1998	24.02	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), 2001	9.12	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), RA 2003	0.72	mg/m ³	2
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

*NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009

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Test Certificate

Sample Number: VEL/KWPCL/A/04
Issued To: M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist-Raigarh - 496100 (Chhattisgarh)

Report No.: VEL/A/1706/004
Format No.: 5.1F-01
Party Reference No.: NIL

Reporting Date: 22/06/2017
Receipt Date: 18/06/2017

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Client Representative (Name & Designation) : Mr. Amit Soni
Sample collected by : Vardan EnviroLab Representative
Sampling Location : Village Chhote Bhandar
Latitude : 21°43'48.1" N
Longitude : 83°16'49.3" E
Instrument Used : RDS with PM 2.5 attachment
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/06/2017 to 16/06/2017
Time of Monitoring : 24 hours
Ambient Temperature (°C) : Min. 23.0, Max. 40.1
Surrounding Activity : Human and Vehicular activities
Scope of Monitoring : Regulatory Requirement
Control measure if Any : ---
Sampling & Analysis Protocol : IS-5182
Parameter Required : PM_{2.5}, PM₁₀, NO_x, SO₂, CO, Hg

TEST RESULTS

S. No.	Parameter	Protocol	Result	Unit	NAAQS*
1.	Particulate Matter (PM _{2.5})	PM _{2.5} sampler (Gravimetric)	43.20	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	81.40	µg/m ³	100
3.	Nitrogen Dioxide (NO _x)	IS: 5182 (P-6), 1975 Reffirmed-1998	26.50	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), 2001	9.20	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), RA 2003	0.80	mg/m ³	2
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

*NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec-3(i)] 16.11.2009

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Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)
Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
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Test Certificate

Sample Number: **VEL/KWPCL/A/05**
Issued To: **M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade
Bhandar, Tehsil Pussore, Dist.-Raigarh -
496100 (Chhattisgarh)**

Report No.: **VEL/A/1706/005**
Format No.: **5.1F-01**
Party Reference No.: **NIL**

Reporting Date: **22/06/2017**
Receipt Date: **18/06/2017**

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Client Representative (Name & Designation) : Mr. Amit Soni
Sample collected by : Vardan EnviroLab Representative
Sampling Location : Village Bade Bhandar
Latitude : 21°44'17.4" N
Longitude : 83°17'20.1" E
Instrument Used : RDS with PM 2.5 attachment
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/06/2017 to 16/06/2017
Time of Monitoring : 24 hours
Ambient Temperature (°C) : Min. 23.2, Max. 40.3
Surrounding Activity : Human and Vehicular activities
Scope of Monitoring : Regulatory Requirement
Control measure if Any : ---
Sampling & Analysis Protocol : IS-5182
Parameter Required : PM_{2.5}, PM₁₀, NO_x, SO₂, CO, Hg

TEST RESULTS

S. No.	Parameter	Protocol	Result	Unit	NAAQS*
1.	Particulate Matter (PM _{2.5})	PM _{2.5} sampler (Gravimetric)	42.05	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	80.40	µg/m ³	100
3.	Nitrogen Dioxide (NO _x)	IS: 5182 (P-6), 1975 Reffirmed-1998	25.04	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), 2001	8.74	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), RA 2003	0.73	mg/m ³	2
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

*NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec-3(i)] 16.11.2009

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4.2 Noise Level Monitoring



Figure No.4. Plan Showing Noise Level Monitoring Location Map

Ambient Noise Level Monitoring Locations

- Location Code: -
- N1- Field Hostel
 - N2- Palsada Village
 - N3- Kathali Village
 - N4- Chote Bhandar Village
 - N5- Bade Bhandar Village

Work Zone Noise Level Monitoring Locations

- Location Code: -
- N6- Site Office
 - N7- Behind Switchyard
 - N8- Railway Entry Gate



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Test Certificate

Sample Number:	VEL/KWPCL/AN/01	Report No.:	VEL/AN/1706/001
Issued To:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10F-01
		Party Reference No.:	NIL
		Reporting Date:	22/06/2017
		Receipt Date:	18/06/2017

Sample Description : AMBIENT NOISE LEVEL MONITORING

General Information:-

Sample collected by	: Vardan EnviroLab Representative
Client Representative (Name & Designation)	: Mr. Amit Soni
Sampling Location	: Field Hostel
Latitude	: 21°43'54.2" N
Longitude	: 83°16'49.7" E
Instrument Used	: Sound Level Meter
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 14/06/2017 to 15/06/2017
Time of Monitoring	: 06:00 AM to 06:00AM
Surrounding Activity	: Human and Vehicular Activities
Scope of Monitoring	: Regulatory Requirement
Control measure if Any	: No any
Sampling & Analysis Protocol	: CPCB Guidelines & IS-9989
Sampling Duration	: 24 Hours
Parameter Required	: As per Work Order

RESULTS

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L _{max}	CPCB Guidelines/ IS 9989	65.2	54.7	dB(A)
2.	L _{min}	CPCB Guidelines/ IS 9989	48.6	37.3	dB(A)
3.	L _{eq}	CPCB Guidelines/ IS 9989	63.42	48.52	dB(A)
4.	CPCB Limits in dB(A) Leq (Industrial Area)		75.00	70.00	dB(A)

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

Test Certificate

Sample Number: **VEL/KWPCL/AN/02** Report No.: **VEL/AN/1706/002**
 Issued To: **M/s Korba West Power Company Limited** Format No.: **5.10F-01**
Village Chhote Bhandar, Post office Bade Party Reference No.: **NIL**
Bhandar, Tehsil Pussore, Dist.-Raigarh - Reporting Date: **22/06/2017**
496100 (Chhattisgarh) Receipt Date: **18/06/2017**

Sample Description : **AMBIENT NOISE LEVEL MONITORING**

General Information:-

Sample collected by : Vardan EnviroLab Representative
 Client Representative (Name & Designation) : Mr. Amit Soni
 Sampling Location : Village Palsada
 Latitude : 21°44'07.3" N
 Longitude : 83°15'01.4" E
 Instrument Used : Sound Level Meter
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 14/06/2017 to 15/06/2017
 Time of Monitoring : 06:00 AM to 06:00AM
 Surrounding Activity : Human and Vehicular Activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : No any
 Sampling & Analysis Protocol : CPCB Guidelines & IS-9989
 Sampling Duration : 24 Hours
 Parameter Required : As per Work Order

RESULTS

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L _{max}	CPCB Guidelines/ IS 9989	64.7	57.4	dB(A)
2.	L _{min}	CPCB Guidelines/ IS 9989	47.2	36.5	dB(A)
3.	L _{eq}	CPCB Guidelines/ IS 9989	54.50	43.05	dB(A)
4.	CPCB Limits in dB(A) Leq (Residential Area)		55.00	45.00	dB(A)

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

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Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)

Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404

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Test Certificate

Sample Number:
Issued To:

VEL/KWPCL/AN/03
M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade
Bhandar, Tehsil Pussore, Dist.-Raigarh -
496100 (Chhattisgarh)

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

VEL/AN/1706/003
5.10F-01
NIL
22/06/2017
18/06/2017

Sample Description : AMBIENT NOISE LEVEL MONITORING

General Information:-

Sample collected by : Vardan EnviroLab Representative
Client Representative (Name & Designation) : Mr. Amit Soni
Sampling Location : Village Kathli
Latitude : 21°43'27.5" N
Longitude : 83°16'25.2" E
Instrument Used : Sound Level Meter
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 14/06/2017 to 15/06/2017
Time of Monitoring : 06:00 AM to 06:00AM
Surrounding Activity : Human and Vehicular Activities
Scope of Monitoring : Regulatory Requirement
Control measure if Any : No any
Sampling & Analysis Protocol : CPCB Guidelines & IS-9989
Sampling Duration : 24 Hours
Parameter Required : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L _{max}	CPCB Guidelines/ IS 9989	66.2	45.8	dB(A)
2.	L _{min}	CPCB Guidelines/ IS 9989	48.6	38.3	dB(A)
3.	L _{eq}	CPCB Guidelines/ IS 9989	52.87	42.50	dB(A)
4.	CPCB Limits in dB(A) Leq (Residential Area)		55.00	45.00	dB(A)

Mamika



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Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404

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Test Certificate

Sample Number: VEL/KWPCL/AN/04
Issued To: M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade
Bhandar, Tehsil Pussore, Dist.-Raigarh -
496100 (Chhattisgarh)

Report No.: VEL/AN/1706/004
Format No.: 5.10F-01
Party Reference No.: NIL
Reporting Date: 22/06/2017
Receipt Date: 18/06/2017

Sample Description : AMBIENT NOISE LEVEL MONITORING

General Information:-

Sample collected by : Vardan EnviroLab Representative
Client Representative (Name & Designation) : Mr. Amit Soni
Sampling Location : Village Chhote Bhandar
Latitude : 21°43'48.1" N
Longitude : 83°16'49.3" E
Instrument Used : Sound Level Meter
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 14/06/2017 to 15/06/2017
Time of Monitoring : 06:00 AM to 06:00AM
Surrounding Activity : Human and Vehicular Activities
Scope of Monitoring : Regulatory Requirement
Control measure if Any : No any
Sampling & Analysis Protocol : CPCB Guidelines & IS-9989
Sampling Duration : 24 Hours
Parameter Required : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L _{max}	CPCB Guidelines/ IS 9989	64.8	45.1	dB(A)
2.	L _{min}	CPCB Guidelines/ IS 9989	46.5	35.8	dB(A)
3.	L _{eq}	CPCB Guidelines/ IS 9989	54.60	41.57	dB(A)
4.	CPCB Limits in dB(A) Leq (Residential Area)	-	55.00	45.00	dB(A)

Manik



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Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404

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Test Certificate

Sample Number: **VEL/KWPCL/AN/05** Report No.: **VEL/AN/1706/005**
Issued To: **M/s Korba West Power Company Limited** Format No.: **5.10F-01**
Village Chhote Bhandar, Post office Bade Party Reference No.: **NIL**
Bhandar, Tehsil Pussore, Dist.-Raigarh - Reporting Date: **22/06/2017**
496100 (Chhattisgarh) Receipt Date: **18/06/2017**

Sample Description : **AMBIENT NOISE LEVEL MONITORING**

General Information:-

Sample collected by : Vardan EnviroLab Representative
Client Representative (Name & Designation) : Mr. Amit Soni
Sampling Location : Village Bade Bhandar
Latitude : 21°44'17.4" N
Longitude : 83°17'20.1" E
Instrument Used : Sound Level Meter
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 14/06/2017 to 15/06/2017
Time of Monitoring : 06:00 AM to 06:00AM
Surrounding Activity : Human and Vehicular Activities
Scope of Monitoring : Regulatory Requirement
Control measure if Any : No any
Sampling & Analysis Protocol : CPCB Guidelines & IS-9989
Sampling Duration : 24 Hours
Parameter Required : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L _{max}	CPCB Guidelines/ IS 9989	64.2	46.2	dB(A)
2.	L _{min}	CPCB Guidelines/ IS 9989	44.6	38.8	dB(A)
3.	L _{eq}	CPCB Guidelines/ IS 9989	52.05	40.25	dB(A)
4.	CPCB Limits in dB(A) Leq (Residential Area)		55.00	45.00	dB(A)

Mamba



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Test Certificate

Sample Number: **VEL/KWPCL/N/01** Report No.: **VEL/N/1706/001**
Name & Address of Party: **M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade
Bhandar, Tehsil Pussore, Dist.-Raigarh -
496100 (Chhattisgarh)** Format No.: **5.10F-01**
Party Reference No.: **NIL**
Reporting Date: **20/06/2017**
Receipt Date: **16/06/2017**

Sample Description : **Work Zone Noise Level Monitoring**

General Information:-

Sample collected by : Vardan EnviroLab Team
Client Representative: : Mr. Amit Soni
Sampling Location : Site Office
Latitude : 21°44'27.1" N
Longitude : 83°16'32.8" N
Instrument Used : Sound Level Meter
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 14/06/2017
Time of Monitoring : 03:30 Hrs to 04:00 Hrs
Scope of Monitoring : Regulatory Requirement
Sampling & Analysis Protocol : CPCB Guidelines & IS-9989
Sampling Duration : 30 min
Parameter Required : As per Work Order

RESULTS

S. No.	Parameters	Protocol	Test Result	Unit
1.	Leq	CPCB Guidelines/ IS 9989	64.25	dB(A)
2.	Limits in dB(A) Leq	.	85	dB(A)

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Test Certificate

Sample Number: **VEL/KWPCL/N/02** Report No.: **VEL/N/1706/002**
Name & Address of Party: **M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)** Format No.: **5.10F-01**
Party Reference No.: **NIL**
Reporting Date: **20/06/2017**
Receive Date: **16/06/2017**

Sample Description : **Work Zone Noise Level Monitoring**

General Information:-

Sample collected by : Vardan EnviroLab Team
Client Representative: : Mr. Amit Soni
Sampling Location : Behind Switchyard
Latitude : 21°44'27.1" N
Longitude : 83°16'32.8" N
Instrument Used : Sound Level Meter
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 14/06/2017
Time of Monitoring : 04:10 Hrs to 04:40 Hrs
Scope of Monitoring : Regulatory Requirement
Sampling & Analysis Protocol : CPCB Guidelines & IS-9989
Sampling Duration : 30 min
Parameter Required : As per Work Order

RESULTS

S. No.	Parameters	Protocol	Test Result	Unit
1.	Leq	CPCB Guidelines/ IS 9989	67.50	dB(A)
2.	Limits in dB(A) Leq		85	dB(A)

Muniba



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Test Certificate

Sample Number: **VEL/KWPCL/N/03** Report No.: **VEL/N/1706/003**
Name & Address of Party: **M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)** Format No.: **5.10F-01**
Party Reference No.: **NIL**
Reporting Date: **20/06/2017**
Receipt Date: **16/06/2017**

Sample Description : **Work Zone Noise Level Monitoring**

General Information:-

Sample collected by : Vardan EnviroLab Team
Client Representative: : Mr. Amit Soni
Sampling Location : Railway Entry Gate
Latitude : 21°44'27.1" N
Longitude : 83°16'32.8" N
Instrument Used : Sound Level Meter
Instrument Calibration Status : Calibrated
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/06/2017
Time of Monitoring : 10:00 Hrs to 10:30 Hrs
Scope of Monitoring : Regulatory Requirement
Sampling & Analysis Protocol : CPCB Guidelines & IS-9989
Sampling Duration : 30 min
Parameter Required : As per Work Order

RESULTS

S. No.	Parameters	Protocol	Test Result	Unit
1.	Leq	CPCB Guidelines/ IS 9989	70.58	dB(A)
2.	Limits in dB(A) Leq	-	85	dB(A)

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4.3 Ground water Quality Analysis



Figure No.5. Plan Showing Ground Water Quality Monitoring Location Map

Location Code: -

- GW1- Site Office
- GW2- PalsadaVillage
- GW3- Kthali Village
- GW4- Chote Bhandar Village
- GW5- Bade Bhandar Village



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Test Certificate

Sample Number:	VEL/KWPCL/W/01	Report No.:	VEL/W/1706/001
Name & Address of Party:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	Ground Water	Party Reference No.:	NIL
Sampling Location:	Site Office	Reporting Date:	22/06/2017
Latitude	21°44'07.3"N	Receipt Date:	16/06/2017
Longitude	83°15'01.4" E	Sampling Date:	15/06/2017
Client Representative:	Mr. Amit Soni	Sampling Type:	Grab
Sample Collected by	Vardan EnviroLab Representative	Preservation:	Refrigerated
Sampling & Analysis Protocol:	IS-10500-2012, APHA 22 nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Parameter Required:	As per IS 10500-2012

TEST RESULTS

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
1.	pH (at 25 °C)	APHA 22 nd Edition, 4500-H ⁺ B	7.10	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA 22 nd Edition, 2120 B	BDL(DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA 22 nd Edition, 2130 B	BDL (DL 1 NTU)	NTU	1	5
4.	Odour	APHA 22 nd Edition, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA 22 nd Edition, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA 22 nd Edition, 2340 C	104.0	mg/l	200	600
7.	Calcium as Ca	APHA 22 nd Edition, 3500 Ca B	25.65	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA 22 nd Edition, 2320 B	72.0	mg/l	200	600
9.	Chloride as Cl	APHA 22 nd Edition, 4500-Cl- B	29.99	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.02mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA 22 nd Edition, 4500 CN- D	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA 22 nd Edition, 2340 B	9.72	mg/l	30	100
13.	Total Dissolved Solids	APHA 22 nd Edition, 2540 C	136.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 22 nd Edition, 4500 E	13.2	mg/l	200	400

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Test Certificate

Sample No.: VEL/KWPCL/W/01					Report No.: VEL/S/1706/001 Limits of IS:10500 -2012	
S. No.	Parameter	Test-Method	Result	Unit	Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
15.	Fluoride as F	APHA 22 nd Edition, 4500-F D	0.32	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (P-34) 1988	0.28	mg/l	45	No Relaxation
17.	Iron as Fe	APHA 22 nd Edition, 3500-Fe B	0.17	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.03	0.2
19.	Boron	APHA 22 nd Edition, 4500B C	BDL(DL 0.01 mg/l)	mg/l	0.5	1
20.	Phenolic Compounds	APHA 22 nd Edition, 5530 C	BDL(DL 0.001mg/l)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 22 nd Edition, 5540 C	BDL(DL 0.02mg/l)	mg/l	0.2	1.0
22.	Chromium as Cr	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
23.	Zinc as Zn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA 22 nd Edition, 3111 B	BDL(DL 0.003mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA 22 nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
30.	Mercury as Hg	APHA 22 nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	<2/100ml	MPN/100ml	-	10.00
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Absent	Absent

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



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Test Certificate

Sample Number:	VEL/KWPCL/W/02	Report No.:	VEL/W/1706/002
Name & Address of Party:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	Ground Water	Party Reference No.:	NIL
Sampling Location:	Village Palsada	Reporting Date:	22/06/2017
Latitude	21°44'07.3"N	Receipt Date:	16/06/2017
Longitude	83°15'01.4" E	Sampling Date:	15/06/2017
Client Representative:	Mr. Amit Soni	Sampling Type:	Grab
Sample Collected by	Vardan EnviroLab Representative	Preservation:	Refrigerated
Sampling & Analysis Protocol:	IS-10500-2012, APHA 22 nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Parameter Required:	As per IS 10500-2012

TEST RESULTS

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
1.	pH (at 25 °C)	APHA 22 nd Edition, 4500-H ⁺ B	7.26	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA 22 nd Edition, 2120 B	BDL(DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA 22 nd Edition, 2130 B	BDL (DL 1 NTU)	NTU	1	5
4.	Odour	APHA 22 nd Edition, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA 22 nd Edition, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA 22 nd Edition, 2340 C	140.0	mg/l	200	600
7.	Calcium as Ca	APHA 22 nd Edition, 3500 Ca B	57.71	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA 22 nd Edition, 2320 B	256.0	mg/l	200	600
9.	Chloride as Cl	APHA 22 nd Edition, 4500-Cl- B	15.99	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.02mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA 22 nd Edition, 4500 CN- D	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA 22 nd Edition, 2340 B	0.96	mg/l	30	100
13.	Total Dissolved Solids	APHA 22 nd Edition, 2540 C	314	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 22 nd Edition, 4500 E	10.2	mg/l	200	400

Mamika



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 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
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Test Certificate

Sample No.: VEL/KWPCL/W/02.					Report No.: VEL/S/1706/002 Limits of IS:10500 -2012	
S. No.	Parameter	Test-Method	Result	Unit	Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
15.	Fluoride as F	APHA 22 nd Edition, 4500-F·D	0.40	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (P-34) 1988	0.32	mg/l	45	No Relaxation
17.	Iron as Fe	APHA 22 nd Edition, 3500-Fe B	0.19	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.03	0.2
19.	Boron	APHA 22 nd Edition, 4500B C	BDL(DL 0.01 mg/l)	mg/l	0.5	1
20.	Phenolic Compounds	APHA 22 nd Edition, 5530 C	BDL(DL 0.001mg/l)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 22 nd Edition, 5540 C	BDL(DL 0.02mg/l)	mg/l	0.2	1.0
22.	Chromium as Cr	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
23.	Zinc as Zn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA 22 nd Edition, 3111 B	BDL(DL 0.003mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA 22 nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
30.	Mercury as Hg	APHA 22 nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	<2/100ml	MPN/100ml	-	10.00
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Absent	Absent

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

Manita



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 Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)
 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
 (ISO 9001 | ISO 14001 | OHSAS 18001 | MoEF & CC Recognized | NABL Accredited | HSPCB & RSPCB Approved)

Test Certificate

Sample Number:	VEL/KWPCL/W/03	Report No.:	VEL/W/1706/003
Name & Address of Party:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	Ground Water	Party Reference No.:	NIL
Sampling Location:	Village Kathli	Reporting Date:	22/06/2017
Latitude	21°43'27.5"N	Receipt Date:	16/06/2017
Longitude	83°16'25.2" E	Sampling Date:	15/06/2017
Client Representative:	Mr. Amit Soni	Sampling Type:	Grab
Sample Collected by	Vardan EnviroLab Representative	Preservation:	Refrigerated
Sampling & Analysis Protocol:	IS-10500-2012, APHA 22 nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Parameter Required:	As per IS 10500-2012

TEST RESULTS

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
1.	pH (at 25 °C)	APHA 22 nd Edition, 4500-H ⁺ B	7.36	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA 22 nd Edition, 2120 B	BDL(DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA 22 nd Edition, 2130 B	BDL (DL 1 NTU)	NTU	1	5
4.	Odour	APHA 22 nd Edition, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA 22 nd Edition, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA 22 nd Edition, 2340 C	576.0	mg/l	200	600
7.	Calcium as Ca	APHA 22 nd Edition, 3500 Ca B	146.0	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA 22 nd Edition, 2320 B	204.0	mg/l	200	600
9.	Chloride as Cl	APHA 22 nd Edition, 4500-Cl- B	86.10	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.02mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA 22 nd Edition, 4500 CN- D	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA 22 nd Edition, 2340 B	51.45	mg/l	30	100
13.	Total Dissolved Solids	APHA 22 nd Edition, 2540 C	891.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 22 nd Edition, 4500 E	46.10	mg/l	200	400



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Test Certificate

Sample No.: VEL/KWPCL/W/03					Report No.: VEL/S/1706/003	
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
15.	Fluoride as F	APHA 22 nd Edition, 4500-F D	0.63	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (P-34) 1988	3.20	mg/l	45	No Relaxation
17.	Iron as Fe	APHA 22 nd Edition, 3500-Fe B	0.26	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.03	0.2
19.	Boron	APHA 22 nd Edition, 4500B C	BDL(DL 0.01 mg/l)	mg/l	0.5	1
20.	Phenolic Compounds	APHA 22 nd Edition, 5530 C	BDL(DL 0.001mg/l)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 22 nd Edition, 5540 C	BDL(DL 0.02mg/l)	mg/l	0.2	1.0
22.	Chromium as Cr	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
23.	Zinc as Zn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA 22 nd Edition, 3111 B	BDL(DL 0.003mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA 22 nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
30.	Mercury as Hg	APHA 22 nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	<2/100ml	MPN/100ml	-	10.00
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Absent	Absent

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

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Test Certificate

Sample Number:	VEL/KWPCL/W/04	Report No.:	VEL/W/1706/004
Name & Address of Party:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	Ground Water	Party Reference No.:	NIL
Sampling Location:	Village Chhote Bhandar	Reporting Date:	22/06/2017
Latitude	21°43'48.5"N	Receipt Date:	16/06/2017
Longitude	83°16'49.3" E	Sampling Date:	15/06/2017
Client Representative:	Mr. Amit Soni	Sampling Type:	Grab
Sample Collected by	Vardan EnviroLab Representative	Preservation:	Refrigerated
Sampling & Analysis Protocol:	IS-10500-2012, APHA 22 nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Parameter Required:	As per IS 10500-2012

TEST RESULTS

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
1.	pH (at 25 °C)	APHA 22 nd Edition, 4500-H ⁺ B	7.26	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA 22 nd Edition, 2120 B	BDL(DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA 22 nd Edition, 2130 B	BDL (DL 1 NTU)	NTU	1	5
4.	Odour	APHA 22 nd Edition, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA 22 nd Edition, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA 22 nd Edition, 2340 C	268.0	mg/l	200	600
7.	Calcium as Ca	APHA 22 nd Edition, 3500 Ca B	86.10	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA 22 nd Edition, 2320 B	208.0	mg/l	200	600
9.	Chloride as Cl	APHA 22 nd Edition, 4500-Cl- B	93.97	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.02mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA 22 nd Edition, 4500 CN- B	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA 22 nd Edition, 2340 B	12.92	mg/l	30	100
13.	Total Dissolved Solids	APHA 22 nd Edition, 2540 C	540.0	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 22 nd Edition, 4500 E	46.3	mg/l	200	400

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Test Certificate

Sample No.: VEL/KWPCL/W/04					Report No.: VEL/S/1706/004	
S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
15.	Fluoride as F	APHA 22 nd Edition, 4500-F D	0.46	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (P-34) 1988	3.10	mg/l	45	No Relaxation
17.	Iron as Fe	APHA 22 nd Edition, 3500-Fe B	0.22	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.03	0.2
19.	Boron	APHA 22 nd Edition, 4500B C	BDL(DL 0.01 mg/l)	mg/l	0.5	1
20.	Phenolic Compounds	APHA 22 nd Edition, 5530 C	BDL(DL 0.001mg/l)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 22 nd Edition, 5540 C	BDL(DL 0.02mg/l)	mg/l	0.2	1.0
22.	Chromium as Cr	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
23.	Zinc as Zn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA 22 nd Edition, 3111 B	BDL(DL 0.003mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA 22 nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
30.	Mercury as Hg	APHA 22 nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	<2/100ml	MPN/100ml	-	10.00
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Absent	Absent

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

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Test Certificate

Sample Number:	VEL/KWPCL/W/05	Report No.:	VEL/W/1706/005
Name & Address of Party:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	Ground Water	Party Reference No.:	NIL
Sampling Location:	Village Bade Bhandar	Reporting Date:	22/06/2017
Latitude	21°44'17.4"N	Receipt Date:	16/06/2017
Longitude	83°16'49.3" E	Sampling Date:	15/06/2017
Client Representative:	Mr. Amit Soni	Sampling Type:	Grab
Sample Collected by	Vardan EnviroLab Representative	Preservation:	Refrigerated
Sampling & Analysis Protocol:	IS-10500-2012, APHA 22 nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Parameter Required:	As per IS 10500-2012

TEST RESULTS

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
1.	pH (at 25 °C)	APHA 22 nd Edition, 4500-H+ B	7.19	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA 22 nd Edition, 2120 B	BDL(DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA 22 nd Edition, 2130 B	BDL (DL 1 NTU)	NTU	1	5
4.	Odour	APHA 22 nd Edition, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA 22 nd Edition, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA 22 nd Edition, 2340 C	224.0	mg/l	200	600
7.	Calcium as Ca	APHA 22 nd Edition, 3500 Ca B	123.44	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA 22 nd Edition, 2320 B	240.0	mg/l	200	600
9.	Chloride as Cl	APHA 22 nd Edition, 4500-Cl- B	43.98	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.02mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA 22 nd Edition, 4500 CN- D	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA 22 nd Edition, 2340 B	20.40	mg/l	30	100
13.	Total Dissolved Solids	APHA 22 nd Edition, 2540 C	517	mg/l	500	2000
14.	Sulphate as SO ₄	APHA 22 nd Edition, 4500 E	13.10	mg/l	200	400

Manda



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Test Certificate

Sample No.: VEL/KWPCL/W/05					Report No.: VEL/S/1706/005 Limits of IS:10500 -2012	
S. No.	Parameter	Test-Method	Result	Unit	Desirable limit (Max.)	Permissible limit in the Absence of Alternate Source (Max.)
15.	Fluoride as F	APHA 22 nd Edition, 4500-F-D	0.42	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (P-34) 1988	3.40	mg/l	45	No Relaxation
17.	Iron as Fe	APHA 22 nd Edition, 3500-Fe B	0.23	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.03	0.2
19.	Boron	APHA 22 nd Edition, 4500B C	BDL(DL 0.01 mg/l)	mg/l	0.5	1
20.	Phenolic Compounds	APHA 22 nd Edition, 5530 C	BDL(DL 0.001mg/l)	mg/l	0.001	0.002
21.	Anionic Detergents as MBAS	APHA 22 nd Edition, 5540 C	BDL(DL 0.02mg/l)	mg/l	0.2	1.0
22.	Chromium as Cr	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.05	No Relaxation
23.	Zinc as Zn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA 22 nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA 22 nd Edition, 3111 B	BDL(DL 0.003mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA 22 nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA 22 nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l	0.01	No Relaxation
30.	Mercury as Hg	APHA 22 nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	<2/100ml	MPN/100ml	10.00	10.00
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Absent	Absent

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

Manika



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4.4 Surface water Quality Analysis



Figure. No. 6. Plan Showing Surface Water Quality Monitoring Location Map

Location Code: - 1. Mad- Mand Nadi River (Up Stream)

2. Mad- Mand Nadi River (Down Stream)



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Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404

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Test Certificate

Sample Number: **VEL/KWPCL/SW/01**
 Name & Address of Party: **M/s Kurba West Power Company Limited
 Village Chhote Bhandar, Post office Bade Bhandar,
 Tehsil Pussore, Dist- Raigarh -496100 (Chhattisgarh)**
 Sample Description: **Surface Water**
 Sampling Location : **Mand River (Down Stream)**
 Sample Collected by: **Vardan EnviroLab Representative**

Report No.: **VEL/SW/1706/01**
 Format No.: **5.10 F-01**
 Party Reference No.: **NIL**
 Reporting Date: **22/06/2017**
 Receipt Date: **16/06/2017**
 Sampling Date: **15/06/2017**
 Sampling Type: **Composite**
 Preservation: **Refrigerated**
 Sampling Quantity: **2.0 Ltr**
 Parameter Required: **As per Work Order**

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA 22nd Edition, 4500-H+ B	7.24	--
2.	Colour	APHA 22nd Edition, 2120 B	5.0	Hazen
3.	Turbidity	APHA 22nd Edition, 2130 B	3.0	NTU
4.	Chloride as Cl	APHA 22nd Edition, 4500-Cl- B	33.98	mg/l
5.	Total Dissolved Solids	APHA 22nd Edition, 2540 C	286	mg/l
6.	Total Hardness as CaCO ₃	APHA 22nd Edition, 2340 C	160.0	mg/l
7.	Calcium as Ca	APHA 22nd Edition, 3500 Ca B	60.92	mg/l
8.	Alkalinity as CaCO ₃	APHA 22nd Edition, 2320 B	116	mg/l
9.	BOD (3 Days at 27 °C)	IS 3025 (Part 44)RA 2004	8.0	mg/l
10.	COD	APHA 22nd Edition, 5220 B	26.0	mg/l
11.	Dissolved Oxygen	APHA 22nd Edition, 4500	7.2	mg/l
12.	Sulphate as SO ₄	APHA 22nd Edition, 4500 E	25.02	mg/l
13.	Fluoride as F	APHA 22nd Edition, 4500-F- D	0.25	mg/l
14.	Iron as Fe	APHA 22nd Edition, 3500-Fe B	0.21	mg/l
15.	Chromium as Cr ⁶⁺	APHA 22nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
16.	Anionic Detergents as MBAS	APHA 22nd Edition, 5540 C	BDL(DL 0.02 mg/l)	mg/l
17.	Zinc as Zn	APHA 22nd Edition, 3111 B	0.31	mg/l
18.	Copper as Cu	APHA 22nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l
19.	Oil & Grease	APHA 22nd Edition, 5220 E	BDL	mg/l
20.	Nitrate as NO ₃	IS 3025 (P-34) 1988	8.20	mg/l
21.	Arsenic as As	APHA 22nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
22.	Lead as Pb	APHA 22nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l
23.	Cadmium as Cd	APHA 22nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l

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Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)

Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404

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Test Certificate

24.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.02mg/l)	mg/l
25.	Cyanide as CN	APHA 22 nd Edition, 4500 CN- D	BDL(DL 0.02mg/l)	mg/l
26.	Magnesium as Mg	APHA 22 nd Edition, 2340 B	1.94	mg/l
27.	Aluminium as Al	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l
28.	Boron as B	APHA 22 nd Edition, 4500B C	BDL(DL 0.01 mg/l)	mg/l
29.	Phenolic Compounds	APHA 22 nd Edition, 5530 C	BDL(DL 0.001mg/l)	mg/l
30.	Manganese as Mn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l
31.	Selenium as Se	APHA 22 nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
32.	Mercury as Hg	APHA 22 nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l

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

Amity



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Test Certificate

Sample Number:	VEL/KWPCL/SW/02	Report No.:	VEL/SW/1706/02
Name & Address of Party:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	Surface Water	Party Reference No.:	NIL
Sampling Location :	Mand River (Up Stream)	Reporting Date:	22/06/2017
Sample Collected by:	Vardan EnviroLab Representative	Receipt Date:	16/06/2017
		Sampling Date:	15/06/2017
		Sampling Type:	Composite
		Preservation:	Refrigerated
		Sampling Quantity:	2.0 Ltr
		Parameter Required:	As per Work Order

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA 22nd Edition, 4500-H+ B	7.20	--
2.	Colour	APHA 22nd Edition, 2120 B	5.0	Hazen
3.	Turbidity	APHA 22nd Edition, 2130 B	2.0	NTU
4.	Chloride as Cl	APHA 22nd Edition, 4500-Cl- B	31.02	mg/l
5.	Total Dissolved Solids	APHA 22nd Edition, 2540 C	275	mg/l
6.	Total Hardness as CaCO ₃	APHA 22nd Edition, 2340 C	154	mg/l
7.	Calcium as Ca	APHA 22nd Edition, 3500 Ca B	45.20	mg/l
8.	Alkalinity as CaCO ₃	APHA 22nd Edition, 2320 B	103	mg/l
9.	BOD (3 Days at 27 °C)	IS 3025 (Part 44)RA 2004	7.0	mg/l
10.	COD	APHA 22nd Edition, 5220 B	25.0	mg/l
11.	Dissolved Oxygen	APHA 22nd Edition, 4500	7.6	mg/l
12.	Sulphate as SO ₄	APHA 22nd Edition, 4500 E	27.20	mg/l
13.	Fluoride as F	APHA 22nd Edition, 4500-F- D	0.24	mg/l
14.	Iron as Fe	APHA 22nd Edition, 3500-Fe B	0.19	mg/l
15.	Chromium as Cr ⁶⁺	APHA 22nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
16.	Anionic Detergents as MBAS	APHA 22nd Edition, 5540 C	BDL(DL 0.02 mg/l)	mg/l
17.	Zinc as Zn	APHA 22nd Edition, 3111 B	0.28	mg/l
18.	Copper as Cu	APHA 22nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l
19.	Oil & Grease	APHA 22nd Edition, 5220 E	BDL	mg/l
20.	Nitrate as NO ₃	IS 3025 (P-34) 1988	7.10	mg/l
21.	Arsenic as As	APHA 22nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
22.	Lead as Pb	APHA 22nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l
23.	Cadmium as Cd	APHA 22nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l
24.	Residual free Chlorine	APHA 22nd Edition, 4500 Cl- B	BDL(DL 0.02mg/l)	mg/l

Maula



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Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)

Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404

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Test Certificate

25.	Cyanide as CN	APHA 22 nd Edition, 4500 CN D	BDL(DL 0.02mg/l)	mg/l
26.	Magnesium as Mg	APHA 22 nd Edition, 2340 B	10.01	mg/l
27.	Aluminium as Al	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l
28.	Boron as B	APHA 22 nd Edition, 4500B C	BDL(DL 0.01 mg/l)	mg/l
29.	Phenolic Compounds	APHA 22 nd Edition, 5530 C	BDL(DL 0.001mg/l)	mg/l
30.	Manganese as Mn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l
31.	Selenium as Se	APHA 22 nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
32.	Mercury as Hg	APHA 22 nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l

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

Munika



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Figure. No. 7. Plan Showing Surface Water Quality Monitoring Location Map

Location Code: - 1 Mahanadi River Up Stream
2 Mahanadi River down Stream



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 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
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Test Certificate

Sample Number:	VEL/KWPCL/SW/03	Report No.:	VEL/SW/1706/03
Name & Address of Party:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	Surface Water	Party Reference No.:	NIL
Sampling Location :	Mahanadi (Down Stream)	Reporting Date:	22/06/2017
Sample Collected by:	Vardan EnviroLab Representative	Receipt Date:	16/06/2017
		Sampling Date:	15/06/2017
		Sampling Type:	Composite
		Preservation:	Refrigerated
		Sampling Quantity:	2.0 Ltr
		Parameter Required:	As per Work Order

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA 22nd Edition, 4500-H+ B	7.05	--
2.	Colour	APHA 22nd Edition, 2120 B	5.0	Hazen
3.	Turbidity	APHA 22 nd Edition, 2130 B	3.0	NTU
4.	Chloride as Cl	APHA 22nd Edition, 4500-Cl- B	15.90	mg/l
5.	Total Dissolved Solids	APHA 22nd Edition, 2540 C	147	mg/l
6.	Total Hardness as CaCO ₃	APHA 22 nd Edition, 2340 C	116	mg/l
7.	Calcium as Ca	APHA 22 nd Edition, 3500 Ca B	19.23	mg/l
8.	Alkalinity as CaCO ₃	APHA 22 nd Edition, 2320 B	76	mg/l
9.	BOD (3 Days at 27 °C)	IS 3025 (Part 4)RA 2004	6.5	mg/l
10.	COD	APHA 22 nd Edition, 5220 B	20.0	mg/l
11.	Dissolved Oxygen	APHA 22nd Edition, 4500	7.6	mg/l
12.	Sulphate as SO ₄	APHA 22nd Edition, 4500 E	22.50	mg/l
13.	Fluoride as F	APHA 22nd Edition, 4500-F- D	0.23	mg/l
14.	Iron as Fe	APHA 22nd Edition, 3500-Fe B	0.20	mg/l
15.	Chromium as Cr ⁶⁺	APHA 22nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
16.	Anionic Detergents as MBAS	APHA 22nd Edition, 5540 C	BDL(DL 0.02 mg/l)	mg/l
17.	Zinc as Zn	APHA 22nd Edition, 3111 B	0.28	mg/l
18.	Copper as Cu	APHA 22nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l
19.	Oil & Grease	APHA 22nd Edition, 5220 E	BDL	mg/l
20.	Nitrate as NO ₃	IS 3025 (P-34) 1988	8.21	mg/l
21.	Arsenic as As	APHA 22nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
22.	Lead as Pb	APHA 22nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l
23.	Cadmium as Cd	APHA 22nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l

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Test Certificate

24.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.02mg/l)	mg/l
25.	Cyanide as CN	APHA 22 nd Edition, 4500 CN- D	BDL(DL 0.02mg/l)	mg/l
26.	Magnesium as Mg	APHA 22 nd Edition, 2340 B	16.52	mg/l
27.	Aluminium as Al	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l
28.	Boron as B	APHA 22 nd Edition, 4500B C	BDL(DL 0.01 mg/l)	mg/l
29.	Phenolic Compounds	APHA 22 nd Edition, 5530 C	BDL(DL 0.001mg/l)	mg/l
30.	Manganese as Mn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l
31.	Selenium as Se	APHA 22 nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
32.	Mercury as Hg	APHA 22 nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l

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

Manika



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Test Certificate

Sample Number: **VEL/KWPCL/SW/04**
 Name & Address of Party: **M/s Korba West Power Company Limited
 Village Chhote Bhandar, Post office Bade Bhandar,
 Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh)**
 Sample Description: **Surface Water**
 Sampling Location: **Mahanadi (Up Stream)**
 Sample Collected by: **Vardan EnviroLab Representative**

Report No.: **VEL/SW/1706/04**
 Format No.: **5.10 F-01**
 Party Reference No.: **NIL**
 Reporting Date: **22/06/2017**
 Receipt Date: **16/06/2017**
 Sampling Date: **15/06/2017**
 Sampling Type: **Composite**
 Preservation: **Refrigerated**
 Sampling Quantity: **2.0 Ltr**
 Parameter Required: **As per Work Order**

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA 22nd Edition, 4500-H+ B	7.12	--
2	Colour	APHA 22nd Edition, 2120 B	5.0	Hazen
3.	Turbidity	APHA 22nd Edition, 2130 B	2.0	NTU
4.	Chloride as Cl	APHA 22nd Edition, 4500-Cl- B	12.30	mg/l
5.	Total Dissolved Solids	APHA 22nd Edition, 2540 C	138	mg/l
6.	Total Hardness as CaCO ₃	APHA 22nd Edition, 2340 C	112	mg/l
7.	Calcium as Ca	APHA 22nd Edition, 3500 Ca B	15.24	mg/l
8.	Alkalinity as CaCO ₃	APHA 22nd Edition, 2320 B	69	mg/l
9.	BOD (3 Days at 27 °C)	IS 3025 (Part 4)RA 2004	6.1	mg/l
10.	COD	APHA 22nd Edition, 5220 B	18.0	mg/l
11.	Dissolved Oxygen	APHA 22nd Edition, 4500	7.9	mg/l
12.	Sulphate as SO ₄	APHA 22nd Edition, 4500 E	18.20	mg/l
13.	Fluoride as F	APHA 22nd Edition, 4500-F- D	0.21	mg/l
14.	Iron as Fe	APHA 22nd Edition, 3500-Fe B	0.18	mg/l
15.	Chromium as Cr ⁶⁺	APHA 22nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
16.	Anionic Detergents as MBAS	APHA 22nd Edition, 5540 C	BDL(DL 0.02 mg/l)	mg/l
17.	Zinc as Zn	APHA 22nd Edition, 3111 B	0.26	mg/l
18.	Copper as Cu	APHA 22nd Edition, 3111 B	BDL(DL 0.02 mg/l)	mg/l
19.	Oil & Grease	APHA 22nd Edition, 5220 E	BDL	mg/l
20.	Nitrate as NO ₃	IS 3025 (P-34) 1988	7.69	mg/l
21.	Arsenic as As	APHA 22nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
22.	Lead as Pb	APHA 22nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l
23.	Cadmium as Cd	APHA 22nd Edition, 3111 B	BDL(DL 0.01mg/l)	mg/l

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

24.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.02mg/l)	mg/l
25.	Cyanide as CN	APHA 22 nd Edition, 4500 CN- D	BDL(DL 0.02mg/l)	mg/l
26.	Magnesium as Mg	APHA 22 nd Edition, 2340 B	17.97	mg/l
27.	Aluminium as Al	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l
28.	Boron as B	APHA 22 nd Edition, 4500B C	BDL(DL 0.01 mg/l)	mg/l
29.	Phenolic Compounds	APHA 22 nd Edition, 5530 C	BDL(DL 0.001mg/l)	mg/l
30.	Manganese as Mn	APHA 22 nd Edition, 3111 B	BDL(DL 0.02mg/l)	mg/l
31.	Selenium as Se	APHA 22 nd Edition, 3111 B	BDL(DL 0.01 mg/l)	mg/l
32.	Mercury as Hg	APHA 22 nd Edition, 3111 B	BDL(DL 0.001mg/l)	mg/l

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

Manika



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4.5 Soil Quality Analysis



Figure No. 8. Plan Showing Soil Sample Monitoring Location Map

Location Code: -

- S1- PalsadaVillage
- S2- Kthali Village
- S3- Chote Bhandar Village
- S4- Bade Bhandar Village
- S5- Nursery



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Test Certificate

Sample Number:	VEL/KWPCL/S/01	Report No.:	VEL/ S/1706/001
Name & Address of Party:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Latitude	21°44'07.8" N	Party Reference No.:	NIL
Longitude	83°15'01.2" E	Reporting Date:	22/06/2017
Sample Description:	SOIL	Receipt Date:	17/06/2017
Sampling Location:	Village- Palsada	Sampling Date:	15/06/2017
Sample Collected by:	Vardan EnviroLab Team	Type of Sampling:	Composite
		Sampling Quantity:	2.0 Kg
		Depth of Sampling:	30 cm

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P-26,1987)	7.65	**
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.348	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty Loam	**
4.	Color	USDA Method, 1968	Yellowish Red	**
5.	Water Holding Capacity	USDA Method, 1968	35.20	%
6.	Bulk Density	USDA Method, 1968	1.32	gm/cc
7.	Chloride as Cl	USDA Method, 1968	86.2	mg/Kg
8.	Calcium as Ca	USDA Method, 1968	426.7	mg/Kg
9.	Sodium as Na	USDA Method, 1968	80.1	mg/Kg
10.	Potassium as K	USDA Method, 1968	128.6	kg/hect.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.73	%
12.	Magnesium as Mg	USDA Method, 1968	76.3	mg/Kg
13.	Available Nitrogen as N	IS:14684, 1999	260.1	mg/Kg
14.	Available Phosphorus as P	USDA, APHA-4500PC	28.1	mg/Kg
15.	Zinc as Zn	APHA-3030D, APHA-3111B	21.4	mg/Kg
16.	Manganese as Mn	APHA-3030D, APHA-3111B	215.1	mg/Kg
17.	Chromium as Cr	APHA-3030D, APHA-3111B	4.8	mg/Kg
18.	Lead as Pb	APHA-3030D, APHA-3111B	10.2	mg/Kg
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	0.85	mg/Kg
20.	Copper as Cu	APHA-3030D, APHA-3111B	18.6	mg/Kg

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Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)
Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
(ISO 9001 | ISO 14001 | OHSAS 18001 | MoEF & CC Recognized | NABL Accredited | HSPCB & RSPCB Approved)

Test Certificate

Sample Number: **VEL/KWPCL/S/02**
Name & Address of Party: **M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade
Bhandar, Tehsil Pussore, Dist.-Raigarh -
496100 (Chhattisgarh)
21°43'27.2" N**
Latitude **83°16'25.7" E**
Longitude **SOIL**
Sample Description: **Village- Kathli**
Sampling Location: **Vardan EnviroLab Team**
Sample Collected by:

Report No.: **VEL/S/1706/002**
Format No.: **5.10 F-01**
Party Reference No.: **NIL**
Reporting Date: **22/06/2017**
Receipt Date: **17/06/2017**
Sampling Date: **15/06/2017**
Type of Sampling: **Composite**
Sampling Quantity: **2.0 Kg**
Depth of Sampling: **30 cm**

S. No.	Parameter	Protocol	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P-26,1987)	7.58	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.342	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty Loam	--
4.	Color	USDA Method, 1968	Yellowish Red	--
5.	Water Holding Capacity	USDA Method, 1968	33.20	%
6.	Bulk Density	USDA Method, 1968	1.30	gm/cc
7.	Chloride as Cl	USDA Method, 1968	58.20	mg/Kg
8.	Calcium as Ca	USDA Method, 1968	376.3	mg/Kg
9.	Sodium as Na	USDA Method, 1968	76.4	mg/Kg
10.	Potassium as K	USDA Method, 1968	125.2	kg/hect.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.72	%
12.	Magnesium as Mg	USDA Method, 1968	68.1	mg/Kg
13.	Available Nitrogen as N	IS:14684, 1999	250.1	mg/Kg
14.	Available Phosphorus as P	USDA, APHA-4500PC	26.4	mg/Kg
15.	Zinc as Zn	APHA-3030D, APHA-3111B	18.4	mg/Kg
16.	Manganese as Mn	APHA-3030D, APHA-3111B	220.1	mg/Kg
17.	Chromium as Cr	APHA-3030D, APHA-3111B	6.2	mg/Kg
18.	Lead as Pb	APHA-3030D, APHA-3111B	8.4	mg/Kg
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	0.81	mg/Kg
20.	Copper as Cu	APHA-3030D, APHA-3111B	17.3	mg/Kg

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Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)

Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404

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Test Certificate

Sample Number: **VEL/KWPCL/S/03**
Name & Address of Party: **M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade
Bhandar, Tehsil Pussore, Dist.-Raigarh -
496100 (Chhattisgarh)**
Latitude: **21°43'48.8" N**
Longitude: **83°16'49.3" E**
Sample Description: **SOIL**
Sampling Location: **Village-Chhote Bhandar**
Sample Collected by: **Vardan EnviroLab Team**

Report No.: **VEL/S/1706/003**
Format No.: **5.10 F-01**
Party Reference No.: **NIL**
Reporting Date: **22/06/2017**
Receipt Date: **17/06/2017**
Sampling Date: **16/06/2017**
Type of Sampling: **Composite**
Sampling Quantity: **2.0 Kg**
Depth of Sampling: **30 cm**

S. No.	Parameter	Protocol	Result	Unit
	pH (at 25 °C)	IS : 2720 (P-26,1987)	7.42	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.339	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty Loam	--
4.	Color	USDA Method, 1968	Yellowish Red	--
5.	Water Holding Capacity	USDA Method, 1968	31.12	%
6.	Bulk Density	USDA Method, 1968	1.25	gm/cc
7.	Chloride as Cl	USDA Method, 1968	68.4	mg/Kg
8.	Calcium as Ca	USDA Method, 1968	390.1	mg/Kg
9.	Sodium as Na	USDA Method, 1968	60.3	mg/Kg
10.	Potassium as K	USDA Method, 1968	121.2	kg/hect.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.71	%
12.	Magnesium as Mg	USDA Method, 1968	66.1	mg/Kg
13.	Available Nitrogen as N	IS:14684, 1999	290.4	mg/Kg
14.	Available Phosphorus as P	USDA, APHA-4500PC	26.4	mg/Kg
15.	Zinc as Zn	APHA-3030D, APHA-3111B	18.3	mg/Kg
16.	Manganese as Mn	APHA-3030D, APHA-3111B	206.0	mg/Kg
17.	Chromium as Cr	APHA-3030D, APHA-3111B	3.6	mg/Kg
18.	Lead as Pb	APHA-3030D, APHA-3111B	9.60	mg/Kg
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	0.80	mg/Kg
20.	Copper as Cu	APHA-3030D, APHA-3111B	17.2	mg/Kg

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Test Certificate

Sample Number: **VEL/KWPCL/S/04**
Name & Address of Party: **M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade
Bhandar, Tehsil Pussore, Dist.-Raigarh -
496100 (Chhattisgarh)**
Latitude: **21°44'17.8" N**
Longitude: **83°17'20.4" E**
Sample Description: **SOIL**
Sampling Location: **Village-Bade Bhandar**
Sample Collected by: **Vardan EnviroLab Team**

Report No.: **VEL/S/1706/004**
Format No.: **5.10 F-01**
Party Reference No.: **NIL**
Reporting Date: **22/06/2017**
Receipt Date: **17/06/2017**
Sampling Date: **16/06/2017**
Type of Sampling: **Composite**
Sampling Quantity: **2.0 Kg**
Depth of Sampling: **30 cm**

S. No.	Parameter	Protocol	Result	Unit
	pH (at 25 °C)	IS: 2720 (P-26,1987)	7.46	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.340	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty Loam	--
4.	Color	USDA Method, 1968	Yellowish Red	--
5.	Water Holding Capacity	USDA Method, 1968	37.2	%
6.	Bulk Density	USDA Method, 1968	1.28	gm/cc
7.	Chloride as Cl	USDA Method, 1968	52.10	mg/Kg
8.	Calcium as Ca	USDA Method, 1968	480.4	mg/Kg
9.	Sodium as Na	USDA Method, 1968	60.3	mg/Kg
10.	Potassium as K	USDA Method, 1968	155.2	kg/hect.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.86	%
12.	Magnesium as Mg	USDA Method, 1968	80.4	mg/Kg
13.	Available Nitrogen as N	IS:14684, 1999	315.0	kg/hect.
14.	Available Phosphorus as P	USDA, APHA-4500PC	28.0	kg/hect.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	17.2	mg/Kg
16.	Manganese as Mn	APHA-3030D, APHA-3111B	188.0	mg/Kg
17.	Chromium as Cr	APHA-3030D, APHA-3111B	3.8	mg/Kg
18.	Lead as Pb	APHA-3030D, APHA-3111B	10.60	mg/Kg
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	0.81	mg/Kg
20.	Copper as Cu	APHA-3030D, APHA-3111B	18.1	mg/Kg

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Test Certificate

Sample Number: **VEL/KWPCL/S/05**
 Name & Address of Party: **M/s Korba West Power Company Limited
 Village Chhote Bhandar, Post office Bade
 Bhandar, Tehsil Pussore, Dist.-Raigarh -
 496100 (Chhattisgarh)**
 Latitude: **21°43'55.8" N**
 Longitude: **83°16'48.0" E**
 Sample Description: **SOIL**
 Sampling Location: **Nursery**
 Sample Collected by: **Vardan EnviroLab Team**

Report No.: **VEL/S/1706/005**
 Format No.: **5.10 F-01**
 Party Reference No.: **NIL**
 Reporting Date: **22/06/2017**
 Receipt Date: **17/06/2017**
 Sampling Date: **16/06/2017**
 Type of Sampling: **Composite**
 Sampling Quantity: **2.0 Kg**
 Depth of Sampling: **30 cm**

S. No.	Parameter	Protocol	Result	Unit
	pH (at 25 °C)	IS : 2720 (P-26,1987)	7.42	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.345	mS/cm
3.	Soil Texture	USDA Method, 1968	Silty Loam	--
4.	Color	USDA Method, 1968	Yellowish Red	--
5.	Water Holding Capacity	USDA Method, 1968	30.50	%
6.	Bulk Density	USDA Method, 1968	1.36	gm/cc
7.	Chloride as Cl	USDA Method, 1968	60.2	mg/Kg
8.	Calcium as Ca	USDA Method, 1968	310.1	mg/Kg
9.	Sodium as Na	USDA Method, 1968	76.2	mg/Kg
10.	Potassium as K	USDA Method, 1968	121.2	kg/hect.
11.	Organic Matter	IS:2720 (P-22, 1972)	0.68	%
12.	Magnesium as Mg	USDA Method, 1968	56.10	mg/Kg
13.	Available Nitrogen as N	IS:14684, 1999	266.1	kg/hect.
14.	Available Phosphorus as P	USDA, APHA-4500PC	25.1	kg/hect.
15.	Zinc as Zn	APHA-3030D, APHA-3111B	15.1	mg/Kg
16.	Manganese as Mn	APHA-3030D, APHA-3111B	180.1	mg/Kg
17.	Chromium as Cr	APHA-3030D, APHA-3111B	3.0	mg/Kg
18.	Lead as Pb	APHA-3030D, APHA-3111B	8.46	mg/Kg
19.	Cadmium as Cd	APHA-3030D, APHA-3111B	0.68	mg/Kg
20.	Copper as Cu	APHA-3030D, APHA-3111B	16.6	mg/Kg

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4.6 Effluent Sample Analysis Report

Locations

1. STP Outlet
2. ETP Outlet

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Test Certificate

Sample Number: VEL/KWPCL/WW/01
Name & Address Of Party: M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)

Report No.: VEL/WW/1706/01
Reporting Date: 22/06/2017
Receipt Date: 17/06/2017
Sampling Date: 16/06/2017
Sampling Quantity: 2.0 Ltr
Parameter Required: As per work order

Sample Description: STP Outlet
Sample Collected by: Vardan EnviroLab Team
Sampling & Analysis Protocol: IS 3025, APHA 22nd Edition

TEST RESULTS

S. No.	Parameter	Protocol	Result	Unit	Limits for Disposal in		
					Inland Surface Water	Public Sewer	Land for Irrigation
1.	pH (at 25 °C)	APHA 22nd Edition, 4500-H+ B	8.20	--	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
2.	Chemical Oxygen Demand	APHA 22nd Edition, 5220 B	110.0	mg/l	250	NS	NS
3.	BOD (3 Days at 27 °C)	IS 3025,P-44,1999 (Reaffirmed 2003)	26.01	mg/l	30	350	100
4.	Oil and Grease	APHA 22nd Edition, 5220 E	0.8	mg/l	10	20	10
5.	Total Suspended Solids	APHA 22nd Edition, 2540 D	21.0	mg/l	100	600	200

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Test Certificate

Sample Number: **VEL/ HCIL /WW/02** Report No.: **VEL/WW/1706/02**
Name & Address Of Party: **M/s Korba West Power Company Limited** Reporting Date: **22/06/2017**
Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh) Receipt Date: **17/06/2017**
Sampling Date: **16/06/2017**
Sampling Quantity: **2.0 Ltr**
Parameter Required: **As per work order**

Sample Description: **ETP Outlet**
Sample Collected by: **Vardan EnviroLab Team**
Sampling & Analysis Protocol: **IS 3025, APHA 22nd Edition**

TEST RESULTS

S. No.	Parameter	Protocol	Result	Unit	Limits for Disposal in		
					Inland Surface Water	Public Sewer	Land for Irrigation
1.	pH (at 25 °C)	APHA 22nd Edition, 4500-H+ B	7.69	--	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
2.	Chemical Oxygen Demand	APHA 22nd Edition, 5220 B	84.2	mg/l	250	NS	NS
3.	BOD (3 Days at 27 °C)	IS 3025, P-44, 1999 (Reaffirmed 2003)	21.02	mg/l	30	350	100
4.	Oil and Grease	APHA 22nd Edition, 5220 E	2.4	mg/l	10	20	10
5.	Total Suspended Solids	APHA 22nd Edition, 2540 D	22	mg/l	100	600	200

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Chapter – 5.0 CONCLUSION

KWPCL authorities have been taken successful steps in controlling environmental pollution in and around the project. This fact is clear from analytical results of different environmental parameters. A brief conclusion is as follows.

Sr. No.	Environmental Parameters	Conclusion
5.1	Air Environment	After analysis of the samples from five different locations it is observed that both the individuals and average concentrations of air pollutants in respect of SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5} , CO and Mercury are well within the prescribed limits of NAAQM standards. People of township and of surrounding villages do not have any problems regarding the air quality and have no grievances because of Thermal Power Plant activities.
5.2	Water Environment	The analytical result of the samples from the ground water of villages, surface water from river, and domestic & industrial effluent after treatment shows that the concentrations of different water parameters are well within prescribed limits and will not cause any adverse impact on human health and on surrounding area. People of surrounding areas express satisfaction about the water quality of that area.
5.3	Noise Environment	The observations taken at four village location during day and night time shows that the noise level are well within prescribed limits of CPCB. Hence there is no possibility of any adverse effect of noise generated due to Thermal Power Plant activities on peoples of surrounding areas.

All the above details show that Thermal Power Plant of KWPCL is not causing any adverse impact on the human health and ecological balance.

2nd Quarterly Environmental Monitoring Report



Submitted To:

**M/s Korba West Power Company Limited
Village Chhote Bhandar, Post office Bade Bhandar,
Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh)**

Conducted by:

**M/s Vardan EnviroLab
Village- Samaspur, Opposite Amity School, Sector-51,
Gurgaon (Haryana)**

(Recognized by MoEF & CC, NABL Government of India)

PREFACE

The growing concern for environmental protection and the passing of various environmental legislations have increased the responsibilities of Ministry of Environment, Forests & Climate Change, Pollution Control boards in many folds. Besides enforcing the various environmental legislations MoEF&CC, CPCB & SPCB strive to propagate the necessity awareness regarding the various legal provisions and environmental protection measures in the country.

Electric Power scenario has occupied a significant place in the development program of the country. Development and environment can neither be separated nor ignored. In fact, they are complimentary to each other. These issues have become a concern of the community, particularly the environment impact due to industries in the developing countries.

However, the prerequisite for sustainable development is judicious planning of environmental status, likely impacts of the approach adopted on the environment including inhabitants of the locality, availability of the eco-friendly technology, emerging waste disposal and waste utilization processes, techniques of land reclamation for the restoration of aesthetic beauty and soon.

*Korba West Power Company Limited (KWPCCL), Village Chote Bhandar, Post Office Bade Bhandar, Raigarh-496100, India, has engaged **M/S Vardan EnviroLab, Gurgaon, (HR)** to provide Environmental Services in respect of ambient air quality monitoring, stack emission, noise level monitoring & Sampling and Analysis of ground water quality, surface water quality, treated effluent sewage, effluent water from ETP, and soil for **KWPCL, Raigarh district of Chhattisgarh**, as per guidelines of MoEF&CC and CPCB Gazette notification.*

***M/S Vardan EnviroLab, Gurgaon, (HR)** has deployed entirely its own personnel, facilities and expertise for doing this service. Sampling / Monitoring Stations were identified by the Environmental Officer of KWPCCL. The samples were analyzed **partly** at site and partly at our MoEF Recognized laboratory situated at Gurgaon (HR).*

*This report presents the data generated for the period from 12th September 2017 to 16th September 2017 , **i.e. for First quarter which** includes sampling locations, Methodology, testing procedure and compilation for the Environmental parameters i.e. Air, Water & Noise with a view to evaluate the impact due to the thermal power plant activities.*

During the course of our operations for the above task, the staff and management of KWPCCL were extremely co-operative. We are grateful to them for their invaluable support and assistance rendered to us during the course of the sampling and monitoring.

Date :

Authorized Signatory

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Chapter – 1.0

INTRODUCTION

Korba West Power Company Limited (KWPCCL), a subsidiary of Avantha Power & Infrastructure Limited, is a power generation company based at Raigarh in the State of Chattisgarh. KWPCCL has recently commissioned its Thermal Power Plant first 600MW Unit at Village Chote Bhandar, Post Office Bade Bhandar, Raigarh- 496100, India. The second unit of 600MW is under implementation. KWPCCL is also committed towards the environment and the community it operates in. It has successfully implemented several community welfare schemes in the field of livelihood, infrastructure, community health and education which has so far benefited over 60,000 people from close to 75 villages.



Figure No.1. Korba West Power Company Limited (KWPCCL)

Chapter – 2.0

PROJECT PROFILE

2.1 Topography & Drainage

Topography of this area is generally undulating. The area is drained by Mand River approximately 3 km. away from plant in North direction and Mahanadi River approximately 5 km. away from plant in South direction.

2.2 Location

Plant is bounded by Northern Latitudes of 21° 44' 00" to 21° 44' 42" and Eastern Longitude of 83° 16' 30" to 83° 17' 18". This area falls in the survey of India toposheet no. 64 O/1, 64 O/2, 64 O/5 and 64 O/6. The location of the mine area is shown in **Fig. No. 2**

2.3 Climate

The climate of the area is Sub-tropical type. It is in the zone of humid tropic climate where temperature and humidity of air are very high. The temperature varies from the minimum - maximum temperature range between 29.5°C - 49 °C in summer, and 8°C - 25 °C in winter. The humidity varies from 35% to 82%. The annual average rainfall in the area is about 1300 mm.

2.4 Communication

The nearest railway station is Kirodimal, which is at a distance of ~23 Km towards North direction. The area is well connected with N.H. No. 216. Nearest Airport is Raipur ~250 km in SW direction. Nearest village is Bade Bhandar ~ 1 km. in North direction and nearest town is Raigarh ~21 km. in North-East direction.

2.5 Location Map

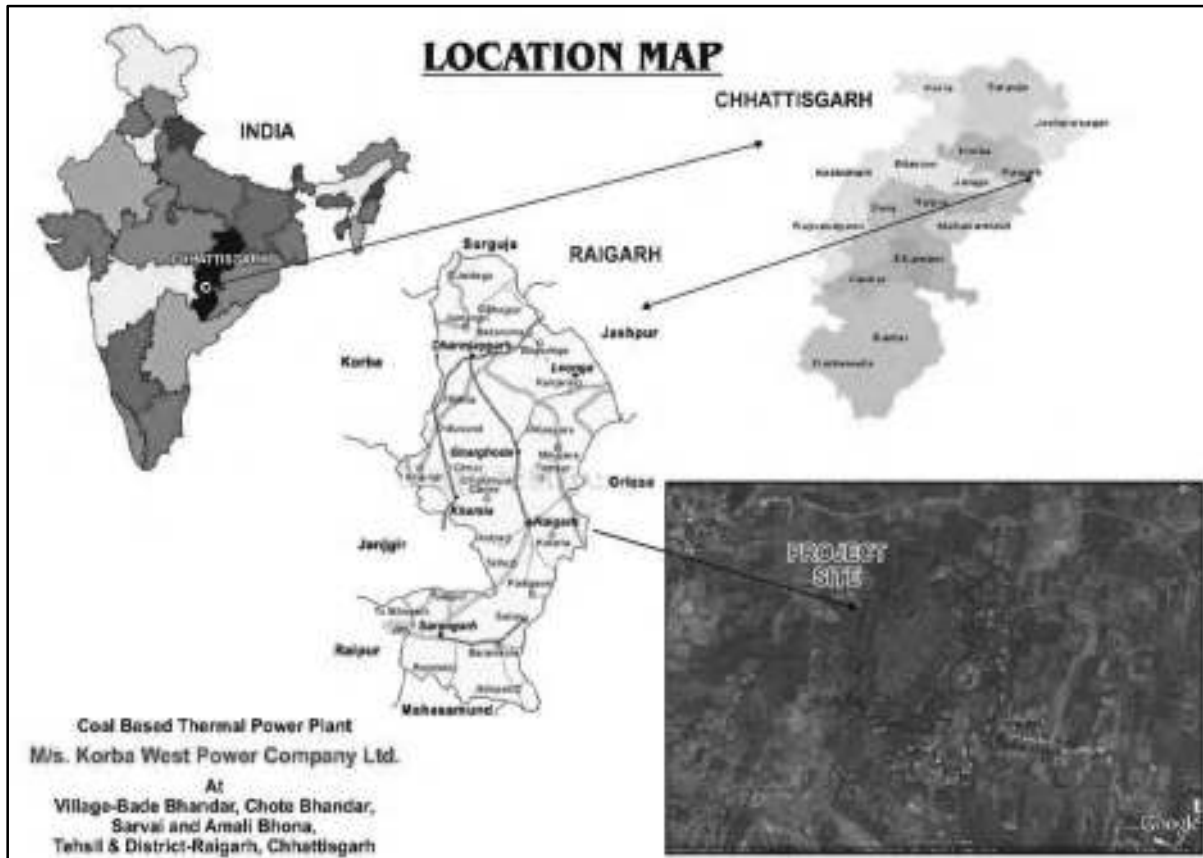


Figure No.2. Location Map

Chapter – 3.0

SCOPE OF STUDY AND METHODOLOGY

3.1 Scope of Study

The scope of study includes Environmental Services in respect of ambient air quality monitoring, noise level monitoring & Sampling and Analysis of Drinking water, Ground water quality and surface water quality, treated effluent sewage, effluent water from ETP, soil and Ground water level monitoring.

3.2 Methodology

As mentioned in the scope of work covering the various Environmental components monitoring and sampling and its analysis was carried out on the basis of guidelines of Ministry of Environment Forest & Climate Control of Government of India & Chattisgarh State Pollution Control Board. Sampling procedure method reference and Analysis procedure method reference are mentioned in monitoring reports.

3.2.1 Ambient Air Quality Monitoring

The ambient air quality has been carried out at various sources of air pollution surrounding and in the Plant. The prime objective of the ambient air quality monitoring is to assess the existing air quality of the area.

The ambient air quality monitoring was carried out for 24 hours at each station. At all stations SO₂, NO₂, PM₁₀, PM_{2.5}, CO and Mercury were monitored. All the samples collected were analyzed for quantitative analysis of various pollutants.

The ambient air quality sampling locations were identified by the Environmental Officer of KWPCCL.

3.2.2 Water Environment

The ground water samples, surface water samples were collected from selected locations in two liter sterilized plastic cans. These samples were analyzed as per IS 10500:2012. The domestic effluent and Industrial effluent samples were collected and analyzed for parameters: pH, Total suspended solids, Biochemical Oxygen Demand, Chemical Oxygen Demand and Oil & Grease.

3.2.3 Noise Environment

Sound level meter was used to know the sound levels generated due to plant activities at different locations. The measurements were taken for Equivalent sound level over a time period for day and night which is expressed in dB(A).

3.2.4 Soil

The Soil samples were collected from selected locations. These samples were analyzed for Physico-Chemical parameters including heavy metals.

Chapter - 4.0

SAMPLING LOCATION MAP AND ANALYSIS REPORTS

4.1 Ambient Air Quality Monitoring

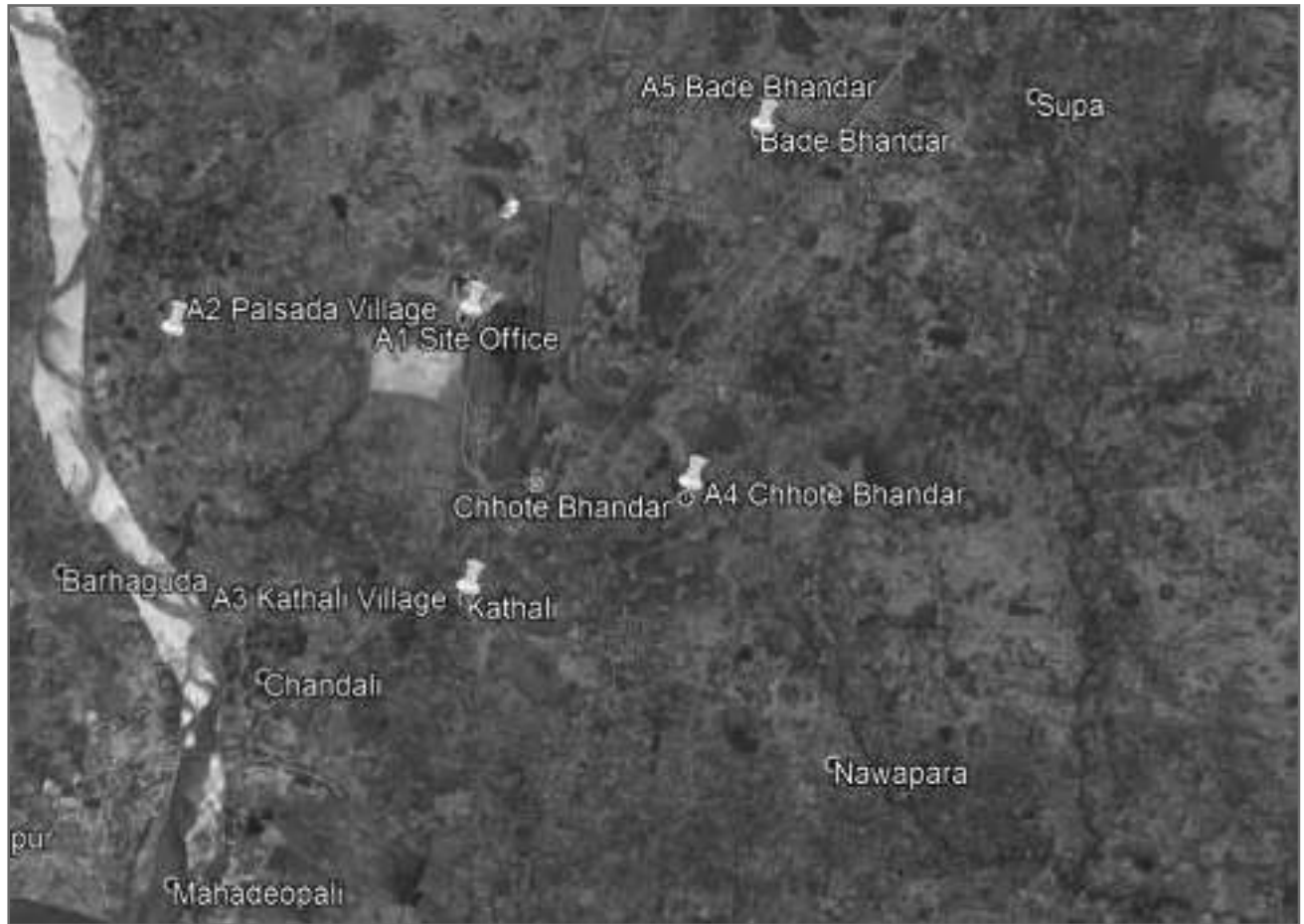


Figure No.3. Plan Showing Ambient Air Quality Location Map

Location Code: -	A1- Site Office
	A2- PalsadaVillage
	A3- Kathali Village
	A4- Chote Bhandar Village
	A5- Bade Bhandar Village



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Test Certificate

Sample Number: VEL/KWPCL/A/01 Report No.: VEL/A/1709/001
 Name & Address of the Party: M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh) Format No.: 5.10 F-01
 Party Reference No.: NIL
 Reporting Date: 03/10/2017
 Receipt Date: 18/09/2019 Period of Analysis: 18/09/2017-20/09/2017

Sample Description: AMBIENT AIR QUALITY MONITORING

General Information:-

Client Representative : Mr. Amit Soni
 Sample collected by : Vardan Enviro Lab Representative
 Sampling Location : Site office
 Instrument Used : RDS & FPS sampler with all Accessories
 Instrument Code : VEL/RDS/06 & VEL/FPS/06
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 12/09/2017 to 13/09/2017
 Time of Monitoring : 24 hours
 Ambient Temperature (°C) : Min. 27.0 Max. 32.0
 Surrounding Activity : Human and Vehicular activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : ---
 Sampling & Analysis Protocol : IS-5182
 Parameter Required : PM_{2.5}, PM₁₀, NO_x, SO₂, CO, Hg

S. No.	Parameter	Protocol	Result	Unit	NAAQS
1.	Particulate Matter (PM _{2.5})	SOP No. VEL/SOP/01, Section No. SP 63	36.2	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	76.1	µg/m ³	100
3.	Nitrogen Dioxide (NO ₂)	IS: 5182 (P-6), Reaffirmed-2006	11.2	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), Reaffirmed-2012	13.05	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), Reaffirmed-2003	0.80	mg/m ³	4
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009.
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 (Tested By)

(Signature)
 (Checked By)



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 Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)
 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
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Test Certificate

Sample Number: VEL/KWPCL/A/02 Report No.: VEL/A/1709/002
 Name & Address of the Party: M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh) Format No.: 5.10 F-01
 Party Reference No.: NIL
 Reporting Date: 03/10/2017
 Receipt Date: 18/09/2019 Period of Analysis: 18/09/2017-20/09/2017

Sample Description: AMBIENT AIR QUALITY MONITORING

General Information:-

Client Representative : Mr. Amit Soni
 Sample collected by : Vardan Enviro Lab Representative
 Sampling Location : Village Palsada
 Instrument Used : RDS & FPS sampler with all Accessories
 Instrument Code : VEL/RDS/07 & VEL/FPS/07
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 12/09/2017 to 13/09/2017
 Time of Monitoring : 24 hours
 Ambient Temperature (°C) : Min.27.0 Max.32.0
 Surrounding Activity : Human and Vehicular activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : ---
 Sampling & Analysis Protocol : IS-5182
 Parameter Required : PM_{2.5}, PM₁₀, NO_x, SO₂, CO, Hg

S. No.	Parameter	Protocol	Result	Unit	NAAQS
1.	Particulate Matter (PM _{2.5})	SOP No. VEL/SOP/01, Section No. SP 63	40.37	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	74.66	µg/m ³	100
3.	Nitrogen Dioxide (NO ₂)	IS: 5182 (P-6), Reaffirmed-2006	21.42	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), Reaffirmed-2012	8.93	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), Reaffirmed-2003	0.71	mg/m ³	4
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009

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Test Certificate

Sample Number: VEL/KWPCL/A/03 Report No.: VEL/A/1709/003
 Name & Address of the Party: M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh) Format No.: 5.10 F-01
 Party Reference No.: NIL
 Reporting Date: 03/10/2017
 Receipt Date: 18/09/2019 Period of Analysis: 18/09/2017-20/09/2017

Sample Description: AMBIENT AIR QUALITY MONITORING

General Information:-

Client Representative : Mr. Amit Soni
 Sample collected by : Vardan Enviro Lab Representative
 Sampling Location : Village Kathli
 Instrument Used : RDS & FPS sampler with all Accessories
 Instrument Code : VEL/RDS/06& VEL/FPS/06
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 13/09/2017 to 14/09/2017
 Time of Monitoring : 24 hours
 Ambient Temperature (°C) : Min. 25.0 Max. 33.0
 Surrounding Activity : Human and Vehicular activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : --
 Sampling & Analysis Protocol : IS-5182
 Parameter Required : PM_{2.5}, PM₁₀, NO_x, SO₂, CO, Hg

S. No.	Parameter	Protocol	Result	Unit	NAAQS
1.	Particulate Matter (PM _{2.5})	SOP No. VEL/SOP/01, Section No. SP 63	40.72	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	74.39	µg/m ³	100
3.	Nitrogen Dioxide (NO ₂)	IS: 5182 (P-6), Reaffirmed-2006	25.02	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), Reaffirmed-2012	8.33	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), Reaffirmed-2003	0.70	mg/m ³	4
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009.

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Test Certificate

Sample Number: VEL/KWPCL/A/04 Report No.: VEL/A/1709/004
 Name & Address of the Party: M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh) Format No.: 5.10 F-01
 Party Reference No.: NIL
 Reporting Date: 03/10/2017
 Receipt Date: 18/09/2019 Period of Analysis: 18/09/2017-20/09/2017

Sample Description: AMBIENT AIR QUALITY MONITORING

General Information:-

Client Representative : Mr. Amit Soni
 Sample collected by : Vardan Enviro Lab Representative
 Sampling Location : Village Chhote Bhandar
 Instrument Used : RDS & FPS sampler with all Accessories
 Instrument Code : VEL/RDS/07 & VEL/FPS/07
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 13/09/2017 to 14/09/2017
 Time of Monitoring : 24 hours
 Ambient Temperature (°C) : Min. 25.0 Max. 33.0
 Surrounding Activity : Human and Vehicular activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : ---
 Sampling & Analysis Protocol : IS-5182
 Parameter Required : PM_{2.5}, PM₁₀, NO_x, SO₂, CO, Hg

S. No.	Parameter	Protocol	Result	Unit	NAAQS
1.	Particulate Matter (PM _{2.5})	*SOP No. VEL/SOP/01, Section No. SP 63	40.08	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	79.66	µg/m ³	100
3.	Nitrogen Dioxide (NO ₂)	IS: 5182 (P-6), Reaffirmed-2006	23.58	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), Reaffirmed-2012	10.34	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), Reaffirmed-2003	0.85	mg/m ³	4
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009.

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Test Certificate

Sample Number: VEL/KWPCL/A/05 Report No.: VEL/A/1709/005
 Name & Address of the Party: M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh) Format No.: 5.10 F-01
 Party Reference No.: NIL
 Reporting Date: 03/10/2017
 Receipt Date: 18/09/2019 Period of Analysis: 18/09/2017-20/09/2017

Sample Description: AMBIENT AIR QUALITY MONITORING

General Information:-

Client Representative : Mr. Amit Soni
 Sample collected by : Vardan Enviro Lab Representative
 Sampling Location : Village Bade Bhandar
 Instrument Used : RDS & FPS sampler with all Accessories
 Instrument Code : VEL/RDS/06 & VEL/FPS/06
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 15/09/2017 to 16/09/2017
 Time of Monitoring : 24 hours
 Ambient Temperature (°C) : Min. 27.0 Max. 34.0
 Surrounding Activity : Human and Vehicular activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : ---
 Sampling & Analysis Protocol : IS-5182
 Parameter Required : PM_{2.5}, PM₁₀, NO_x, SO₂, CO, Hg

S. No.	Parameter	Protocol	Result	Unit	NAAQS
1.	Particulate Matter (PM _{2.5})	*SOP No. VEL/SOP/01, Section No. SP 63	43.51	µg/m ³	60
2.	Particulate Matter (PM ₁₀)	IS: 5182 (P-23), 2006	81.37	µg/m ³	100
3.	Nitrogen Dioxide (NO ₂)	IS: 5182 (P-6), Reaffirmed-2006	27.34	µg/m ³	80
4.	Sulphur Dioxide (SO ₂)	IS: 5182 (P-2), Reaffirmed-2012	8.96	µg/m ³	80
5.	Carbon Monoxide (CO)	IS: 5182 (P-10), Reaffirmed-2003	0.77	mg/m ³	4
6.	Mercury as Hg	CPCB Guidelines	BDL	ng/m ³	--

* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009.
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4.2 Noise Level Monitoring



Figure No.4. Plan Showing Noise Level Monitoring Location Map

Ambient Noise Level Monitoring Locations

- Location Code: -
- N1- Field Hostel
 - N2- Palsada Village
 - N3- Kathali Village
 - N4- Chote Bhandar Village
 - N5- Bade Bhandar Village

Work Zone Noise Level Monitoring Locations

- Location Code: -
- N6- Site Office
 - N7- Behind Switchyard
 - N8- Railway Entry Gate



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Test Certificate

Sample Number: VEL/KWPCL/AN/01 Report No.: VEL/AN/1709/001
 Name & Address of the Party: M/s Korba West Power Company Limited
 Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh) Format No.: 5.10 F-01
 Party Reference No.: NIL Reporting Date: 03/10/2017
 Receipt Date: 18/09/2017

Sample Description: AMBIENT NOISE LEVEL MONITORING

General Information:-

Client Representative : Mr. Amit Soni
 Sample collected by : VardanEnviroLab Representative
 Sampling Location : Field Hostel
 Instrument Used : Sound Level Meter
 Instrument Code : VEL/S/SLM/03
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 12/09/2017 to 13/09/2017
 Time of Monitoring : 06:00 AM to 06:00AM
 Surrounding Activity : Human and Vehicular Activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : No any
 Sampling & Analysis Protocol : IS-9989 R-2003
 Sampling Duration : 24 Hours
 Parameter Required : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L_{max}	IS 9989 R-2003	64.3	53.2	dB(A)
2.	L_{min}	IS 9989 R-2003	47.6	36.5	dB(A)
3.	L_{eq}	IS 9989 R-2003	63.89	47.85	dB(A)
4.	CPCB Limits in dB(A) L_{eq} (Industrial Area)	-	75.00	70.00	dB(A)

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

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Test Certificate

Sample Number: VEL/KWPCL/AN/02 Report No.: VEL/AN/1709/002
 Name & Address of the Party: M/s Korba West Power Company Limited
 Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh)
 Format No.: 5.10 F-01
 Party Reference No.: NIL
 Reporting Date: 03/10/2017
 Receipt Date: 18/09/2017

Sample Description: AMBIENT NOISE LEVEL MONITORING

General Information:-

Client Representative : Mr. Amit Soni
 Sample collected by : VardanEnviroLab Representative
 Sampling Location : Village Palsada
 Instrument Used : Sound Level Meter
 Instrument Code : VEL/S/SLM/02
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 12/09/2017 to 13/09/2017
 Time of Monitoring : 06:00 AM to 06:00AM
 Surrounding Activity : Human and Vehicular Activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : No any
 Sampling & Analysis Protocol : IS-9989 R-2003
 Sampling Duration : 24 Hours
 Parameter Required : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L_{max}	IS 9989 R-2003	64.1	56.3	dB(A)
2.	L_{min}	IS 9989 R-2003	48.3	37.5	dB(A)
3.	L_{eq}	IS 9989 R-2003	54.63	44.25	dB(A)
4.	CPCB Limits in dB(A) Leq (Residential Area)	-	55.00	45.00	dB(A)

Note: *A "decibel" is a unit in which noise is measured.

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Test Certificate

Sample Number: **VEL/KWPCL/AN/03** Report No.: **VEL/AN/1709/003**
 Name & Address of the Party: **M/s Korba West Power Company Limited** Format No.: **5.10 F-01**
Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh) Party Reference No.: **NIL**
 Reporting Date: **03/10/2017**
 Receipt Date: **18/09/2017**

Sample Description: **AMBIENT NOISE LEVEL MONITORING**

General Information:-
 Client Representative : Mr. Amit Soni
 Sample collected by : VardanEnviroLab Representative
 Sampling Location : Village Kathli
 Instrument Used : Sound Level Meter
 Instrument Code : VEL/S/SLM/03
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 13/09/2017 to 14/09/2017
 Time of Monitoring : 06:00 AM to 06:00AM
 Surrounding Activity : Human and Vehicular Activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : No any
 Sampling & Analysis Protocol : IS-9989 R-2003
 Sampling Duration : 24 Hours
 Parameter Required : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L_{min}	IS 9989 R-2003	64.8	44.2	dB(A)
2.	L_{max}	IS 9989 R-2003	47.2	37.5	dB(A)
3.	L_{eq}	IS 9989 R-2003	51.47	42.72	dB(A)
4.	CPCB Limits in dB(A*) Leq (Residential Area)	-	55.00	45.00	dB(A)

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

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Test Certificate

Sample Number: VEL/KWPCL/AN/04
 Name & Address of the Party: M/s Korba West Power Company Limited
 Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh)

Report No.: VEL/AN/1709/004
 Format No.: 5.10 F-01
 Party Reference No.: NIL
 Reporting Date: 03/10/2017

Receipt Date: 18/09/2017

Sample Description: AMBIENT NOISE LEVEL MONITORING

General Information:-

Client Representative : Mr. Amit Soni
 Sample collected by : VardanEnviroLab Representative
 Sampling Location : Village ChhoteBhandar
 Instrument Used : Sound Level Meter
 Instrument Code : VEL/S/SLM/02
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 13/09/2017 to 14/09/2017
 Time of Monitoring : 06:00 AM to 06:00 AM
 Surrounding Activity : Human and Vehicular Activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : No any
 Sampling & Analysis Protocol : IS-9989 R-2003
 Sampling Duration : 24 Hours
 Parameter Required : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L_{max}	IS 9989 R-2003	63.1	44.8	dB(A)
2.	L_{min}	IS 9989 R-2003	45.0	34.7	dB(A)
3.	L_{eq}	IS 9989 R-2003	53.62	41.05	dB(A)
4.	CPCB Limits in dB(A) Leq (Residential Area)	-	55.00	45.00	dB(A)

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

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Test Certificate

Sample Number: VEL/KWPCL/AN/05 Report No.: VEL/AN/1709/005
 Name & Address of the Party: M/s Korba West Power Company Limited
 Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh) Format No.: 5.10 F-01
 Party Reference No.: NH. Reporting Date: 03/10/2017
 Receipt Date: 18/09/2017

Sample Description: AMBIENT NOISE LEVEL MONITORING

General Information:-

Client Representative : Mr. Amit Soni
 Sample collected by : VardanEnviroLab Representative
 Sampling Location : Village Bade Bhandar
 Instrument Used : Sound Level Meter
 Instrument Code : VEL/S/SLM/02
 Instrument Calibration Status : Calibrated
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 14/09/2017 to 15/09/2017
 Time of Monitoring : 06:00 AM to 06:00AM
 Surrounding Activity : Human and Vehicular Activities
 Scope of Monitoring : Regulatory Requirement
 Control measure if Any : No any
 Sampling & Analysis Protocol : IS-9989 R-2003
 Sampling Duration : 24 Hours
 Parameter Required : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)		Unit
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 06:00 am)	
1.	L_{max}	IS 9989 R-2003	63.1	46.8	dB(A)
2.	L_{min}	IS 9989 R-2003	43.5	39.7	dB(A)
3.	L_{eq}	IS 9989 R-2003	52.47	41.22	dB(A)
4.	CPCB Limits in dB(A) Leq (Residential Area)	-	55.00	45.00	dB(A)

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

(Tested By)

(Checked By)



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Vardan EnviroLab

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 Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)
 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
 (ISO 9001 | ISO 14001 | OHSAS 18001 | MoEF & CC Recognized | NABL Accredited | HSPCB & RSPCB Approved)

Test Certificate

Sample Number:	VEL/KWPCL/N/01	Report No.:	VEL/N/1709/001
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh -496100 (Chhattisgarh)	Format No.:	5.10 F-01
		Party Reference No.:	NIL
		Reporting Date:	03/10/2017
		Receipt Date:	18/09/2017

Sample Description:

WORK ZONE NOISE LEVEL MONITORING

General Information:-

Client Representative

Sample collected by

Sampling Location

Instrument Used

Instrument Code

Instrument Calibration Status

Meteorological condition during monitoring

Date of Monitoring

Time of Monitoring

Scope of Monitoring

Control measure if Any

Sampling & Analysis Protocol

Sampling Duration

Parameter Required

: Mr. Amit Soni
 : VardanEnviroLab Team
 : Site Office
 : Sound Level Meter
 : VEL/S/SLM/03
 : Calibrated
 : Clear Sky
 : 15/09/2017
 : 09:00 AM to 09:30AM
 : Regulatory Requirement
 : No any
 : IS-9989 R-2003
 : 24 Hours
 : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)	Unit
1.	L_{eq}	IS 9989 R-2003	63.87	dB(A)
2.	Limits in dB(A) L_{eq}	-	85	dB(A)

Note: *A "decibel" is a unit in which noise is measured.


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 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
 (ISO 9001 | ISO 14001 | OHSAS 18001 | MoEF & CC Recognized | NABL Accredited | HSPCB & RSPCB Approved)

Test Certificate

Sample Number: VEL/KWPCL/N/02 Report No.: VEL/N/1709/002
 Name & Address of the Party: M/s Korba West Power Company Format No.: 5.10 F-01
 Limited Village ChhoteBhandar, Post Party Reference No.: NIL
 office Bade Bhandar, Tehsil Pussore, Reporting Date: 03/10/2017
 Dist.-Raigarh -496100 (Chhattisgarh) Receipt Date: 18/09/2017

Sample Description:

WORK ZONE NOISE LEVEL MONITORING

General Information:-

Client Representative

Sample collected by

Sampling Location

Instrument Used

Instrument Code

Instrument Calibration Status

Meteorological condition during monitoring

Date of Monitoring

Time of Monitoring

Scope of Monitoring

Control measure if Any

Sampling & Analysis Protocol

Sampling Duration

Parameter Required

: Mr. Amit Soni
 : VardanEnviroLab Team
 : Behind Switchyard
 : Sound Level Meter
 : VEL/S/SLM/03
 : Calibrated
 : Clear Sky
 : 15/09/2017
 : 10:00 AM to 10:30AM
 : Regulatory Requirement
 : No any
 : IS-9989 R-2003
 : 24 Hours
 : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)	Unit
1.	L_{eq}	IS 9989 R-2003	66.31	dB(A)
2.	Limits in dB(A) L_{eq}	-	85	dB(A)

Note: *A "decibel" is a unit in which noise is measured.


 (Tested By)


 (Checked By)



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 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
 (ISO 9001|ISO 14001|OHSAS 18001|MoEF & CC Recognized|NABL Accredited|HSPCB & RSPCB Approved)

Test Certificate

Sample Number: VEL/KWPCL/N/03
 Name & Address of the Party: M/s Korba West Power Company Limited
 Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh)

Report No.: VEL/N/1709/003
 Format No.: 5.10 F-01
 Party Reference No.: NIL
 Reporting Date: 03/10/2017
 Receipt Date: 18/09/2017

Sample Description:

WORK ZONE NOISE LEVEL MONITORING

General Information:-

Client Representative

Sample collected by

Sampling Location

Instrument Used

Instrument Code

Instrument Calibration Status

Meteorological condition during monitoring

Date of Monitoring

Time of Monitoring

Scope of Monitoring

Control measure if Any

Sampling & Analysis Protocol

Sampling Duration

Parameter Required

: Mr. Amit Soni
 : VardanEnviroLab Team
 : Railway Entry Gate
 : Sound Level Meter
 : VEL/S/SLM/03
 : Calibrated
 : Clear Sky
 : 15/09/2017
 : 11:00 AM to 11:30AM
 : Regulatory Requirement
 : No any
 : IS-9989 R-2003
 : 24 Hours
 : As per Work Order

S. No.	Parameters	Protocol	Test Result dB (A)	Unit
1.	L_{eq}	IS 9989 R-2003	72.31	dB(A)
2.	Limits in dB(A) [*] Leq	-	85	dB(A)

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


 (Tested By)


 (Checked By)



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4.3 Ground water Quality Analysis



Figure No.5. Plan Showing Ground Water Quality Monitoring Location Map

Location Code: -

- GW1- Site Office
- GW2- PalsadaVillage
- GW3- Kthali Village
- GW4- Chote Bhandar Village
- GW5- Bade Bhandar Village



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

Test Certificate

Sample Number:
Name & Address of the Party:

VEL/KWPCL/W/01
M/s Korba West Power Company
Limited
Village ChhoteBhandar, Post office Bnde
Bhandar, Tehsil Pussore, Dist.-Raigarh -
496100 (Chhattisgarh)
GROUND WATER SAMPLE
Site Office
VardanEnviroLab Representative
Refrigerated
As per IS 10500-2012
IS-10500-2012, APHA 22nd Edition 2012

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

VEL/W/1709/001
5.10 F-01
NIL
03/10/2017

Sample Description:
Sample Location:
Sample Collected by:
Preservation:
Parameter Required:
Sampling and Analysis Protocol:

Period of Analysis:
Receipt Date:
Sampling Date:
Sampling Quantity:
Sampling Type:

18/09/2017-22/09/2017
18/09/2017
16/09/2017
2.0 Ltr
Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H ⁺ B	7.21	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA (22 nd Edition)2012, 2120 B	*BDL (**DL 5 Hazen)	Hazen	5	15
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	*BDL (**DL 0.1 NTU)	NTU	1	5
4.	Odour	APHA (22 nd Edition)2012, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA (22 nd Edition)2012, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	98.42	mg/l	200	600
7.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	20.11	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	74.53	mg/l	200	600
9.	Chloride as Cl	APHA (22 nd Edition)2012, 4500-Cl ⁻ B	24.16	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl ⁻ B	BDL(DL 0.2mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA (22 nd Edition)2012, 4500 CN ⁻ D	*BDL(**DL 0.02 mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	11.72	mg/l	30	100
13.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	125	mg/l	500	2000
14.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	12.4	mg/l	200	400
15.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F D	0.30	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (P-34) 2003	0.22	mg/l	45	No Relaxation
17.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.15	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.03	0.2
19.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l	0.5	1
20.	Total Chromium as Cr	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	No Relaxation

(Signed By)

(Checked By)



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Test Certificate

Sample No.:		VEL/KWPCL/W/01	Report No: VEL/W/1709/001			
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
21.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l	0.001	0.002
22.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l	0.2	1.0
23.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	0.05
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

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

(Signature)
(Tested By)

(Signature)
(Checked By)



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Test Certificate

Sample Number: VEL/KWPCL/W/02
Name & Address of the Party: M/s Korba West Power Company Limited
 Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Passore, Dist.-Raigarh - 496100 (Chhattisgarh)
Sample Description: GROUND WATER SAMPLE
Sample Location: Village Palsada
Sample Collected by: VardanEnviroLab Representative
Preservation: Refrigerated
Parameter Required: As per IS 10500-2012
Sampling and Analysis Protocol: IS-10500-2012, APHA 22nd Edition 2012

Report No.: VEL/W/1709/002
Format No.: 5.10 F-01
Party Reference No.: NIL
Reporting Date: 03/10/2017
Period of Analysis: 18/09/2017-22/09/2017
Receipt Date: 18/09/2017
Sampling Date: 16/09/2017
Sampling Quantity: 2.0 Ltr
Sampling Type: Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H ⁺ B	7.40	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA (22 nd Edition)2012, 2120 B	*BDL (**DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	*BDL (**DL 0.1 NTU)	NTU	1	5
4.	Odour	APHA (22 nd Edition)2012, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA (22 nd Edition)2012, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	135.2	mg/l	200	600
7.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	54.10	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	248.5	mg/l	200	600
9.	Chloride as Cl	APHA (22 nd Edition)2012, 4500-Cl B	14.20	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.2mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA (22 nd Edition)2012, 4500 CN D	*BDL(**DL 0.02 mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	0.05	mg/l	30	100
13.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	296	mg/l	500	2000
14.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	9.58	mg/l	200	400
15.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F D	0.39	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (P-34) 2003	0.30	mg/l	45	No Relaxation
17.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.22	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.03	0.2
19.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l	0.5	1
20.	Total Chromium as Cr	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	No Relaxation

Shikha
 Tested By

Munika
 (Checked By)



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Test Certificate

Sample No.:		VEL/KWPCL/W/02	Report No:	VEL/W/1709/002		
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
21.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l	0.001	0.002
22.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l	0.2	1.0
23.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	0.05
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

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


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 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
 (ISO 9001|ISO 14001|OHSAS 18001|MoEF & CC Recognized|NABL Accredited|HSPCB & RSPCB Approved)

Sample Number:	VEL/KWPCL/W/03	Test Certificate	Report No.:	VEL/W/1709/003
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)		Format No.:	5.10 F-01
	GROUND WATER SAMPLE Village Kathli VardanEnviroLab Representative		Party Reference No.:	NIL
Sample Description:			Reporting Date:	03/10/2017
Sample Location:			Period of Analysis:	18/09/2017-22/09/2017
Sample Collected by:			Receipt Date:	18/09/2017
Preservation:	Refrigerated		Sampling Date:	16/09/2017
Parameter Required:	As per IS 10500-2012		Sampling Quantity:	2.0 Ltr
Sampling and Analysis Protocol:	IS-10500-2012,APHA 22nd Edition 2012		Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H ⁺ B	7.30	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA (22 nd Edition)2012, 2120 B	*BDL (**DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	*BDL (**DL 0.1 NTU)	NTU	1	5
4.	Odour	APHA (22 nd Edition)2012, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA (22 nd Edition)2012, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	563.1	mg/l	200	600
7.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	132.7	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	198.6	mg/l	200	600
9.	Chloride as Cl	APHA (22 nd Edition)2012, 4500-Cl ⁻ B	63.41	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl ⁻ B	BDL(DL 0.2mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA (22 nd Edition)2012, 4500 CN D	*BDL(**DL 0.02 mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	56.37	mg/l	30	100
13.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	810	mg/l	500	2000
14.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	44.21	mg/l	200	400
15.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F D	0.66	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (I-34) 2003	3.11	mg/l	45	No Relaxation
17.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.25	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.03	0.2
19.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l	0.5	1
20.	Total Chromium as Cr	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.03	No Relaxation

(Signature)
(Tested By)

(Signature)
(Checked By)



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Vardan EnviroLab

Regd. Off: D-142, Sushant Lok-III, Sector-57, Gurgaon - 122003 (Haryana) Tel: 0124-4291036
 Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)
 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
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Test Certificate

Sample No.:		VEL/KWPCL/W/03	Report No:	VEL/W/1709/003		
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
21.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l	0.001	0.002
22.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l	0.2	1.0
23.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	0.05
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

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

Shreshth
(Tested By)

Amrita
(Checked By)



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Sample Number: VEL/KWPCL/W/04 **Test Certificate** **Report No.:** VEL/W/1709/004
Name & Address of the Party: M/s Korba West Power Company **Format No.:** 5.10 F-01
 Limited **Party Reference No.:** NIL
 Village ChhoteBhandar, Post office Bade **Reporting Date:** 03/10/2017
 Bhandar, Tehsil Pussore, Dist.-Raigarh -
 496100 (Chhattisgarh)
Sample Description: GROUND WATER SAMPLE **Period of Analysis:** 18/09/2017-22/09/2017
Sample Location: Village ChhoteBhandar **Receipt Date:** 18/09/2017
Sample Collected by: VardanEnviroLab Representative **Sampling Date:** 16/09/2017
Preservation: Refrigerated **Sampling Quantity:** 2.0 Ltr
Parameter Required: As per IS 10500-2012 **Sampling Type:** Grab
Sampling and Analysis Protocol: IS-10500-2012, APHA 22nd Edition 2012

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H B	7.17	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA (22 nd Edition)2012, 2120 B	*BDL (**DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	*BDL (**DL 0.1 NTU)	NTU	1	5
4.	Odour	APHA (22 nd Edition)2012, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA (22 nd Edition)2012, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	257.1	mg/l	200	600
7.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	84.52	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	198.4	mg/l	200	600
9.	Chloride as Cl	APHA (22 nd Edition)2012, 4500-Cl B	90.17	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.2mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA (22 nd Edition)2012, 4500 CN D	*BDL(**DL 0.02 mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	11.23	mg/l	30	100
13.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	508	mg/l	500	2000
14.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	42.15	mg/l	200	400
15.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F D	0.44	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (P-34) 2003	3.05	mg/l	45	No Relaxation
17.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.20	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.03	0.2
19.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l	0.5	1
20.	Total Chromium as Cr	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.03	No Relaxation

S. Singh
(Tested By)

Mansita
(Checked By)



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 Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)
 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
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Test Certificate

Sample No.:		VEL/KWPCL/W/04	Report No:		VEL/W/1709/004	
S.No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
21.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l	0.001	0.002
22.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l	0.2	1.0
23.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	0.05
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

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

Abhishek
(Tested By)

Manika
(Checked By)



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 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
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Sample Number:	VEL/KWPCL/W/05	Test Certificate	Report No.:	VEL/W/1709/005
Name & Address of the Party:	M/s Korba West Power Company Limited Village Chhote Bhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)		Format No.:	5.10 F-01
			Party Reference No.:	NIL
			Reporting Date:	03/10/2017
Sample Description:	GROUND WATER SAMPLE		Period of Analysis:	18/09/2017-22/09/2017
Sample Location:	Village Bade Bhandar		Receipt Date:	18/09/2017
Sample Collected by:	VardanEnviroLab Representative		Sampling Date:	16/09/2017
Preservation:	Refrigerated		Sampling Quantity:	2.0 Ltr
Parameter Required:	As per IS 10500-2012		Sampling Type:	Grab
Sampling and Analysis Protocol:	IS-10500-2012, APHA 22nd Edition 2012			

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS: 10500 - 2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H ⁺ B	7.28	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA (22 nd Edition)2012, 2120 B	*BDL (**DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	*BDL (**DL 0.1 NTU)	NTU	1	5
4.	Odour	APHA (22 nd Edition)2012, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA (22 nd Edition)2012, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	218	mg/l	200	600
7.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	87.5	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	234.6	mg/l	200	600
9.	Chloride as Cl	APHA (22 nd Edition)2012, 4500-Cl B	40.17	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.2mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA (22 nd Edition)2012, 4500-CN D	*BDL(**DL 0.02 mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	1.45	mg/l	30	100
13.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	508	mg/l	500	2000
14.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	11.05	mg/l	200	400
15.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F D	0.40	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (I-34) 2003	3.32	mg/l	45	No Relaxation
17.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.21	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.03	0.2
19.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l	0.5	1
20.	Total Chromium as Cr	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	No Relaxation

(Tested By)

(Checked By)



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 Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)
 Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404
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Test Certificate

Sample No.:		VEL/KWPCL/W/05	Report No:	VEL/W/1709/005		
S.No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
21.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l	0.001	0.002
22.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l	0.2	1.0
23.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	0.05
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

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

[Signature]
(Tested By)

Manika
(Checked By)



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4.4 Surface water Quality Analysis



Figure. No. 6. Plan Showing Surface Water Quality Monitoring Location Map

Location Code: - 1. Mad- Mand Nadi River (Up Stream)

2. Mad- Mand Nadi River (Down Stream)



Vardan EnviroLab

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Test Certificate

Sample Number:	VEL/KWPCL/W/01	Report No.:	VEL/W/1709/001
Name & Address of the Party:	M/s. Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	SURFACE WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	Mand River (Down Stream)	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Representative	Period of Analysis:	18/09/2017- 22/09/2017
Preservation:	Refrigerated	Receipt Date:	18/09/2017
Parameter Required:	As per IS 10500-2012	Sampling Date:	15/09/2017
Sampling and Analysis Protocol:	IS-10500-2012,APHA 22nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H ⁺ B	7.21	--
2.	Colour	APHA (22 nd Edition)2012, 2120 B	5.0	Hazen
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	3.0	NTU
4.	Chloride as Cl	APHA 22nd Edition, 4500-Cl- B	30.21	mg/l
5.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	142.3	mg/l
6.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	50.12	mg/l
7.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	102.5	mg/l
8.	BOD (3 Days at 27 °C)	IS 3025.P-44,1999 (Reaffirmed 2003)	7.0	mg/l
9.	COD	APHA 22nd Edition 2012, 5220 B	24.3	mg/l
10.	Dissolved Oxygen	APHA 22nd Edition 2012, 4500	6.3	mg/l
11.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.2mg/l)	mg/l
12.	Cyanide as CN	APHA (22 nd Edition)2012, 4500 CN ⁻ D	*BDL(**DL 0.02 mg/l)	mg/l
13.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	4.19	mg/l
14.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	193	mg/l
15.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	21.36	mg/l
16.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F ⁻ D	0.20	mg/l
17.	Nitrate as NO ₃	IS 3025 (P-34) 2003	7.41	mg/l
18.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.19	mg/l
19.	Chromium as Cr ⁶⁺	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.05 mg/l)	mg/l

(Signature)
(Tested By)

(Signature)
(Checked By)



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Test Certificate

Sample No.: VEL/KWPCL/W/01			Report No.: VEL/W/1709/001	
S. No.	Parameter	Test-Method	Result	Unit
20.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l
21.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l
22.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	0.28	mg/l
23.	Oil & Grease	APHA 22 nd Edition, 5220 E	BDL	mg/l
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l
31.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l
32.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l

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

Shashi
(Tested By)

Manika
(Checked By)



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Test Certificate

Sample Number:	VEL/KWPCLAW/02	Report No.:	VELAW/1709/002
Name & Address of the Party:	M/s Korba West Power Company Limited Village Chhotelbhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	SURFACE WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	Mand River (Up Stream)	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Representative	Period of Analysis:	18/09/2017- 22/09/2017
Preservation:	Refrigerated	Receipt Date:	18/09/2017
Parameter Required:	As per IS 10500-2012	Sampling Date:	15/09/2017
Sampling and Analysis Protocol:	IS-10500-2012, APHA 22nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H' B	7.30	--
2.	Colour	APHA (22 nd Edition)2012, 2120 B	5.0	Hazen
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	2.0	NTU
4.	Chloride as Cl	APHA 22 nd Edition, 4500-Cl- B	28.51	mg/l
5.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	138.1	mg/l
6.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	42.84	mg/l
7.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	98.32	mg/l
8.	BOD (3 Days at 27 °C)	IS 3025, P-44, 1999 (Reaffirmed 2003)	6.58	mg/l
9.	COD	APHA 22 nd Edition 2012, 5220 B	22.10	mg/l
10.	Dissolved Oxygen	APHA 22 nd Edition 2012, 4500	8.5	mg/l
11.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL (DL 0.2mg/l)	mg/l
12.	Cyanide as CN	APHA (22 nd Edition)2012, 4500 CN D	*BDL (**DL 0.02 mg/l)	mg/l
13.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	7.58	mg/l
14.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	186	mg/l
15.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	24.15	mg/l
16.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F D	0.20	mg/l
17.	Nitrate as NO ₃	IS 3025 (P-34) 2003	6.78	mg/l
18.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.16	mg/l
19.	Chromium as Cr ⁶⁺	APHA (22 nd Edition)2012, 3111 B	*BDL (**DL 0.03 mg/l)	mg/l

Adwaita
(Tested By)

Harika
(Checked By)



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Laboratory: Samaspur, Opposite Amity International School, Sector-51, Gurgaon - 122001 (Haryana)

Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404

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Test Certificate

Sample No.:		VEL/KWPCL/W/02		Report No.:VEL/W/1709/002	
S. No	Parameter	Test-Method	Result	Unit	
20.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l	
21.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l	
22.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	0.25	mg/l	
23.	Oil & Grease	APHA 22nd Edition, 5220 E	BDL	mg/l	
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mmg/l)	mg/l	
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l	
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l	
31.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	
32.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l	

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

Sheela
(Tested By)

Manika
(Checked By)



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Figure. No. 7. Plan Showing Surface Water Quality Monitoring Location Map

Location Code: - 1 Mahanadi River Up Stream
2 Mahanadi River down Stream



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Test Certificate

Sample Number:	VEL/KWPCL/W/03	Report No.:	VEL/W/1709/003
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	SURFACE WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	Mahanadi (Down Stream)	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Representative	Period of Analysis:	18/09/2017- 22/09/2017
Preservation:	Refrigerated	Receipt Date:	18/09/2017
Parameter Required:	As per IS 10500-2012	Sampling Date:	15/09/2017
Sampling and Analysis Protocol:	IS-10500-2012,APHA 22nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H ⁺ B	7.12	--
2.	Colour	APHA (22 nd Edition)2012, 2120 B	5.0	Hazen
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	3.0	NTU
4.	Chloride as Cl	APHA 22nd Edition, 4500-Cl- B	14.20	mg/l
5.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	110.6	mg/l
6.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	17.36	mg/l
7.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	79.2	mg/l
8.	BOD (3 Days at 27 °C)	IS 3025:P-44,1999 (Reaffirmed 2003)	7.9	mg/l
9.	COD	APHA 22nd Edition 2012, 5220 B	21.51	mg/l
10.	Dissolved Oxygen	APHA 22nd Edition 2012, 4500	7.9	mg/l
11.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.2mg/l)	mg/l
12.	Cyanide as CN	APHA (22 nd Edition)2012, 4500 CN D	*BDL(**DL 0.02 mg/l)	mg/l
13.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	16.35	mg/l
14.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	137	mg/l
15.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	20.39	mg/l
16.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F D	0.25	mg/l
17.	Nitrate as NO ₃	IS 3025 (P-34) 2003	7.59	mg/l
18.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.23	mg/l
19.	Chromium as Cr ⁶⁺	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.02 mg/l)	mg/l

Shashi
(Tested By)

Navika
(Checked By)



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Test Certificate

Sample No.: VEL/KWPCL/W/03			Report No.: VEL/W/1709/003	
S. No	Parameter	Test-Method	Result	Unit
20.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l
21.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l
22.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	0.25	mg/l
23.	Oil & Grease	APHA 22 nd Edition, 5220 E	BDL	mg/l
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l
31.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL (**DL 0.03 mg/l)	mg/l
32.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l

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

Shikha
(Tested By)

Muniba
(Checked By)



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Test Certificate

Sample Number:	VEL/KWPCLW/04	Report No.:	VEL/W/1709/004
Name & Address of the Party:	M/s Korha West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	SURFACE WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	Mahanadi (Up Stream)	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Representative	Period of Analysis:	18/09/2017- 22/09/2017
Preservation:	Refrigerated	Receipt Date:	18/09/2017
Parameter Required:	As per IS 10500-2012	Sampling Date:	15/09/2017
Sampling and Analysis Protocol:	IS-10500-2012,APHA 22nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H ⁺ B	7.22	--
2.	Colour	APHA (22 nd Edition)2012, 2120 B	5.0	Hazen
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	2.0	NTU
4.	Chloride as Cl	APHA 22nd Edition, 4500-Cl- B	11.05	mg/l
5.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	109.6	mg/l
6.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	13.51	mg/l
7.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	67.10	mg/l
8.	BOD (3 Days at 27 °C)	IS 3025,P-44,(1999 (Reaffirmed 2003)	5.9	mg/l
9.	COD	APHA 22nd Edition 2012, 5220 B	19.32	mg/l
10.	Dissolved Oxygen	APHA 22nd Edition 2012, 4500	8.51	mg/l
11.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.2mg/l)	mg/l
12.	Cyanide as CN	APHA (22 nd Edition)2012, 4500 CN ⁻ D	*BDL(**DL 0.02 mg/l)	mg/l
13.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	18.44	mg/l
14.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	120	mg/l
15.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	17.03	mg/l
16.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F D	0.19	mg/l
17.	Nitrate as NO ₃	IS 3025 (P-34) 2003	8.03	mg/l
18.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.16	mg/l
19.	Chromium as Cr ⁶⁺	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l

Shakti
(Tested By)

Manika
(Checked By)



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Test Certificate

Sample No.:VEL/KWPCL/W/04			Report No.:VEL/W/1709/004	
S. No	Parameter	Test-Method	Result	Unit
20.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l
21.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l
22.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	0.24	mg/l
23.	Oil & Grease	APHA 22nd Edition, 5220 E	BDL	mg/l
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l
31.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l
32.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l

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


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4.5 Soil Quality Analysis



Figure No. 8. Plan Showing Soil Sample Monitoring Location Map

Location Code: -

- S1- PalsadaVillage
- S2- Kthali Village
- S3- Chote Bhandar Village
- S4- Bade Bhandar Village
- S5- Nursery



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Test Certificate

Sample Number:	VEL/KWPCL/S/01	Report No.:	VEL/ S/1709/001
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	SOIL SAMPLE	Party Reference No.:	NIL
Sample Location:	Village- Palsada	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Team	Period of Analysis:	18/09/2017 to 22/09/2017
Packing Status:	Temp Sealed	Receipt Date:	18/09/2017
Parameter Required:	As per Work Order	Sampling Date:	14/09/2017
Sampling and Analysis Protocol:	IS 2720, USEPA 3050B & USDA	Sampling Quantity:	2.0 Kg
		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P-26, RA2011)	7.64	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.338	mS/cm
3.	Soil Texture	IS : 2720 (P-4, RA1995)	Silty Loam	--
4.	Color	USDA Method, 1968	Yellowish Red	--
5.	Water holding capacity	USDA Method, 1968	32.14	%
6.	Bulk density	USDA Method, 1968	1.36	gm/cc
7.	Chloride as Cl	USDA Method, 1968	81.4	mg/kg
8.	Calcium as Ca	USDA Method, 1968	410.3	mg/kg
9.	Sodium as Na	USDA Method, 1968	75.4	mg/kg
10.	Potassium as K	USDA Method, 1968	117.5	kg/hect.
11.	Organic Matter	IS:2720 (P-22, RA2009)	0.71	%
12.	Magnesium as Mg	USDA Method, 1968	74.9	mg/kg
13.	Available Nitrogen as N	IS:14684, RA2006	249.8	kg./hect.
14.	Available Phosphorus	USDA Method, 1968	25.4	kg./hect.
15.	Zinc (as Zn)	USEPA 3050B	19.8	mg/kg
16.	Manganese(as Mn)	USEPA 3050B	207.9	mg/kg
17.	Lead (as Pb)	USEPA 3050B	8.6	mg/kg
18.	Cadmium (as Cd)	USEPA 3050B	0.81	mg/kg
19.	Chromium (as Cr)	USEPA 3050B	3.5	mg/kg
20.	Copper (as Cu)	USEPA 3050B	16.7	mg/kg

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Test Certificate

Sample Number:	VEL/KWPCL/S/02	Report No.:	VEL/ S/1709/002
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	SOIL SAMPLE	Party Reference No.:	NIL
Sample Location:	Village_ Kathli	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Team	Period of Analysis:	18/09/2017 to 22/09/2017
Packing Status:	Temp Sealed	Receipt Date:	18/09/2017
Parameter Required:	As per Work Order	Sampling Date:	14/09/2017
Sampling and Analysis Protocol:	IS 2720, USEPA 3050B & USDA	Sampling Quantity:	2.0 Kg
		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
21.	pH (at 25 °C)	IS : 2720 (P-26,RA2011)	7.41	--
22.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.329	mS/cm
23.	Soil Texture	IS : 2720 (P-4, RA1995)	Silty Loam	--
24.	Color	USDA Method, 1968	Yellowish Red	--
25.	Water holding capacity	USDA Method, 1968	35.91	%
26.	Bulk density	USDA Method, 1968	1.26	gm/cc
27.	Chloride as Cl	USDA Method, 1968	57.12	mg/kg
28.	Calcium as Ca	USDA Method, 1968	362.4	mg/kg
29.	Sodium as Na	USDA Method, 1968	70.5	mg/kg
30.	Potassium as K	USDA Method, 1968	114.9	kg/hect.
31.	Organic Matter	IS:2720 (P-22, RA2009)	0.70	%
32.	Magnesium as Mg	USDA Method, 1968	62.5	mg/kg
33.	Available Nitrogen as N	IS:14684, RA2006	241.5	kg/hect.
34.	Available Phosphorus	USDA Method, 1968	21.9	kg/hect.
35.	Zinc (as Zn)	USEPA 3050B	15.8	mg/kg
36.	Manganese (as Mn)	USEPA 3050B	215.9	mg/kg
37.	Lead (as Pb)	USEPA 3050B	7.6	mg/kg
38.	Cadmium (as Cd)	USEPA 3050B	0.74	mg/kg
39.	Chromium (as Cr)	USEPA 3050B	5.3	mg/kg
40.	Copper (as Cu)	USEPA 3050B	16.8	mg/kg

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Test Certificate

Sample Number:	VEL/KWPCL/S/03	Report No.:	VEL/ S/1709/003
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	SOIL SAMPLE	Party Reference No.:	NIL
Sample Location:	Village-ChhoteBhandar	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Team	Period of Analysis:	18/09/2017 to 22/09/2017
Packing Status:	Temp Sealed	Receipt Date:	18/09/2017
Parameter Required:	As per Work Order	Sampling Date:	14/09/2017
Sampling and Analysis Protocol:	IS 2720, USEPA 3050B & USDA	Sampling Quantity:	2.0 Kg
		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
41.	pH (at 25 °C)	IS : 2720 (P-26,RA2011)	7.31	--
42.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.321	mS/cm
43.	Soil Texture	IS : 2720 (P-4, RA1995)	Silty Loam	--
44.	Color	USDA Method, 1968	Yellowish Red	--
45.	Water holding capacity	USDA Method, 1968	28.41	%
46.	Bulk density	USDA Method, 1968	1.32	gm/cc
47.	Chloride as Cl	USDA Method, 1968	62.8	mg/kg
48.	Calcium as Ca	USDA Method, 1968	387.4	mg/kg
49.	Sodium as Na	USDA Method, 1968	58.41	mg/kg
50.	Potassium as K	USDA Method, 1968	117.2	kg/hect.
51.	Organic Matter	IS:2720 (P-22, RA2009)	0.68	%
52.	Magnesium as Mg	USDA Method, 1968	64.1	mg/kg
53.	Available Nitrogen as N	IS:14684, RA2006	287.8	kg/hect.
54.	Available Phosphorus	USDA Method, 1968	22.5	kg/hect.
55.	Zinc (as Zn)	USEPA 3050B	16.4	mg/kg
56.	Manganese (as Mn)	USEPA 3050B	198.6	mg/kg
57.	Lead (as Pb)	USEPA 3050B	9.10	mg/kg
58.	Cadmium (as Cd)	USEPA 3050B	0.77	mg/kg
59.	Chromium (as Cr)	USEPA 3050B	3.0	mg/kg
60.	Copper (as Cu)	USEPA 3050B	16.9	mg/kg

(Tested By)

(Checked By)



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Test Certificate

Sample Number: VEL/KWPCL/S/04
Name & Address of the Party: M/s Korba West Power Company Limited
 Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh)
Sample Description: SOIL SAMPLE
Sample Location: Village-Bade Bhandar
Sample Collected by: VardanEnviroLab Team
Packing Status: Temp Sealed
Parameter Required: As per Work Order
Sampling and Analysis Protocol: IS 2720, USEPA 3050B & USDA

Report No.: VEL/ S/1709/004
Format No.: S.10 F-01
Party Reference No.: NIL
Reporting Date: 03/10/2017
Period of Analysis: 18/09/2017 to 22/09/2017
Receipt Date: 18/09/2017
Sampling Date: 14/09/2017
Sampling Quantity: 2.0 Kg
Sampling Type: Composite

S. No.	Parameter	Test-Method	Result	Unit
61.	pH (at 25 °C)	IS : 2720 (P-26,RA2011)	7.59	--
62.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.334	mS/cm
63.	Soil Texture	IS : 2720 (P-4, RA1995)	Silty Loam	--
64.	Color	USDA Method, 1968	Yellowish Red	--
65.	Water holding capacity	USDA Method, 1968	34.2	%
66.	Bulk density	USDA Method, 1968	1.33	gm/cc
67.	Chloride as Cl	USDA Method, 1968	49.6	mg/kg
68.	Calcium as Ca	USDA Method, 1968	471.4	mg/kg
69.	Sodium as Na	USDA Method, 1968	57.3	mg/kg
70.	Potassium as K	USDA Method, 1968	142.6	kg/hect.
71.	Organic Matter	IS:2720 (P-22, RA2009)	0.84	%
72.	Magnesium as Mg	USDA Method, 1968	77.2	mg/kg
73.	Available Nitrogen as N	IS:14684, RA2006	302.4	kg./hect.
74.	Available Phosphorus	USDA Method, 1968	24.1	kg./hect.
75.	Zinc (as Zn)	USEPA 3050B	15.3	mg/kg
76.	Manganese (as Mn)	USEPA 3050B	165.2	mg/kg
77.	Lead (as Pb)	USEPA 3050B	9.67	mg/kg
78.	Cadmium (as Cd)	USEPA 3050B	0.74	mg/kg
79.	Chromium (as Cr)	USEPA 3050B	2.9	mg/kg
80.	Copper (as Cu)	USEPA 3050B	19.5	mg/kg


(Tested By)


(Checked By)



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Test Certificate

Sample Number:	VEL/KWPCL/S/05	Report No.:	VEL/ S/1709/005
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	SOIL SAMPLE	Party Reference No.:	NIL
Sample Location:	Nursery	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Team	Period of Analysis:	18/09/2017 to 22/09/2017
Packing Status:	Temp Sealed	Receipt Date:	18/09/2017
Parameter Required:	As per Work Order	Sampling Date:	14/09/2017
Sampling and Analysis Protocol:	IS 2720, USEPA 3050B & USDA	Sampling Quantity:	2.0 Kg
		Sampling Type:	Composite

S. No.	Parameter	Test-Method	Result	Unit
81.	pH (at 25 °C)	IS : 2720 (P-26,RA2011)	7.52	--
82.	Conductivity	IS:14767-2000 Reaffirmed 2006	0.325	mS/cm
83.	Soil Texture	IS : 2720 (P-4, RA1995)	Silty Loam	--
84.	Color	USDA Method, 1968	Yellowish Red	--
85.	Water holding capacity	USDA Method, 1968	28.51	%
86.	Bulk density	USDA Method, 1968	1.33	gm/cc
87.	Chloride as Cl	USDA Method, 1968	58.4	mg/kg
88.	Calcium as Ca	USDA Method, 1968	274.5	mg/kg
89.	Sodium as Na	USDA Method, 1968	71.2	mg/kg
90.	Potassium as K	USDA Method, 1968	141.9	kg/hect.
91.	Organic Matter	IS:2720 (P-22, RA2009)	0.60	%
92.	Magnesium as Mg	USDA Method, 1968	58.14	mg/kg
93.	Available Nitrogen as N	IS:14684, RA2006	251.8	kg/hect.
94.	Available Phosphorus	USDA Method, 1968	24.1	kg/hect.
95.	Zinc (as Zn)	USEPA 3050B	12.1	mg/kg
96.	Manganese (as Mn)	USEPA 3050B	174.3	mg/kg
97.	Lead (as Pb)	USEPA 3050B	7.84	mg/kg
98.	Cadmium (as Cd)	USEPA 3050B	0.62	mg/kg
99.	Chromium (as Cr)	USEPA 3050B	2.84	mg/kg
100.	Copper (as Cu)	USEPA 3050B	14.2	mg/kg

(Tested By)

(Checked By)



Page 1 of 1

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4.6 Effluent Sample Analysis Report

Locations

1. STP Outlet
2. ETP Outlet



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Sample Number:	VEL/KWPCL/WW/01	Report No.:	VEL/WW/1709/01
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist. Raigarh -496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	WASTE WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	STP Outlet	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Team	Period of Analysis:	18/09/2017 to 22/09/2017
Preservation:	Refrigerated	Receipt Date:	18/09/2017
Parameter Required:	As per work order	Sampling Date:	16/09/2017
Analysis Protocol:	APHA 22nd Edition 2012	Sampling Quantity:	2.0 Ltr

S. No.	Parameter	Test-Method	Result	Unit	*Standards		
					In-Land Surface Water	Public Sewers	Land for Irrigation
1.	pH (at 25 °C)	APHA 22nd Edition 2012, 4500-H+ B	8.10	mg/l	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
2.	BOD (3 Days at 27 °C)	IS 3025,P-44,1999 (Reaffirmed 2003)	24.15	mg/l	30	350	100
3.	COD	APHA 22nd Edition 2012, 5220 B	104.3	mg/l	250	--	--
4.	Total Suspended Solids	APHA 22nd Edition 2012, 2540 D	20.34	mg/l	100	600	200
5.	Oil and Grease	APHA 22nd Edition 2012, 5520 B	0.7	mg/l	10	20	10

(Signature)
(Tested By)

(Signature)
(Checked By)



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Test Certificate

Sample Number:	VEL/KWPCL/WW/02	Report No.:	VEL/WW/1709/02
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.- Raigarh -496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	WASTE WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	ETP Outlet	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Team	Period of Analysis:	18/09/2017 to 22/09/2017
Preservation:	Refrigerated	Receipt Date:	18/09/2017
Parameter Required:	As per work order	Sampling Date:	16/09/2017
Analysis Protocol:	APHA 22nd Edition 2012	Sampling Quantity:	2.0 Ltr

S. No.	Parameter	Test-Method	Result	Unit	*Standards		
					In-Land Surface Water	Public Sewers	Land for Irrigation
6.	pH (at 25 °C)	APHA 22nd Edition 2012, 4500-H+ B	7.53	mg/l	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
7.	BOD (3 Days at 27 °C)	IS 3025,P-44,1999 (Reaffirmed 2003)	20.14	mg/l	30	350	100
8.	COD	APHA 22nd Edition 2012, 5220 B	80.13	mg/l	250	--	--
9.	Total Suspended Solids	APHA 22nd Edition 2012, 2540 D	24	mg/l	100	600	200
10.	Oil and Grease	APHA 22nd Edition 2012,5520 B	2.1	mg/l	10	20	10

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4.7 Drinking water Analysis



Figure No.9. Plan Showing Drinking water sampling Location

Location Name- Site Office



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Branch Off: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan) Tel: 0141-2983404

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Test Certificate

Sample Number:	VEL/KWPCL/W/01	Report No.:	VEL/DW/1709/001
Name & Address of the Party:	M/s Korba West Power Company Limited Village ChhoteBhandar, Post office Bade Bhandar, Tehsil Pussore, Dist.-Raigarh - 496100 (Chhattisgarh)	Format No.:	5.10 F-01
Sample Description:	DRINKING WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	Site Office	Reporting Date:	03/10/2017
Sample Collected by:	VardanEnviroLab Representative	Period of Analysis:	18/09/2017-22/09/2017
Preservation:	Refrigerated	Receipt Date:	18/09/2017
Parameter Required:	As per IS 10500-2012	Sampling Date:	14/09/2017
Sampling and Analysis Protocol:	IS-10500-2012, APHA 22nd Edition 2012	Sampling Quantity:	2.0 Ltr
		Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	APHA (22 nd Edition)2012, 4500-H' B	7.69	--	6.5 to 8.5	No Relaxation
2.	Colour	APHA (22 nd Edition)2012, 2120 B	*BDL (**DL 5Hazen)	Hazen	5	15
3.	Turbidity	APHA (22 nd Edition)2012, 2130 B	*BDL (**DL 0.1 NTU)	NTU	1	5
4.	Odour	APHA (22 nd Edition)2012, 2150 B	Agreeable	--	Agreeable	Agreeable
5.	Taste	APHA (22 nd Edition)2012, 2160 B	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO ₃	APHA (22 nd Edition)2012, 2340 C	45.21	mg/l	200	600
7.	Calcium as Ca	APHA (22 nd Edition)2012, 3500 Ca B	12.34	mg/l	75	200
8.	Alkalinity as CaCO ₃	APHA (22 nd Edition)2012, 2320 B	39.66	mg/l	200	600
9.	Chloride as Cl	APHA (22 nd Edition)2012, 4500-Cl' B	13.27	mg/l	250	1000
10.	Residual free Chlorine	APHA 22 nd Edition, 4500 Cl- B	BDL(DL 0.2mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA (22 nd Edition)2012, 4500 CN' D	*BDL(**DL 0.02 mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	APHA (22 nd Edition)2012, 3500 Mg B	3.50	mg/l	30	100
13.	Total Dissolved Solids	APHA (22 nd Edition)2012, 2540 C	62	mg/l	500	2000
14.	Sulphate as SO ₄	APHA (22 nd Edition)2012, 4500 E	2.59	mg/l	200	400
15.	Fluoride as F	APHA (22 nd Edition)2012, 4500-F D	0.10	mg/l	1.0	1.5
16.	Nitrate as NO ₃	IS 3025 (P-34) 2003	0.22	mg/l	45	No Relaxation
17.	Iron as Fe	APHA (22 nd Edition)2012, 3500-Fe B	0.10	mg/l	0.3	No relaxation
18.	Aluminium as Al	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.03	0.2
19.	Boron	APHA (22 nd Edition)2012, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l	0.5	1
20.	Total Chromium as Cr	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	No Relaxation

(Signature)
(Tested By)

(Signature)
(Checked By)



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Test Certificate

Sample No.:		VEL/KWPCL/W/01		Report No: VEL/DW/1709/001		
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
21.	Phenolic Compounds	APHA (22 nd Edition)2012, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l	0.001	0.002
22.	Anionic Detergents as MBAS	APHA (22 nd Edition)2012, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l	0.2	1.0
23.	Zinc as Zn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA (22 nd Edition)2012, 3111 B	*BDL(**DL 0.13mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA (22 nd Edition)2012, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	0.05
30.	Mercury as Hg	APHA (22 nd Edition)2012, 3112 B	*BDL (**DL 0.001 mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

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

Shrisha
(Tested By)

Anurita
(Checked By)



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4.8 Ground water level Monitoring



Figure No.10 Plan Showing Ground Water level Monitoring Location Map

Location Code: -

- GW1- Site Office
- GW2- Palsada Village
- GW3- Kthali Village
- GW4- Chote Bhandar Village
- GW5- Bade Bhandar Village



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

Test Certificate

Sample Number:
Name & Address of Party:

VEL/KWPCL/W/01
M/s Korba West Power Company Limited
Village ChhoteBhandar, Post office Bade
Bhandar, Tehsil Pussore, Dist.-Raigarh -496100
(Chhattisgarh)

Report No.: VEL/W/1709/001
Format No.: 5.10 F-01
Party Reference No.: NIL
Reporting Date: 03/10/2017

Sample Description:
Sample Collected by

Ground Water Level Monitoring
VardanEnviroLab Representative

Receipt Date: 18/09/2017

RESULTS

S. No.	Location	Latitude & Longitude	Result (In meter)
1.	Site Office	21°44'07.3"N&83°15'01.4" E	12.3
2.	Village Palsada	21°44'07.3"N&83°15'01.4" E	6.5
3.	Village Kathli	21°43'27.5"N&83°16'25.2" E	7.8
4.	Village ChhoteBhandar	21°43'48.5"N&83°16'49.3" E	6.9
5.	Village Bade Bhandar	21°44'17.4"N&83°16'49.3" E	8.2

Shrikha
(Tested By)

Mandira
(Checked By)



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Chapter – 5.0 CONCLUSION

KWPCL authorities have been taken successful steps in controlling environmental pollution in and around the project. This fact is clear from analytical results of different environmental parameters. A brief conclusion is as follows.

Sr. No.	Environmental Parameters	Conclusion
5.1	Air Environment	After analysis of the samples from five different locations it is observed that both the individuals and average concentrations of air pollutants in respect of SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5} , CO and Mercury are well within the prescribed limits of NAAQM standards. People of township and of surrounding villages do not have any problems regarding the air quality and have no grievances because of Thermal Power Plant activities.
5.2	Water Environment	The analytical result of the samples from the ground water of villages, surface water from river, and domestic & industrial effluent after treatment shows that the concentrations of different water parameters are well within prescribed limits and will not cause any adverse impact on human health and on surrounding area. People of surrounding areas express satisfaction about the water quality of that area.
5.3	Noise Environment	The observations taken at four village location during day and night time shows that the noise level are well within prescribed limits of CPCB. Hence there is no possibility of any adverse effect of noise generated due to Thermal Power Plant activities on peoples of surrounding areas.

All the above details show that Thermal Power Plant of KWPCL is not causing any adverse impact on the human health and ecological balance.

ANNEXURE-II

Plantation on 33% land of 487 acres	163 acres
Density of plantation	2500 plants/Hectare
Area required per plant	4.0 SQM
Total No. of plantation completed	1,95,949 No's
2011-12	30,000
2012-13	20,571
2013-14	37,139
2014-15	43,107
2015-16	40,278
2016-17	17,517
April'2017- Sept'17	7,328
Survival rate maintained	>70%

ANNEXURE-III



KORBA WEST POWER COMPANY LIMITED VILL-CHOTE BHANDAR, TEHSIL-PUSSORE, DISTRICT- RAIGARH (C.G.)

FLY ASH UTILIZATION REPORT Month-Sept' 2017

Month	Name of the Company	Fly ash generation in the month (MT)	Fly ash utilization for the month of Sept' 2017									Cumulative fly ash generation from Jan'17 (MT)	Cumulative fly ash utilization from Jan'17 (MT)	Cumulative fly ash utilization from Jan'17 (%)	Required utilization as per notification for the year (as per action plan schedule)	Total utilization in the previous year MT/Year	Details of Transporter	Details of Firm/ Agency/ Cement Plant/ Brick Plant taking Fly Ash
			Supply to Cement Plant (MT)	Brick making plant (MT)	Land filling (MT)	Ash dyke raising/co nstruction (MT)	Agricultur e (MT)	Mine filling (MT)	Road Making/ot her (MT)	Total utilization in (MT)	% age utilization in (MT)							
Apr-17	Korba West Power Company Limited	113955.0	Nil	0	40853	42400	Nil	Nil	Nil	83253	73.06%	113955.0	83253	73.06%	113955.0	308006	NA	Maa Durga & Other Transports & Inhouse
May-17	Korba West Power Company Limited	59147.0	Nil	0	22890	51054	Nil	Nil	Nil	73944	125.02%	173102.0	157197	90.81%	59147.0	308006	NA	Maa Durga & Other Transports & Inhouse
Jun-17	Korba West Power Company Limited	0.0	Nil	0	0	95816	Nil	Nil	Nil	95816	NA	173102.0	253013	146.16%	0.0	308006	NA	Inhouse
Jul-17	Korba West Power Company Limited	0.0	Nil	0	0	0	Nil	Nil	Nil	0	NA	173102.0	253013	146.16%	0.0	308006	NA	
Aug-17	Korba West Power Company Limited	0.0	Nil	0	0	0	Nil	Nil	Nil	0	NA	173102.0	253013	146.16%	0.0	308006	NA	
Sep-17	Korba West Power Company Limited	0.0	Nil	0	0	0	Nil	Nil	Nil	0	NA	173102.0	253013	146.16%	0.0	308006	NA	

*1) Plant was not in operation throughout the month.

ANNEXURE-IV



Date: 12-06-2017

To

The Collector & District Magistrate
(Office of the CSR Monitoring Cell)
Raigarh, District- Raigarh
Chhattisgarh

Sub: KW PCL-CSR Monthly Progress Report for the month of April & May 2017

Respected Madam,

We are submitting the brief report on activities executed under Corporate Social Responsibility (CSR) during the month of April & May 2017.

This is for your information & records please.

Sincerely Yours

(Purnendu Kumar)
Head- CSR, KW PCL

For kind information please-

1. Superintendent of Police, Raigarh
2. Sub-divisional Magistrate, Raigarh
3. RO, Chhattisgarh Environment Conservation Board, Raigarh
4. CGM, District Centre, Raigarh
5. Tahsildar, Pussore
6. CEO, Pussore



Korba West Power Company Limited

(CIN : U40102MP1995PLC009177)

(A subsidiary of Avantha Power & Infrastructure Limited)

Village Chhote Bhandar, P.O. Bade Bhandar, Tehsil Pussore, District Raigarh - 496 100 Chhattisgarh, India

Registered Office : 301 "Rajnigandha", Green Garden Estate, City Center, Gwalior - 474 011, Madhya Pradesh, India

Corporate Office : 6th and 7th Floor, Vatika City Point, M.G. Road, Gurgaon - 122 002

Tel : +91-124-439000/01, Fax : +91-124-4376496, E - Mail : communications@avanthapower.com www.avanthapower.com

**AVANTHA
GROUP COMPANY**

Korba West Power Company Limited
Program Highlights – Corporate Social Responsibility
Month – April & May, 2017

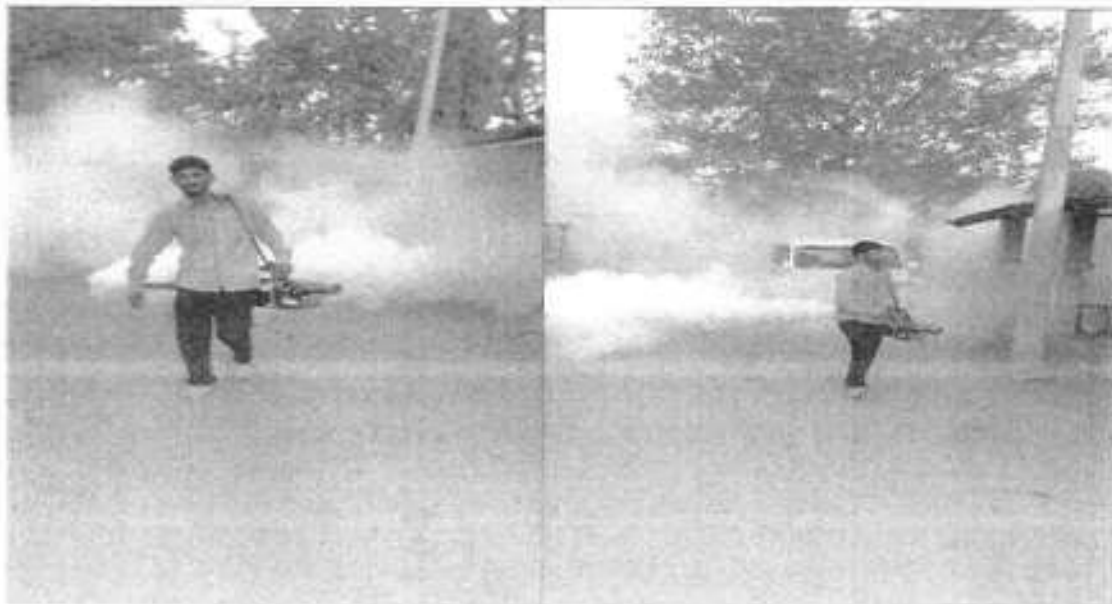
1. Empowering woman with tailoring skills:



The 17th batch of cutting and sewing tailoring training completed in May month. In this batch 25 women took training of four months course. The training runs at community center, Bunga village. Till date more than 410 women from peripheral villages are already trained in cutting and stitching of the clothes and have been benefited under this program. This program is run in coordination with Govt. K. G. Polytechnic College, Raigarh. This is very high demanded program.

2. Community Health Program:

Mosquito control – Fogging treatment executed in five project villages from 21/04/2017 to 25/04/2017 and 24/05/2017 to 29/05/2017 as preventive measures to check mosquito borne diseases. Fogging is done through PCI (Pvt.) Limited.



- 3. Rural infrastructure Development:** In village Sarwani and Badebhandar, work for construction of Community Center work is in progress, 2 Community centers at Sarwani and 1 Community center at Badebhandar is under construction.



- 4. Water sprinkling on the N.H. 153:**

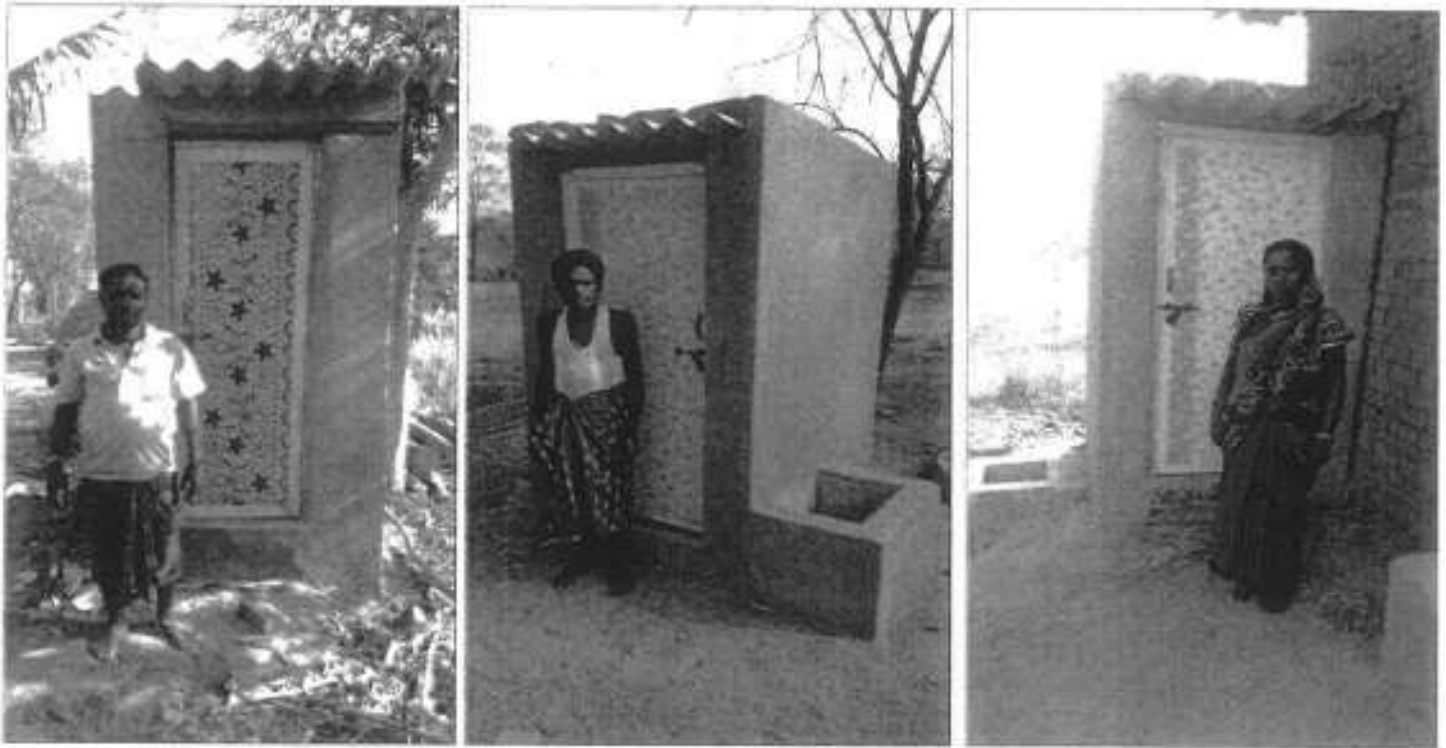
As per request from villagers and District administration water is being sprinkled on NH 153 from Badebhandar to Chhotebhandar village for suppression of the dust, thereby reduction of the air pollution.



- 5. Construction of Toilets under Swachh Bharat Abhiyan:**

On request of District Administration we extended support of Mason & Labor for construction of individual household toilets, total 106 toilets constructed

by end of May'17 in Pussore block of Raigarh district (Village Kotasura-34, Bathanpali-35 , Chhotebhandar- 8 and Jeveridih- 29).



6. Connectivity with community - Support extended for Lord Jaganath annual Pran Pratistha function and participated actively in various cultural activities.





Date: 11-07-2017

To

The Collector & District Magistrate
(Office of the CSR Monitoring Cell)
Raigarh, District- Raigarh
Chhattisgarh

Sub: KW PCL-CSR Monthly Progress Report for the month of June 2017

Respected Madam,

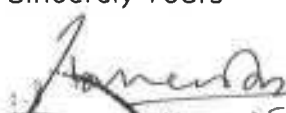
We are submitting herewith our CSR newsletter of two quarters for the period from October 2016 to March 2017.

During this month we extended support of Masson and helpers for construction of individual household toilets in the villages of Janpad Panchayat Pussore. Secondly stitching and cutting training at tailoring center is in progress benefiting 25 enrolled girls.

As already communicated, we are facing financial challenges and making recurring losses from the unit we are unable to take up CSR activity in peripheral villages as planned.

This is for your information & records please.

Sincerely Yours


(Humendra Kumar)
Head- CSR, KW PCL

For kind information please-

1. Superintendent of Police, Raigarh
2. Sub-divisional Magistrate, Raigarh
3. RO, Chhattisgarh Environment Conservation Board, Raigarh
4. CGM, District Centre, Raigarh

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From the COO's desk



At the outset, I am happy to state that the CSR team has kept momentum of the community engagement initiatives in a situation where market has thrown serious challenges in operating the power business. This reflects our commitment towards the society where we operate. Engagement of youths through sports and games, medical health camps, empowering women with tailoring skills, vet care camp, placement of teachers in Govt. schools were some of the activities executed as part of our CSR initiatives.

Reinforcing our commitment towards safety & security, I am pleased to state that "Project Chetna" launched in all the power units of Adani Group for bringing the desired change in safety culture in association with M/sDuPont, a pioneer organization in the field of Safety Management. Various training organized on safety to enhance the knowledge and skillsof the employees and workers in course of implementation several initiatives placed in the system to bring the safety cultural

changes, there are more to learn and inculcate in the safety culture.

Like every year, I am glad to see the active participation of each one of you during Road Safety week observed from 9th to 16th January and National Safety Day/week campaign from 4th to 11th March.

I look forward to the continued commitment and support from all of you, partners, collaborators and associates in this journey towards business excellence. I am confident that CSR team will take up more new initiatives under Adani Foundation, a development arm of the Adani Group, benefiting the community at large.

Gattu Rambhav

Chief Operating Officer

PROMOTED SPORTS & GAMES

Empowering youths through sports and cultural activities to achieve their full potential and enable them to find right place in the community as a good citizen is one of our program priorities under CSR. To achieve this, hosted Kabaddi and Volleyball tournament in the month of November and March in the nearby villages where youths actively participated in the tournament and extended support for inter-state "Amantran" cricket tournament organized at Pussore. These games are very popular in the area.



MEDICAL HEALTH CAMP ORGANIZED

Four health camps were organised in the villages aimed at treating and providing medical attention to the inhabitants of plant peripheral villages. The camp was organized with the information to the Govt. Block Medical Officer.

Over 400 patients were given free treatment and medicines by our occupational health centre medical team. Many Octogenarians, women with children, handicapped villagers with help of their relatives and others came to seek the medical assistance and free check-up.

The sense of ownership that people from the community shown during camps by facilitating, participating and benefiting out of this was tremendous.



VET HEALTH CAMP ORGANIZED

A veterinary health camp was organized at village Pusalda to treat diseased animal, and spread awareness among the villagers on the common diseases of the domestic animal under the guidance of the Block Animal Husbandry Department, Pussore. Villagers brought their cattle and goats to the veterinary camp. Apart from providing consultation, treatment of diseased animals, vaccination and de-worming have been done.

A team of five veterinary staffs, including one doctor Dr. C.S. Patel (VAS, Pussore), were present. The team treated and vaccinated more than 150 domestic animals at camp benefitting 50 farmers.



OBSERVED ROAD SAFETY WEEK

Road safety week is observed every year in the first week of January, this year it was celebrated from 9th to 16th January in order to make people aware about the national road safety and accentuate people about the need of safe roads travel by applying just simple rules.

According to the information, it has been noted that approximately one lakh people are getting killed per year in the road accidents. Or some of them become sufferer of the life threatening problems such as mental trauma, loss of memory, loss of hand or legs and so many for the whole life.



During the whole week celebration of this campaign, variety of educational banners, safety posters, safety films, pocket guides and leaflets related to the road safety were distributed and educational sessions organized. We also organized awareness sessions in nearby Govt. H.S. schools of Badebhandar, Chichorumaria and Sarvodaya Public School, Hirapur.

DEPLOYED COMMUNITY TEACHERS

On directive of District Administration, 12 community teachers were deployed in the Govt. H.S. Schools of Gharghoda block of Raigarh district. There is shortage of teachers in Govt. schools, therefore, every year it is being asked from all the industries to deploy teachers in the schools for 6 to 7 months.



SCHOOL STUDENTS VISITED PLANT

Total 184 students of nearby schools including teachers visited our power plant to meet their curiosity to see and know about the power plant. They learnt how the electricity is generated and importance of energy conservation.



MOSQUITO CONTROL

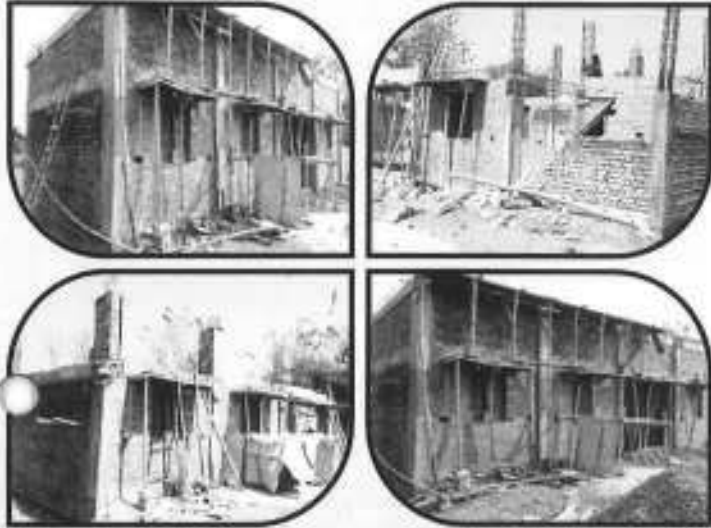
Fogging to control mosquito and diseases is conducted every month through PCI (Pvt) Ltd. in the peripheral villages as part of preventive health care measures.



CONSTRUCTION OF COMMUNITY CENTER

As a facility for villages and with an objective to meet the villager's collective need, construction of community halls has been taken up to complete the pending work. The construction works are under progress in village Sarwani and Badebhandar.

Developing infrastructure is essential for sustaining and multiplying growth of the society.



WOMEN EMPOWERMENT

Self-Help-Groups in peripheral villages have been formed which is providing a strong base for women empowerment. Some of the SHG members are linked with the income generating activities. To sustain all these, need extensive community based follow ups, meetings, training, credit support, engagements and hand holding support with the dedicated human resources.

During this period an effort were made to organize meetings, 27 meetings organized in 18 villages. Very soon, a project will be developed carry out the activities.

TAILORING TRAINING

The Cutting and Tailoring training course run in coordination with Govt. Polytechnic College that helps the students learn how to make clothes for themselves and others. They are taught basic stitches, making apparels for ladies; designing dresses, both regular wears and fancy dresses. The centre follows the approved syllabus structured in theoretical and practical classes. The certificate is provided by the Govt. Polytechnic College to the successful trainees. Two new machines (full-round and pico sewing machine) added in the training centre on request of trainees. 16th batch training inaugurated in the month of October and 17th batch started in the February month. In these two batches 52 girls trained. This is a four month course. Theses have made many women to become self-reliant and financially supporting their families.



PraYas - SWACHH BHARAT ABHIYAN

In last two qtr. nine events organized under PraYas-Swachh Bharat Abhiyan. Drawing competition, swachhta kits distributed and clean drive organized in schools besides the activities held in the plant premises.



Swachhta Message in Chhattishgarhi:-



साफ सफाई के पांच ठन गोठ

1. रोज मुँह कान धो के दांत ला ब्रश नी तो दातौन से सफा करबो ।।
2. रोज नहाबो आउ बाल मे तेल लगा के कर्घी करके बढिया सुखाये कुरता पेंट पहरबो ।।
3. भात खाये के अघुवा आउ शौच जाये के पाछु साबुन मे हाथ धोबो ।।
4. हमन रथन ओकर ला सफा राखबो आउ तीर तात के कचरा मन ला एका कुडादान मे ही फेकबो ।।
5. मैदान अंग शौच नी करन, शौच शौचालय मे ही करबो ।।

पशुधन विकास कार्यक्रम

सुरभि दुग्ध सहकारी समिति के सदस्य मैं रघुसाव समिति का सचिव हूँ । सबसे पहले समिति की शुरूआत ग्राम छोटे भंडार, बड़े भंडार, तथा अमलीभौना के 10 किसानों के द्वारा क्या गया । जिसको कोरबा वेस्ट पावर कंपनी द्वारा हम 10 किसानों को 2-2 उच्च नस्ल की गाय दी गयी एवं दुग्ध व्यवसाय के लिए प्रेरित किया । फिर कंपनी के सहयोग से ही हमारे उत्पादित दुग्ध के खपत के लिए छ.ग. दुग्ध सहकारी संघ (देवभोग) के साथ रजिस्ट्रेशन कर हमारे गांव में ही दुग्ध संग्रह केंद्र खोला गया । जिससे हम 10 किसान के अलावा आस-पास के अन्य किसान जो दुग्ध उत्पादन करते है, समिति में दुग्ध देने लगे । जब समिति का गठन हुआ था तब शुरूवाती में सिर्फ 10 किसान ही संग्रह केंद्र में दुग्ध देते थे, परन्तु वर्तमान में लगभग 45 किसान संग्रह केंद्र में दुग्ध दे रहे है । पहले संग्रह केंद्र में प्रतिदिन 30 से 35 लीटर होता था परन्तु आज यह आंकड़ा 200 लीटर प्रतिदिन से पार जा चुका है । जिससे समिति की आय में वृद्धि हुयी है । कोरबा वेस्ट के इस उत्कृष्ट कदम एवं सहयोग से आज बड़े भंडार, छोटे भंडार, अमलीभौना बुनगा, कठली तथा आस-पास के सभी गांव लाभान्वित हो रहे है ।



रघु साव

We look forward to your feedback. Please send your feedback to the CSR department.



Korba West Power Company Limited
(A Subsidiary of Avantha Power and Infrastructure Limited)

Village: Chhote Bhandar, P.O. Bade Bhandar, District Raigarh, Chhattisgarh 496001

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