



# ADHUNIK POWER & NATURAL RESOURCES LTD. %

(Formerly Adhunik Thermal Energy Limited)

Office : Village Padampur, Behind PGCIL Substation, Adityapur, Kandra Road, P.O: Kandra  
Saraikela-Kharsawan, Jharkhand-832 402 P PHONE:06576628400 P FAX :0657 6628440  
Website : www.adhunikgroup.com

Ref: MOE&F, RNC/HYC/BN/30517/01

Dated: 30.05.2017

To,

Regional Office (ECZ),  
Ministry of Environment, Forest and Climate Change,  
Bungalow No. A-2, Shyamali Colony,  
Ranchi – 834002

Sub:- Submission of Half yearly compliance status report (Unit I) for the  
period – October 2016 to March 2017,-Reg.

Ref:- MoEF letter No.J-13011/8/2009-IA.II(T), dated 29<sup>th</sup> Aug 2009.

Sir,

With reference to the above referred Environmental Clearance, we are pleased to submit herewith  
the half yearly compliance status report (Unit I) for the period of October 2016 to March 2017.

This is for your reference and record, please.

Thanking you,

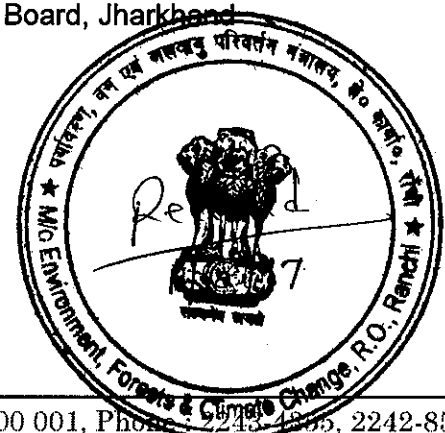
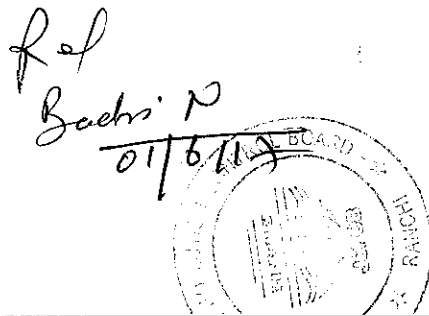
For Adhunik Power & Natural resources Limited

(Authorized Signatory)

Encl: As Above

Copy to:

- Central Pollution Control Board, Kolkatta
- Member Secretary, Jharkhand State Pollution Control Board, Jharkhand
- Regional Officer, JSPCB, Jamshedpur



# REPORT

**ENVIRONMENTAL COMPLIANCE STATUS REPORT  
FOR  
1X270 MW COAL BASED POWER PLANT  
(Unit I)**



**OCTOBER 2016 - MARCH 2017**

**Adhunik Power & Natural Resources Limited  
Village: Padampur, Behind PGCIL Substation  
Kandra Chouka Road, Saraikela-Kharsawan  
Jharkhand**

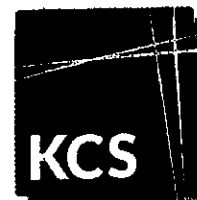
<b>Adhunik Power &amp; Natural Resources Limited</b> <b>VIII: Padampur, Behind PGCIL Substation, Kandra Chouka Road, Saraikela-Kharsawan, Jharkhand</b>		
<b>Environmental Clearance Letter No: J-13011/8/2009-IA.II(T), dated 29th Aug 2009.</b>		
<b>Period Of Compliances: October 2016 to March 2017</b>		
SI No	EC Conditions	Status as on 31 <sup>st</sup> March 2017
1	No additional land in excess of 119 ha shall be acquired for any activity/facility of this project.	Noted
2	EC is subject to obtaining clearance under the Wildlife Protection Act, 1972 from the competent authority	WLMP Prepared and approval has been obtained from PCCF. <b>Complied</b>
3	EC is subject to final order of the Hon'ble Supreme court of India in the matter of Goa foundation Vs Union of India in Writ. Petition (Civil) no. 460 of 2004 as may be applicable to this project.	The applicable conditions as specified in the matter of Goa foundation Vs Union of India in Writ. Petition (Civil) no. 460 of 2004 as applicable shall be adhered to by the company.
4	Project proponent should contribute @ Rs. 20000/ha for project area as proportionate cost to the regional Wildlife Conservation plan and a copy of the plan should be submitted to the ministry.	As in SI. No. 2 the Wild Life Management Plan (WLMP) prepared has already been approved by PCCF, Ranchi on May'10.2010. 1 <sup>st</sup> installment already submitted.
5	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.45 % and 46 % respectively at any given time. In case of variation of coal quality at the time of issuance of LOA, a fresh reference shall be made to MoEF for suitable amendment to EC condition wherever necessary	The sulphur and ash content in used coal conforms the limits. <b>Coal analysis report for the month of January 2017 enclosed as Annexure I</b>
6	A single stack of 220 m height shall be provided with continuous online monitoring equipment's for Sox, Nox and PM. Exit velocity of flue gases shall not be less than 25 m/sec. Hg emission from stack may also be monitored on periodic basis.	Twin flue chimney of 275m height has constructed for proper dispersion of gases. Online monitoring equipment has installed in chimney. <b>Photographs with details of CEMS enclosed as Annexure II</b>
		Stack monitoring report containing Hg concentration for the month of Dec 2016 enclosed as <b>Annexure III</b>
7	High efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emissions does not exceed 50 mg/Nm <sup>3</sup>	High efficient ESPs of 32 fields has been installed to ensure control Particulate matter emission in flue gas. <b>Stack monitoring report from October 2016 to March 2017 enclosed as Annexure III. Photographs enclosed as Annexure IV.</b>
8	Adequate dust extraction system such as cyclones/bag filters and water spray in dusty areas such as in coal handling and ash handling points, transfer area and other vulnerable dusty areas shall be provided.	Necessary mitigation measures in accordance with EMP and EC conditions has taken to control fugitive emissions from ash storage/transfer and coal handling plant such as installation and operation of bag filters collectors, use of water spray systems and enclosed conveyors with well designed, extraction and filtration equipment on transfer points. <b>Photographs Attached as Annexure V.</b>
	Fly ash shall be collected in dry form and storage facility (Silos) shall be provided 100 % fly ash utilization shall be ensured from	Agreements made with cement plants, brick plants, etc to ensure 100% utilization of fly ash from 4th year onwards. Monitoring of mercury and other

	(As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.	<b>analysis report &amp; effluent analysis report of ash pond for the month of Dec 2016 enclosed as Annexure VI &amp; Annexure VII respectively.</b>
10	Ash pond shall be lined with impervious lining. Adequate safety measures shall be implemented to protect the ash dyke from getting breached.	The ash pond has designed to encompasses leachate collection & monitoring system, impervious lining etc for protection of local ground water resource as per the requirement.
11	Closed cycling cooling system with cooling towers shall be provided. The effluents shall be treated as per the prescribed norms.	The project design involves closed cycle cooling systems with induce draft cooling towers. The effluent generated from process operation is being treated in an ETP/Guard pond to ensure conformance to CPCB standards and recycled in plant process. <b>Treated effluent analysis report of Guard pond from Oct 2016 to March 2017 enclosed as Annexure VIII.</b>
12	No ground water shall be extracted for project work at any stage.	Strictly complied.
13	Natural drainage system within the project site should not be disturbed.	We ensure.
14	The treated effluents conforming to the prescribed standards 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.	The project is designed with zero discharge provisions and there is separate arrangement for storm water and effluent water.
15	A sewage treatment plant shall be provided and the treated sewage shall be used for raising green belt /plantation.	STP 60 KI capacity (03 No) has installed within plant premises to treat sewage waste. Photographs enclosed as <b>Annexure IX.</b>
16	Rainwater harvesting should be adopted CGWA shall be consulted for finalization of appropriate rain water technology within a period of three months from the date of clearance and details shall be furnished	The Rain water harvesting report has submitted and approved from CGA Ranchi. Rain water harvesting system has constructed in accordance with the approved rain water harvesting plan.
17	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires of 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 RO of the Ministry at Bhubaneswar.	The design of coal yard along with provision of fire safety measures viz. fire hydrants, water sprinklers has installed and submitted to the Ministry.
18	Storage facilities of auxiliary liquid fuel such as LDO and HFO/LSHS shall be made in the plant area in consultation with dept. Of Explosive, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5 %. DMP shall be prepared to meet any eventuality in case of an accident taking place due to storage oil.	Approval received on dated 15/12/2011. License No. P/HQ/JH/15/1065 (P257355), for LDO storage installation (under Petroleum Class "C") for operations The analysis report for LDO that is supplied by IOCL has obtained to check conformance with sulfur limits prescribed regularly. Analysis report of LDO enclosed as <b>Annexure X.</b>
	Regular monitoring of ground water in and	Regular monitoring of ground water in and around

	data so obtained should be compared with the base line data so as to ensure that the ground water quality is not adversely affected due to the project.	
20	A green belt of adequate width and density shall be developed around the plant periphery covering 1/3 of the project area preferably with local species.	A thick green belt of adequate width is being developed. 51632 nos. (Area covered-38.2 acres) of plantation has been completed in and outside along the periphery of the power plant to arrest any dust emissions and help in attenuation of noise till Sep 2016. Survival rate of sapling is 84.2%. Total Survived plants are 43474. Plantation in financial year (2016-17)-5998 samplings. Name of Plant Species- Gulamohar, Neem, Pelatforum, Seesam, Bakul, Jamun etc. Details of Plantation attached as <b>Annexure XII</b> with photographs
21	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Plant is under operation however A first aid center comprising of competent medical staff (6 no's) and equipped with necessary medical facilities is made available onsite to provide emergency medical aid to both contract workers and company staff.
22	Noise level 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 PPE like ear plug/ear muff etc shall be provided. 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.	Adequate measures has implemented in consistent with the EMP to control turbine noise levels within stipulated limits. This include installing of sufficient engineering control in turbines as per design specifications, provision of ear plugs/ear muffs for workers exposed to high noise, rotation of workers and carrying out periodic audiometric testing of workers and records is being maintained. <b>Noise level monitoring report from Oct 2016 to March 2017 enclosed As Annexure XIII.</b>
23	Regular monitoring of ground level concentration of SO <sub>2</sub> , NO <sub>x</sub> , RSPM 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 RO of ministry. The data shall also be put on the website of the company.	Monitoring of Air quality of core zone & Buffer zone is being conducted by APNRL engaged NABL accredited M/s Yugantar Bharthi (half yearly) /M/s Thermax (Monthly). Review of air quality monitoring results revealed compliance to NAAQS. In- house Ambient Air monitoring reports from <b>Oct 2016 to March 2017</b> is enclosed as <b>Annexure XIV (a)</b> & Ambient air monitoring report for the month of Dec 2016 conducted by NABL accredited laboratory (M/s Yugantar Bharti) is enclosed as <b>Annexure XIV(b).</b>
24	Provision shall be made for the housing of construction labor 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 structure to be removed after the completion of the project.	Plant is in operational condition and local labors are coming from nearby villages.
	The project proponent shall advertise in at least two local newspapers widely circulated	Complied.

	informing that the project has been accorded EC and copies of clearance letter are available with the SPCB/committee and may also be seen at Website of the MoEF at <a href="http://envfor.nic.in">http://envfor.nic.in</a> .	
26	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat Zila Praised/Municipal Corporation, urban local body and the local NGO, is any from whom suggestion/representation, if any were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	Complied.
27	A separate environment management <sup>o</sup> cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	A Environmental Management Cell is being operational onsite to ensure effective implementation of specific EMPs. <b>Organization chart of Environmental Management Cell enclosed as Annexure XV.</b>
28	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 RO of MoEF the respective zonal office of CPCB and the SPCB the criteria pollutant level namely SPM, RSPM, SO <sub>2</sub> , NO <sub>x</sub> (ambient level as stack emission) shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	The updated compliance status of the stipulated EC conditions along with monitored data has been displayed at the company website. The monitoring data (SPM, RSPM, SO <sub>2</sub> , NO <sub>x</sub> ) for both ambient air quality and chimney emissions is being displayed at the main gate of the company. Uploaded compliance status of the stipulated EC conditions along with monitored data can be seen on URL: <a href="http://www.adhunikgroup.com/uploads/ec_pdf/1484041572.pdf">http://www.adhunikgroup.com/uploads/ec_pdf/1484041572.pdf</a>
29	The project proponent shall also submit six monthly report on the status of compliance of the stipulated condition including result of monitored data (both in hard copy as well by email) to the respective RO of MoEF, the respective zonal office of CPCB and the SPCB.	Last six monthly reports ( Oct,15-March ,16) for the project along with environmental monitoring data submitted to MoEF RO at Ranchi vide letter No MOE&F,RNC/HYC/BN/281116/01 dated 28 <sup>th</sup> November 2016 . <b>Acknowledgement copy of same enclosed as Annexure XVI.</b>
30	The environmental statement for each financial year ending 31st March in form-V as is mandated to be submitted by the project proponent to the concern SBCB 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 the compliance of EC condition and shall also be sent to the respective RO of MoEF by email.	The last environmental statement for financial year (2015-16) in Form V has submitted vide letter No: APNRL/JSPCB/ES/2015-16/01 dated 14 <sup>th</sup> Sep 2016. <b>Acknowledgement copy of same enclosed as Annexure XVII.</b>
31	RO of the MoEF located at Bhubaneswar will monitor the implementation of the stipulated conditions. A complete set-up of documents including EIA report EMP along	The updated compliance status of the stipulated EC conditions along with monitored data has been displayed at the company website. The monitoring data (SPM, RSPM, SO <sub>2</sub> , NO <sub>x</sub> ) for both ambient air

	<p>their website and update the same from time to time at least six monthly basis. Criteria pollutant level (Stack and ambient level of NOx) will be displayed at the main gate of the power plant.</p>	<p>company website. Uploaded compliance status of the stipulated EC conditions along with monitored data can be seen on URL: <a href="http://www.adhunikgroup.com/uploads/ec_pdf/1484041572.pdf">http://www.adhunikgroup.com/uploads/ec_pdf/1484041572.pdf</a></p>
32	<p>Separate fund shall be allocated for implementation of environmental protection measures along with item wise break up this 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.</p>	<p>Adequate budgetary provision has been made by the APNRL for execution of environmental management plan. Details of item wise expenditure incurred on environmental measures for the financial year 2016-17(Oct 2016- March 2017) attached as <b>Annexure XVIII</b>.</p>
33	<p>The project authorities shall inform the RO as well as the ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work and commissioning of plant.</p>	<p>Complied</p>
34	<p>Full cooperation shall be extended to the Scientists/officers from the ministry / RO of the ministry at Bhubaneswar/the CPCB/the SPCB who would be monitoring the compliance of environmental status.</p>	<p>We ensure.</p>



# K.C. SHARMA & CO.

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Web: www.kcsgroup.co

## TEST REPORT

CERT.No. KCSC/COMM/MUM/296/2016-17

DATE : 06.02.2017

1. Name of the Customer : M/S. Adhunik Power and Natural Resources Ltd
2. Description of the Sample : Coal
3. Period of Sampling : January, 2017

### QUALITY ANALYSIS REPORT

DATE	SOURCE	DO/RR	ARB					AVG GCV Kcal/Kg
			TM%	ASH%	VM%	FC%	GCV Kcal/Kg	
26-JAN-17	Others	RSC/01	11.17	37.79	21.08	29.96	3340	3340

DATE	SOURCE	DO/RR	ARB					AVG GCV Kcal/Kg
			TM%	ASH%	VM%	FC%	GCV Kcal/Kg	
05-JAN-17	RAIL	462000041	2.54	40.89	17.31	39.26	4053	3796
13-JAN-17	RAIL	462000030	9.96	37.87	20.80	31.37	3615	
21-JAN-17	RAIL	462000036	10.89	35.58	21.36	32.18	3793	
26-JAN-17	RAIL	462000023	10.79	36.21	20.42	32.58	3721	

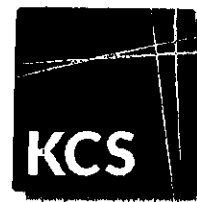


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Web: www.kcsgroup.co

DATE	SOURCE	DO/RR	ARB					AVG GCV Kcal/Kg
			TM%	ASH%	VM%	FC%	GCV Kcal/Kg	
05-JAN-17	Ashoka	568	10.84	38.04	19.94	31.18	3497	3621
13-JAN-17	Ashoka	568	12.76	32.82	19.28	35.14	3842	
13-JAN-17	Ashoka	461	9.89	38.59	20.90	30.62	3612	
13-JAN-17	Ashoka	324	9.86	39.42	20.23	30.49	3482	
21-JAN-17	Ashoka	568	10.43	37.84	18.88	32.85	3697	
21-JAN-17	Ashoka	461	9.88	37.35	20.73	32.04	3709	
26-JAN-17	Ashoka	568	9.57	37.37	19.61	33.45	3676	
26-JAN-17	Ashoka	461	9.89	39.41	20.13	30.58	3405	
26-JAN-17	Ashoka	324	9.16	39.02	19.72	32.10	3674	

DATE	SOURCE	DO/RR	ARB					AVG GCV Kcal/Kg
			TM%	ASH%	VM%	FC%	GCV Kcal/Kg	
05-JAN-17	Magadh	135	13.39	37.01	19.33	30.28	3568	3488
13-JAN-17	Magadh	135	10.93	37.92	20.31	30.84	3560	
21-JAN-17	Magadh	135	11.35	37.94	20.03	30.68	3530	
26-JAN-17	Magadh	158	11.64	39.68	19.07	29.62	3293	



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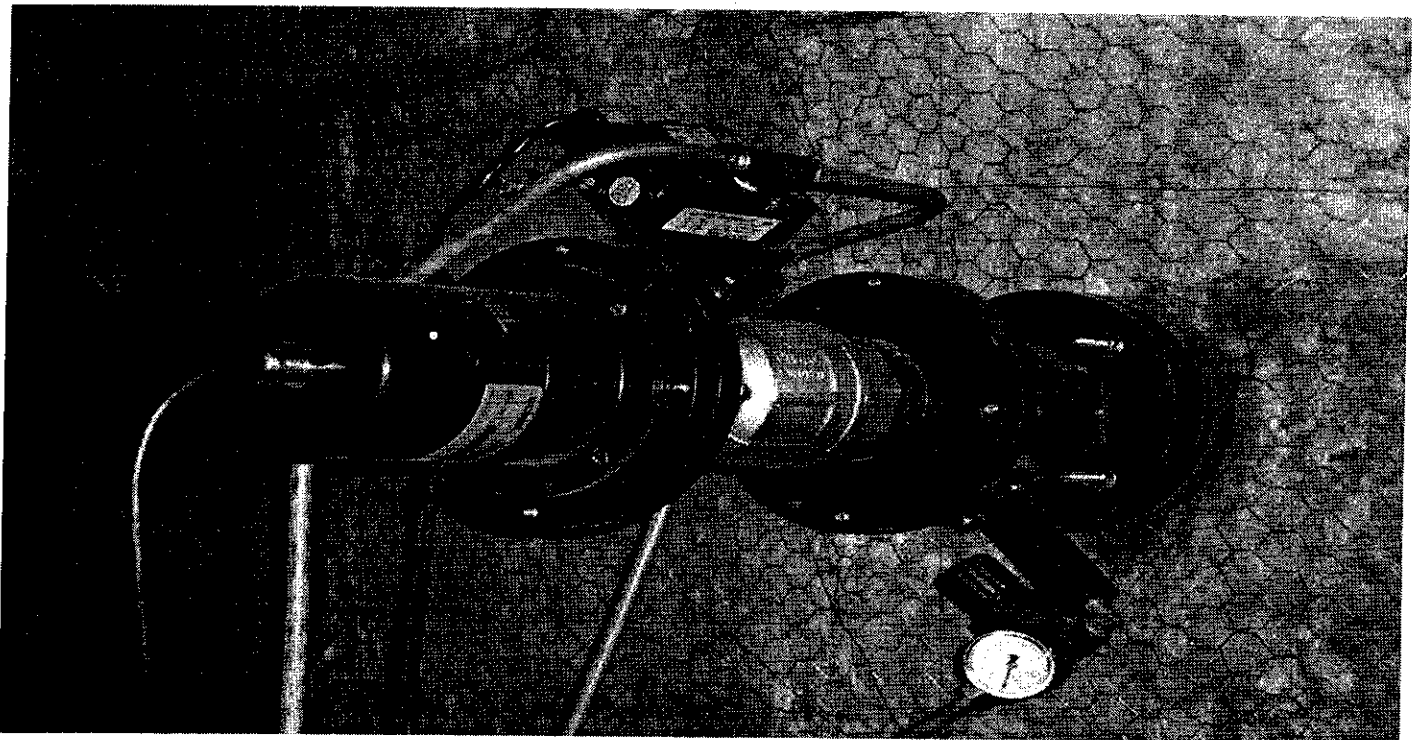
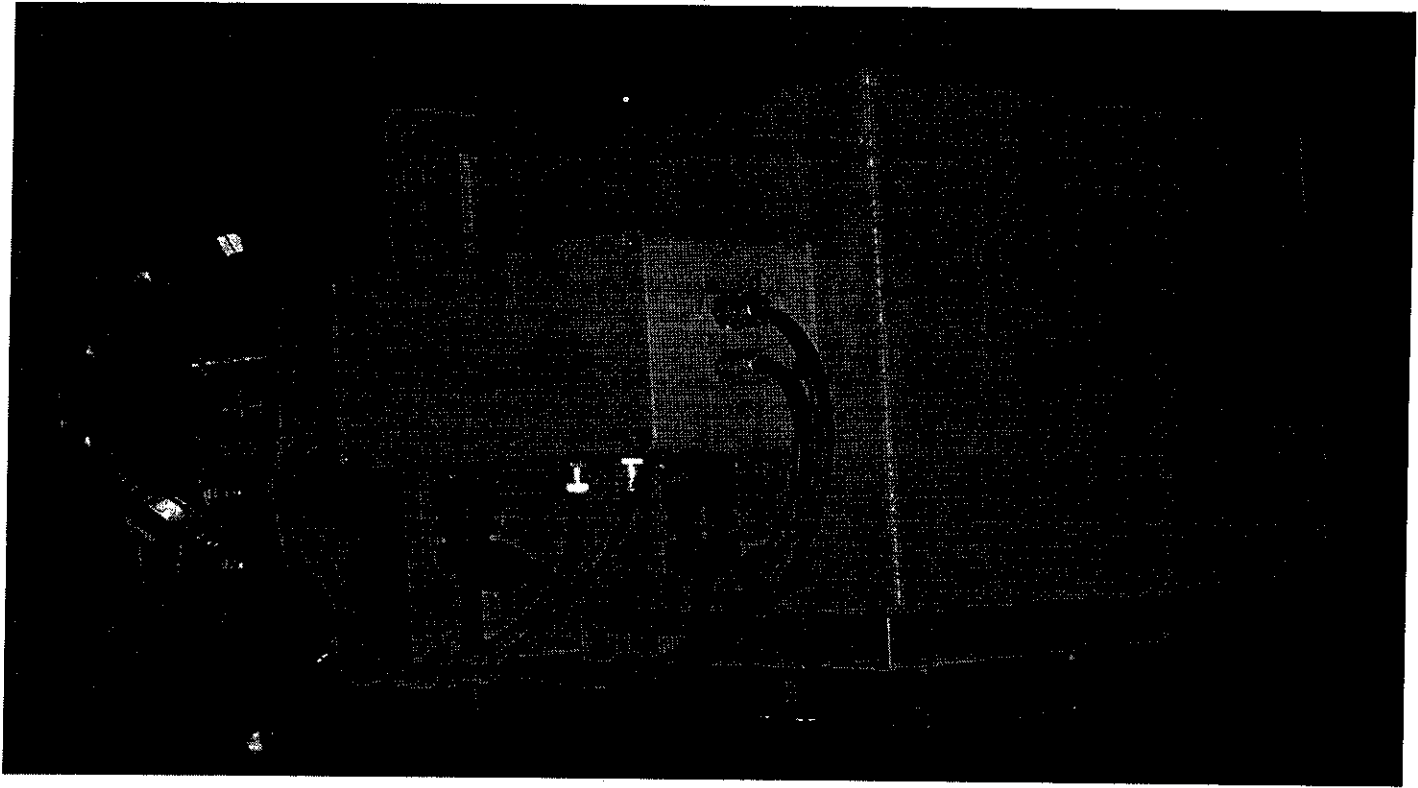
DATE	SOURCE	DO/RR	ARB					AVG GCV Kcal/Kg
			TM%	ASH%	VM%	FC%	GCV Kcal/Kg	
05-JAN-17	Amrapali	53	13.98	40.25	19.21	26.56	3279	3470
13-JAN-17	Amrapali	72	12.56	36.96	19.38	31.10	3589	
13-JAN-17	Amrapali	71	12.55	40.33	19.13	27.99	3315	
13-JAN-17	Amrapali	53	12.13	40.98	19.37	27.53	3288	
21-JAN-17	Amrapali	72	14.93	35.29	18.89	30.88	3682	
21-JAN-17	Amrapali	71	13.82	37.60	19.60	28.98	3503	
21-JAN-17	Amrapali	53	14.06	38.50	19.23	28.21	3496	
26-JAN-17	Amrapali	72	12.32	37.68	19.67	30.34	3493	
26-JAN-17	Amrapali	71	12.77	36.42	20.18	30.63	3589	

For K. C. SHARMA & Co. (Issued at Discharge Port)



AUTHORIZED SIGNATORY

# Continuous emission monitoring system





# CODEL

REF: DCEM2100/DS/02

## DATA SHEET DCEM2100 DUST MONITOR

GENERAL		
1	Make	Codel UK
2	Model	DCEM2100 Dust Monitor
3	Type	In-Situ Non contact cross duct type
4	Qty of units	2 No
5	Tag No.	HNE10CQ003
FEATURES		
6	Range	0-100% Opacity, 0-999mg/m <sup>3</sup> , 0-999mg/Nm <sup>3</sup> (Fully site selectable)
7	Min. detectable conc.	1 mg/m <sup>3</sup>
8	Measurement Units	Fully selectable units, mg/m <sup>3</sup> (measured), mg/Nm <sup>3</sup> (Normalized) and opacity(%)
9	Measurement averaging	Fully selectable in range 10sec to 30 days
10	Response time	90% in 5 seconds.
11	Auto/manual calibration	In built automatic zero and span calibration
12	Accuracy	+/-0.2% Opacity of measurement
13	Drift	Less than 1% per month
14	Resolution	+/-0.1% opacity
15	Linearity	+/- 0.1% of full scale
16	Repeatability	+/-0.1% opacity
17	Power supply	88 - 264 VAC, 50-60Hz, 125 VA
18	Remote/Local control unit	Isolated 2x 4-20 mA, 500 ohms outputs fully configurable 3 x Volt free SPCO contact rated at 50 VDC 1 Amp. 2 Line X 32 character alpha-numeric LCD displays with 4 key keypad.
19	Automatic misalignment detection	Provided in the instrument as a warning signal of misalignment
20	Correction for contamination	Automatic window contamination check
21	Error Diagnostics	Dirty optics, Misalignment, Valve 1 closed, Valve 2 closed to indicate the error conditions.
22	Construction material and Enclosures	Fully sealed aluminum enclosures to IP 66
DESIGN CONDITIONS		
23	Source	Modulated high intensity LED
24	Detector	Silicon photocell
25	Ambient air temp.	- 30deg.C to 60 deg.C
26	Gas Temperature	Upto 850 deg.c
CONNECTIONS & DIMENSIONS		
27	Analyzer mounting details	Analyzer can be mounted in Chimney at Elevation of 91.6 Mtrs. Please refer drawing for analyser mounting flange details.
28	Path length	Suitable for 0.5 to 12m duct/stack inner diameter
ACCESSORIES		
29	Fail safe shutters	Built in
30	Air Purges	Air purges for continuous air supply to instrument provided
31	Interconnecting cables and mounting hardware	Included in supply.
32	Temp. transmitter	24 VDC Supply Make: Precision Converter Model: PCHMR Range: 0 to 300 Deg C



CODEL

Ref: GCEM40A0/DS/02

<b>DATA SHEET</b>		
<b>CO, SO<sub>2</sub>, NO<sub>x</sub> GAS ANALYSER</b>		
<b>GENERAL</b>		
1.	Make	CODEL International Ltd., UK
2.	Model/Article No	GCEM4000 Series Article no GCEM40A0
3.	Type	Infrared Absorption Analyser-In-Situ type
4.	Qty	2 No.
5.	Tag No.	SO <sub>x</sub> HNE10CQ004
		NO <sub>x</sub> HNE10CQ001
		CO HNE10CQ002
<b>FEATURES</b>		
6.	Range	CO : 0 to 1000ppm, 0 to 1000mg/m <sup>3</sup> , 0 to 1000mg/Nm <sup>3</sup> SO <sub>2</sub> : 0 to 1000ppm, 0 to 1000mg/m <sup>3</sup> , 0 to 1000mg/Nm <sup>3</sup> , NO <sub>x</sub> : 0 to 1000ppm, 0 to 1000mg/m <sup>3</sup> , 0 to 1000mg/Nm <sup>3</sup> , CO <sub>2</sub> : 0 to 25% H <sub>2</sub> O : 0 to 25% Above ranges are site selectable up to 3000 ppm
7.	Min. detectable conc.	1 ppm , 1mg/m <sup>3</sup> , 1mg/Nm <sup>3</sup> for CO,SO <sub>2</sub> ,NO <sub>x</sub> & 0.5% for CO <sub>2</sub> ,H <sub>2</sub> O.
8.	Measurement Units	Fully selectable units-ppm or % by volume, mg/m <sup>3</sup> (measured) and mg/Nm <sup>3</sup> (Normalised to temperature, pressure, H <sub>2</sub> O & CO <sub>2</sub> )
9.	Measurement averaging	Fully selectable in range 10Sec to 1 hour
10.	Response time (T90)	Detector less than 10 seconds, Calibration less than 200 seconds.
11.	Auto & manual calibration	In built and selectable
12.	Function	Continuous function
13.	Accuracy	+/- 2% of measured value for CO,SO <sub>2</sub> , NO <sub>x</sub> ,& 0.5% for CO <sub>2</sub> & H <sub>2</sub> O
14.	Zero /span drift(24hrs)	Over all drift less than +/-2% per month
15.	Repeatability	Less than 2% of span
16.	Sensitivity	1 ppm for CO,SO <sub>2</sub> ,NO <sub>x</sub> , 0.5% for CO <sub>2</sub> ,H <sub>2</sub> O
17.	Linearity	Less than 2%
18.	LCD Display	LCD with back light
19.	Power supply	240VAC, 50-60Hz, +/-10% 400VA
20.	Outputs	Analog : 5 x 4-20 mA isolated, max. 500 Ohms, full configurable from Keypad for CO,SO <sub>2</sub> ,NO <sub>x</sub> in ppm & CO <sub>2</sub> ,H <sub>2</sub> O in % to DCS fully site configurable. Logic: 5 x Volt free contacts, SPCO rated at 50 volt 1A & 1x data invalid output (System fault)
21.	Serial Communications	RS232/RS485 Modbus O/P
22.	Construction material and Enclosures	Electronic Housings (DDU) : Corrosion resistant, epoxy coated Aluminium housing sealed to IP 66 Probe : SS316L
<b>DESIGN CONDITIONS</b>		
23.	Infrared source	Heater cartridge assembly
24.	Infrared detector	Lead selenid detector
25.	Ambient air temp.	Transceiver unit 0 to 70 °C, Electronic unit (PSU & DDU) 0 to 60 °C
26.	Flue gas temp.	Up to 350 deg.C



CODEL

<b>CONNECTIONS &amp; DIMENSIONS.</b>		
27	Analysers mounting details	Please refer drawing for analyser mounting flange details. Mounting location on Chimney at 91 Mtrs Elevation.
28	Stack width	Suitable for duct/Stack inner diameter of more than 2000mm.
<b>ACCESSORIES</b>		
29	Standard span gas for calibration	Make : Chemtron Science Laboratory, Mumbai Material : Aluminium Cylinder Capacity : 10 ltr W.C Filled with : 500ppm CO, 500ppm SO <sub>2</sub> , 500ppm NO and balance Nitrogen (N <sub>2</sub> ) Cylinder with SS regulator, necessary tubing's & fittings. Filled pressure: filled at 120-130kg/cm <sup>2</sup>
30	Zero Calibration	For zero calibration we use plant compressed air.
31	Air dryer unit	Maximum Pressure : 10 bar Maximum temperature : 57 deg.C Air dryer unit to dry down the compressed air to -20 deg.c .
32	Zero/span gas calibration tubes	For zero calibration, client to provide plant instrument air line up to probe (10 mm OD connection) For span gas calibration, 20 mtr length SS tube of 10mm OD with necessary fittings from Cylinder to probe.
33	Pressure transmitter	Mounted on GCEM40A0 probe Make : Druck Range : 1.6bar absolute with 4-20mA output Input supply : 24VDC operated
34	Temperature transmitter	Mounted on GCEM40A0 probe Make : Peak Sensor Limited, Washington Type: K type thermocouple Range : 0 – 600 deg.C with 4-20mA output Input supply : 24VDC operated
35	Plant instrument air Consumption	5 LPM @3 bar pressure continuous 10LPM @3 bar pressure during zero calibration

# Adhunik Power & Natural Resources Limited, Padampur

## STACK EMISSION MONITORING REPORT

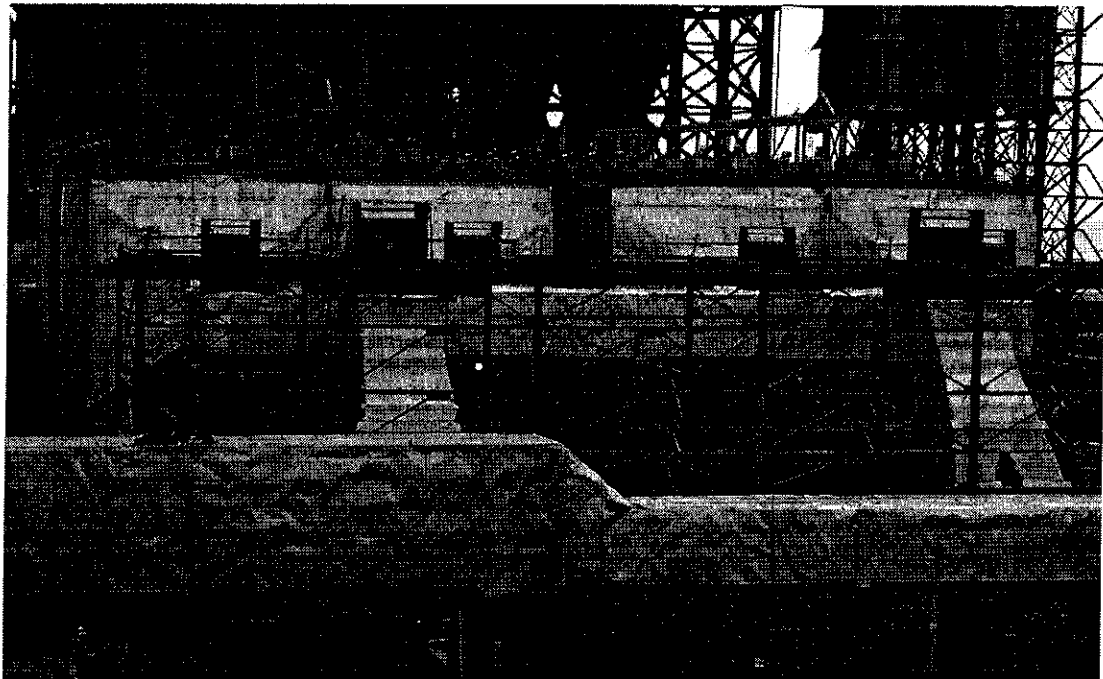
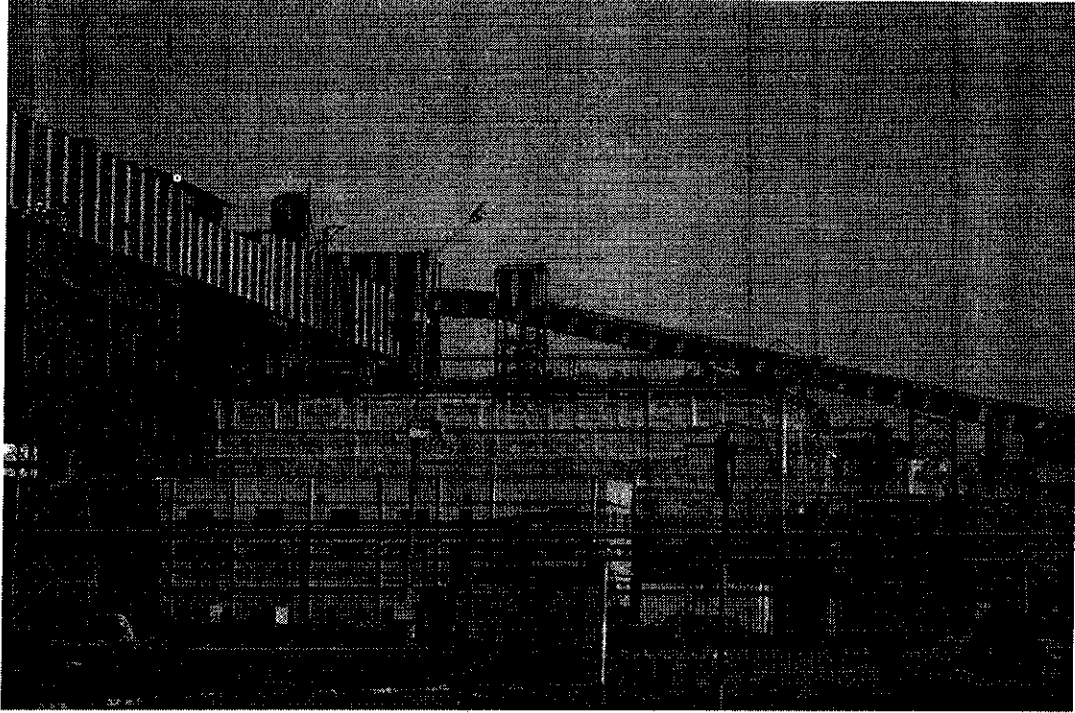
Sl.No.	UNIT-1			
	PARAMETERS	PM	SO2	NOX
	AS PER CONSENTED NORMS	50 mg/Nm3	ND	ND
1	Oct-16	42.5	289.7	188.4
2	Nov-16	45.3	301.6	169.7
3	Dec-16	41.6	301.5	165.4
4	Jan-17	45.1	356.4	194.3
5	Feb-17	49.7	456.9	165.4
6	Mar-17	43.9	447.9	194.2

\* SO2 -mentioned in mg/Nm3

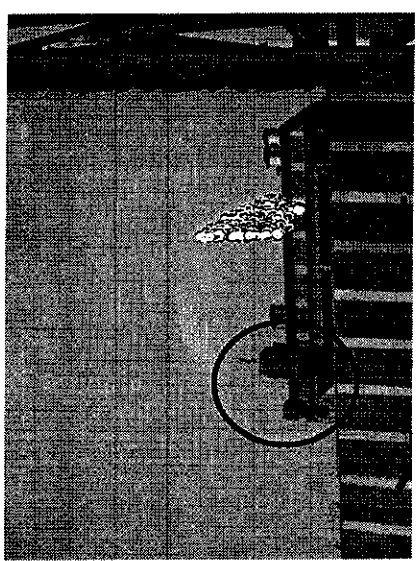
\* NOx -mentioned in mg/Nm3

*lh*

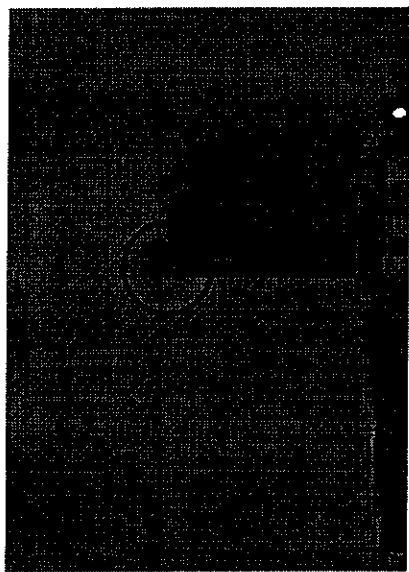
## Electrostatic Precipitator



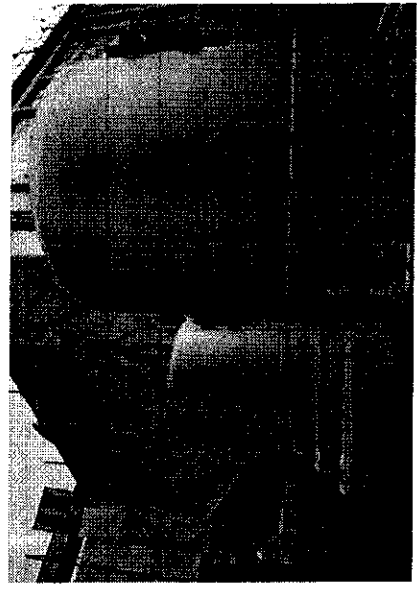
Bag Filter installed at Coal mill building



Bag Filter installed at Ash silo



Bag filter at buffer hopper



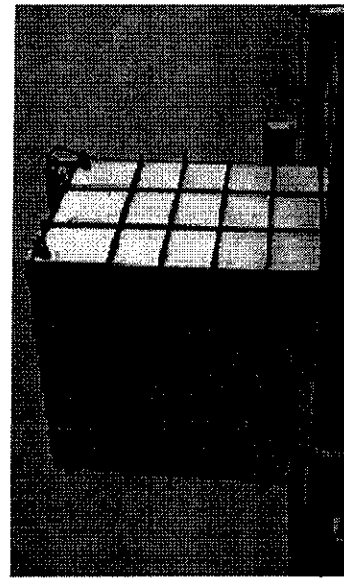
Dust suppression through Tanker



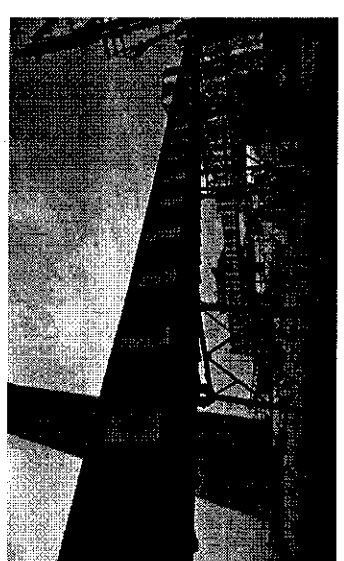
Fixed type DS system for coal Conveyor



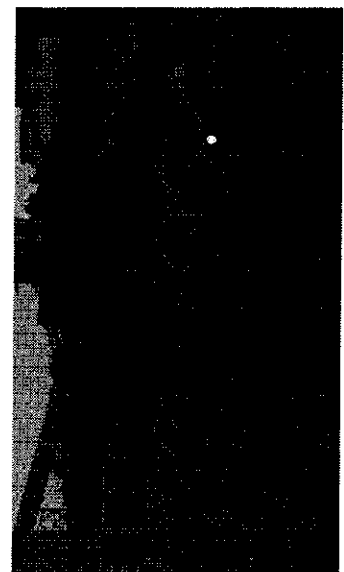
DE system at Coal Crusher House



Closed type coal conveying system



Fixed type dust suppression system



Fixed type DS system at Coal Yard





# YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited By **National Accreditation Board for Testing & Calibration Laboratory (NABL)** (T 2982, T-2918)  
**Jharkhand State Pollution Control Board (JSPCB)** (B-1874)  
**Test Report**

Issued to : - <b>M/s ADHUNIK POWER &amp; NATURAL RESOURCES LIMITED (Unit II)</b> Vill: Padampur, Behind P.G.C.I.L. Substation, Jamshedpur-832105, Jharkhand	Sample Code: - 161210-BA-E01 Report ID :- YBAEEL/JSR/16-12-10/BA/01 Date of issue: - 19 <sup>th</sup> Dec. 2016 Reference : - YBAEEL/WA/L/C/Dec-16
<b>Details of Sampling</b>	
<b>Sample Name/Description: - Bottom Ash</b> <b>Sample Quantity : - 1 kg</b> <b>Sample pkg. Condition : - Sealed in plastic bottle</b>	<b>Date of sampling : - 9-10-2016</b> <b>Sample Received Date: -10/12/2016</b> <b>Sample collected by: -Own/ Mr. Mukesh Singh &amp; Team</b> <b>Sampling Location: -Bottom Ash Hopper (Unit II)</b>

### Test Result


Test started on: -	10 <sup>th</sup> Dec. 2016	Test completed on :-	19 <sup>th</sup> Dec. 2016
Sl. No.	Tested Parameter	Unit	Results
1.	Arsenic	ppm	< 0.01
2.	Mercury	ppm	< 0.01
3.	Chromium	ppm	0.05
4.	Lead	ppm	0.08
5.	Antimony	ppm	< 0.01
6.	Beryllium	ppm	< 0.01
7.	Cadmium	ppm	0.01
8.	Copper	ppm	0.08
9.	Nickel	ppm	0.05
10.	Selenium	ppm	0.01
11.	Silver	ppm	< 0.01
12.	Tin	ppm	< 0.01
13.	Zinc	ppm	0.08
14.	Unborn carbon	%	1.30

\*\*\*\*\*End of Test\*\*\*\*\*

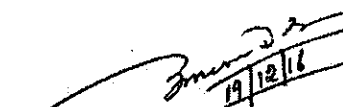
Remarks:-According to tested parameter, the results found as above.

Specific contractual notes: -

- ◆ The results listed refer only to the tested sample and applicable parameter.
- ◆ This report, in full or in part, shall not be used for advertising or as evidence in any court of law.
- ◆ This report cannot be reproduced, except when in full, without the written permission of the Lab In-charge
- ◆ The samples received shall be destroyed after two month from the date of issue of the certificate unless specified otherwise and sample for biological testing will be destroyed after two week of testing.
- ◆ The liability of the laboratory is limited to the invoiced amount.
- ◆ All disputes are subjected to the Ranchi Jurisdiction.

  
 Tested by  
 (Bajrang Kr.)  
 Analyst

  
 Verified by  
 (Sunil Singh)  
 Authorised Signatory

  
 Issued by  
 (Umesh Das)  
 Technical Manager  
 Technical Manager  
 Yugantar Bharati Analytical &  
 Environmental Engineering Laboratory



An ISO 9001: 2008 Certified Laboratory



# YUGANTAR BHARATI

## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited By **National Accreditation Board for Testing & Calibration Laboratory (NABL)** (T 2982, T-2918)  
**Jharkhand State Pollution Control Board (JSPCB)** (B-1874)  
**Test Report**

<b>Issued to :-</b> M/s ADHUNIK POWER & NATURAL RESOURCES LIMITED (Unit II) VIII: Padampur, Behind P.G.C.I.L Substation, Jamshedpur-832105, Jharkhand	<b>Sample Code :-</b> 161210-WW-E01 <b>Report ID :-</b> YBAEEL/JSR/16-12-10/WW/01 <b>Date of issue :-</b> 16 <sup>th</sup> Dec. 2016 <b>Reference :-</b> YBAEEL/WA/L/C/Dec-16/08
<b>Sample Particulars</b>	
<b>Sample Name/Description :-</b> Waste Water <b>Sample Quantity :-</b> One litre <b>Sample pkg. Condition :-</b> Sealed in plastic bottle	<b>Details of Sampling</b> <b>Date of sampling :-</b> 9-12-2016 <b>Sample Received Date :-</b> 10/12/2016 <b>Sampling Protocol :-</b> YBAEEL/SP/01/00 <b>Sample collected by :-</b> Own/ Mr. Mukesh Singh & Team <b>Sampling Location :-</b> Ash pond outlet

### Test Result

Test started on :-	10 <sup>th</sup> Dec. 2016	Test completed on :-	16 <sup>th</sup> Dec. 2016		
Sl. No.	Tested Parameter	Unit	Results	Method (APHA 22 <sup>nd</sup> Edition 2012)	Permissible Limit
1.	pH	—	7.91	4500 H <sup>+</sup> B	N/A
2.	Temperature	°C	20.2	2550 B	N/A
3.	Total dissolve solid	mg/l	39	2540 C	N/A
4.	Oil & Grease	mg/l	< 4	5520 B	N/A
5.	Mercury	mg/l	< 0.003	3112 B	N/A
6.	Arsenic	mg/l	< 0.003	3114 B	N/A
7.	Total Chromium	mg/l	< 0.01	3111 B	N/A
8.	Lead	mg/l	< 0.01	3111 B	N/A

\*\*\*\*\*End of Test\*\*\*\*\*

Remarks:-According to tested parameter, the results found within the prescribe limit of waste water specification.

Specific contractual notes :-

- ◆ The results listed refer only to the tested sample and applicable parameter.
- ◆ This report, in full or in part, shall not be used for advertising or as evidence in any court of law.
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- ◆ All disputes are subjected to the Ranchi Jurisdiction.

*(Signature)*

Tested by  
(Bajrang Kr.)  
Analyst

*(Signature)*

Verified by  
(Sunil Singh)  
Authorised Signatory

*(Signature)*  
16/12/16

Issued by  
(Umesh Das)  
Technical Manager  
Technical Manager  
Yugantar Bharati Analytical &  
Environmental Engineering Laboratory

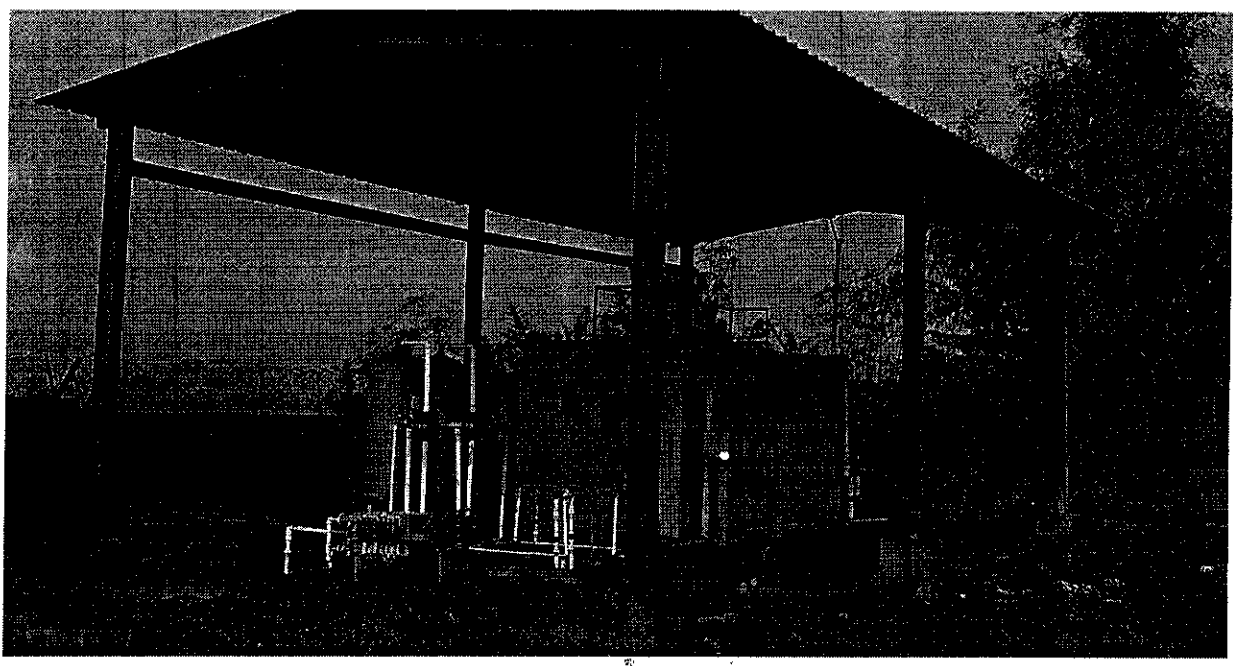


**Adhunik Power & Natural Resources Ltd, Padampur**  
**WATER SAMPLE ANALYSIS RESULT OF GUARD POND**

Sr. No	Parameters	LIMIT AS PER E(P) A FOR INLAND SURFACE WATER DISPOSAL	Unit	October	November	December	January	February	March
				2016	2016	2016	2017	2017	2017
1	Total Cr	2	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2	Copper	3	mg/L	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
3	Zinc	5	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4	Phosphates	5	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
5	pH	5.5 to 9	-	7.1	7.6	7.6	7.2	7.2	7.6
6	Suspended Solids	100	mg/L	15	16	31	33	22	23
7	Oil & Grease	10	mg/L	N.D.	1.3	N.D.	N.D.	N.D.	N.D.
8	BOD 3 day 27 Deg. C	30	mg/L	2.6	2.9	2.4	1.9	1.9	1.8
9	COD	250	mg/L	13.4	16.4	19.4	20.4	13.4	12.9
10	TDS	-	-	412	451	356	381	341	364
11	Chloride	-	-	218	196	194	186	212	216
12	Sulphate	-	-	30.1	26.7	21.8	20.3	19.6	21.4
13	Iron	3	mg/L	0.77	0.64	0.36	0.81	0.44	0.61

\* Treated Water used for dust suppression & Horticulture work.

# Sewage Treatment Plant



**HINDUSTAN PETROLEUM CORPORATION LIMITED**

(A Government of India Enterprise)

**QUALITY CONTROL LABORATORY**

Visakh New Terminal/Visakh New Terminal  
 CONVENT JN - SHEELAMAGAR ROAD,  
 BEHIND AIRPORT, VISAKHAPATNAM-530014

**Test Report**

Product : (05B400) HP INDUSTRIAL DIESEL OIL

Invoice No : 18033332/RU/23708  
 Sample Number : 891383  
 Tank No/Location : TK104  
 Sample Taken From : TK104  
 (Source)

Vehicle No : AP31TF0279  
 Date of Sample Drawn : 13/03/2017  
 Date of Sample Testing : 15/03/2017  
 Date of Printing : 22/03/2017

Test Line Number	Characteristics	Units	Test Method	Specifications		Result Value
				Min	Max	
1	LOO APPEARANCE		VISUAL	DARK	DARK	LIGHT BROWN
5	DENSITY @ 15°C	Kg/m <sup>3</sup>	IS 1448 (P-18)	-	-	884.9
6	KINEMATIC VISCOSITY @ 40°C	cSt	IS 1448 P-28	2.500	15.000	6.418
7	LOO FLASH POINT - PMCC	°C	IS 1448 P-31	68	-	108
8	WATER CONTENT	% Vol	IS 1448 P-40	-	250	100
9	TOTAL SULPHUR	% Mass	ASTM D 4204	-	1.50	1.00
11	LOO POUR POINT WINTER	°C	IS 1448 P-10	-	12	6

**Laboratory Remarks:**

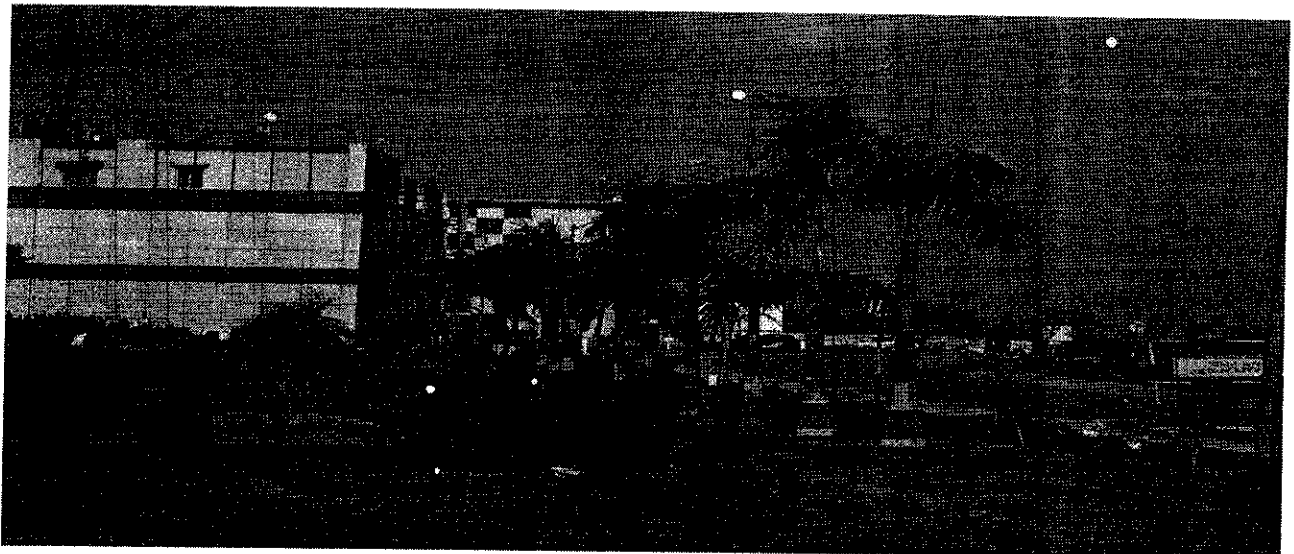
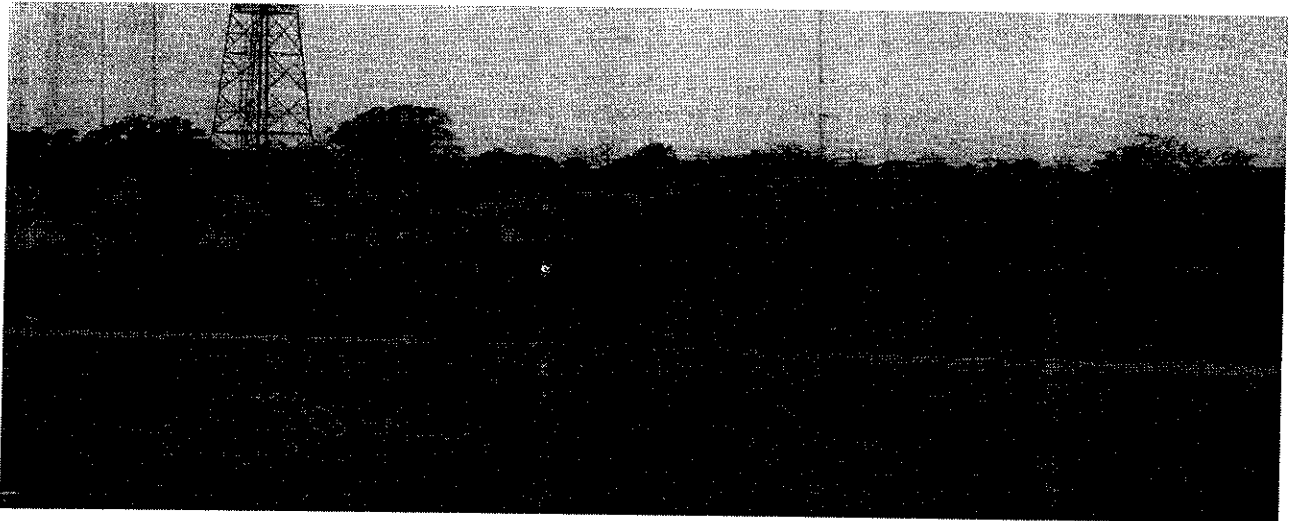
Sample meets specification as per IS-15770-2008 (Reaffirmed 2014) in the above parameters.

- Notes: 1) The sample is drawn by client and results relate to sample tested.  
 2) This test report shall not be reproduced except by HPL without prior written approval of the Lab Incharge.  
 3) This test report shall not be used in any advertising media or as evidence in the Court of Law without prior written consent of Laboratory.  
 4) Test results reported are valid at the time of testing.  
 5) This is a system generated test report and hence does not require signature.



## Green Belt Development

GREEN BELT DEVELOPMENT		
01	Afforestation	A thick green belt of adequate width is being developed. 51632 nos.(Area covered-42.6 acres) of plantation has been completed in and outside along the periphery of the power plant to arrest any dust emissions and help in attenuation of noise. Survival rate of sapling is 84.2%.
02	Landscape & Gardening	We develop world class landscape and garden inside and outside of plant premises to control soil erosion and making healthy working environment



# Adhunik Power & Natural Resources Limited, Padampur

## NOISE LEVEL MONITORING REPORT

Sl.No.	LOCATION	NEAR MAIN GATE		ADMINISTRATIVE BUILDING		COAL YARD		NEAR COOLING	BOILER FEED	TURBINE FLOOR
		75 dBA	70 dBA	75 dBA	70 dBA	75 dBA	70 dBA			
	<b>CONSENTED NORMS</b>	Day	Night	Day	Night	Day	Night		85dBA	
1	<b>Oct-16</b>	45.6	35.6	65.1	48.9	71.5	63.1	78.6	82.4	84.1
2	<b>Nov-16</b>	48.2	36.9	63.4	48.2	74.6	61.3	77.6	81.3	83.6
3	<b>Dec-16</b>	45.6	35.1	56.4	33.8	72.4	56.4	77	83.4	84.2
4	<b>Jan-17</b>	46.2	35.1	52.4	37.1	75.1	58.4	76	82.4	84.1
5	<b>Feb-17</b>	48.6	32.5	54.1	35.8	70.8	55.1	76	82.6	84.1
6	<b>Mar-17</b>	45.6	36.4	55.4	32.8	71.6	56.4	75	81	83

*SGP*

# Adhunik Power & Natural Resources Limited, Padampur

## AMBIENT AIR QUALITY MONITORING REPORT

LOCATION →	GET Hostel					Switch Yard					CHP area				
	PM 10	PM 2.5	SO2	NOX		PM 10	PM 2.5	SO2	NOX		PM 10	PM 2.5	SO2	NOX	
PARAMETERS	100 µg/m3	60 µg/m3	80 µg/m3	80 µg/m3		100 µg/m3	60 µg/m3	80 µg/m3	80 µg/m3		100 µg/m3	60 µg/m3	80 µg/m3	80 µg/m3	
AS PER															
CONSENTED															
NORMS															
Oct-16	69.7	45.6	15.7	9.2		77.8	45.8	21.9	11.7		85.9	52.8	16.3	13.4	
Nov-16	61.8	43.6	12.8	8.9		81.4	53.1	18.6	11.9		88.9	56.7	17.3	12.4	
Dec-16	63.7	42.1	12.6	7.4		72.1	44.6	12.6	8.9		81.4	53.4	13.4	10.8	
Jan-17	67.2	44.2	11.6	8.1		75.4	50.1	10.9	8.2		86.4	55.7	12.6	9.7	
Feb-17	53.6	36.4	10.8	8.4		66.4	41.8	11.6	6.1		71.5	54.9	14.6	11.3	
Mar-17	52.6	39.4	11.2	9.1		69.4	40.6	10.9	7.6		75.6	51.3	13.2	10.8	

Annexure XIV(a)



# YUGANTAR BHARATI

## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited By **National Accreditation Board for Testing & Calibration Laboratory (NABL)** (T 2982, T-2918)  
**Jharkhand State Pollution Control Board (JSPCB)** (B-1874)

### Ambient Air Quality Report (Buffer Zone)

Report Release Date	14-Dec-2016		Protocol	IS 5182	Part II	Part IV	Part VI
Report ID	YBAEEL/JSR/16-12-07/AAQ/01		Sample Description	Ambient Air Quality			
Sampling Date	7th to 8th Dec. 2016		Type of Industry	Power Plant			
Name of Industry	M/s - Adhunik Power & Natural Resources Limited (Unit-II) Vill: - Padampur, Behind P.G.C.I.L substation, Jamshedpur - 832105, Jharkhand		Sampling Locations	Site A	Pindrabera		
				Site B	Padampur		
				Site C	Srirampur		
			Work Order No.	3030002260			
			Work Order Date	9/9/2016			
	Weather Condition	Cloudy					
Customer Ref.	Mr. Kamlesh Jha		Sample drawn by	Mukesh Singh & Team			
Monitored Parameters	Method	Samplin Location			Units	NAAQS industrial, residential, rural &	
		Site A	Site B	Site C			
Particulate Matter (PM2.5)	USEPA Guideline	40.2	36.7	35.9	µg/m <sup>3</sup>	60 µg/m <sup>3</sup>	
Particulate Matter (PM10)	CPCB Guideline	82.4	80.6	78.9	µg/m <sup>3</sup>	100 µg/m <sup>3</sup>	
Sulphur Dioxide (SO <sub>2</sub> )	CPCB Guideline	12.5	10.7	11.3	µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	
Nitrogen Dioxide (NO <sub>2</sub> )	CPCB Guideline	9.5	13.4	12.5	µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	
Carbon Monoxide (CO)	IS 5182, Part 10	0.1	0.1	0.1	mg/m <sup>3</sup>	4 mg/m <sup>3</sup>	
Ozone (O <sub>3</sub> )	CPCB Guideline	5.8	5.1	6.3	µg/m <sup>3</sup>	100 µg/m <sup>3</sup>	
Ammonia (NH <sub>3</sub> )	APHA 22nd ed.	6.5	6.9	6.2	µg/m <sup>3</sup>	400 µg/m <sup>3</sup>	
Lead (Pb)	IS 5182, Part 22	N.D	N.D	N.D	µg/m <sup>3</sup>	1.0 µg/m <sup>3</sup>	
Benzene (C <sub>6</sub> H <sub>6</sub> )	IS 5182, Part 21	< 0.1	< 0.1	< 0.1	µg/m <sup>3</sup>	5 µg/m <sup>3</sup>	
Benzo(a)Pyrene (BaP)	IS 5182, Part 12	N.D	N.D	N.D	ng/m <sup>3</sup>	1 ng/m <sup>3</sup>	
Arsenic (As)	USEPA Guideline	N.D	N.D	N.D	ng/m <sup>3</sup>	6 ng/m <sup>3</sup>	
Nickel (Ni)	USEPA Guideline	< 0.1	< 0.1	< 0.1	ng/m <sup>3</sup>	20 ng/m <sup>3</sup>	

\*\*\*\*\* End of Report\*\*\*\*\*

Remarks All values are observed well within the limit

Note All values are expressed in microgram/ cubic meter

The results listed refer only to the tested sample and applicable parameter.

This report, in full or in part, shall not be used for advertising or as evidence in any court of law

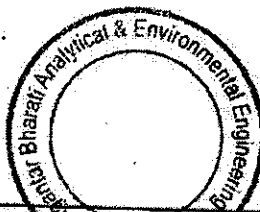
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Tested by  
Mukesh Kr. Singh  
Field Analyst



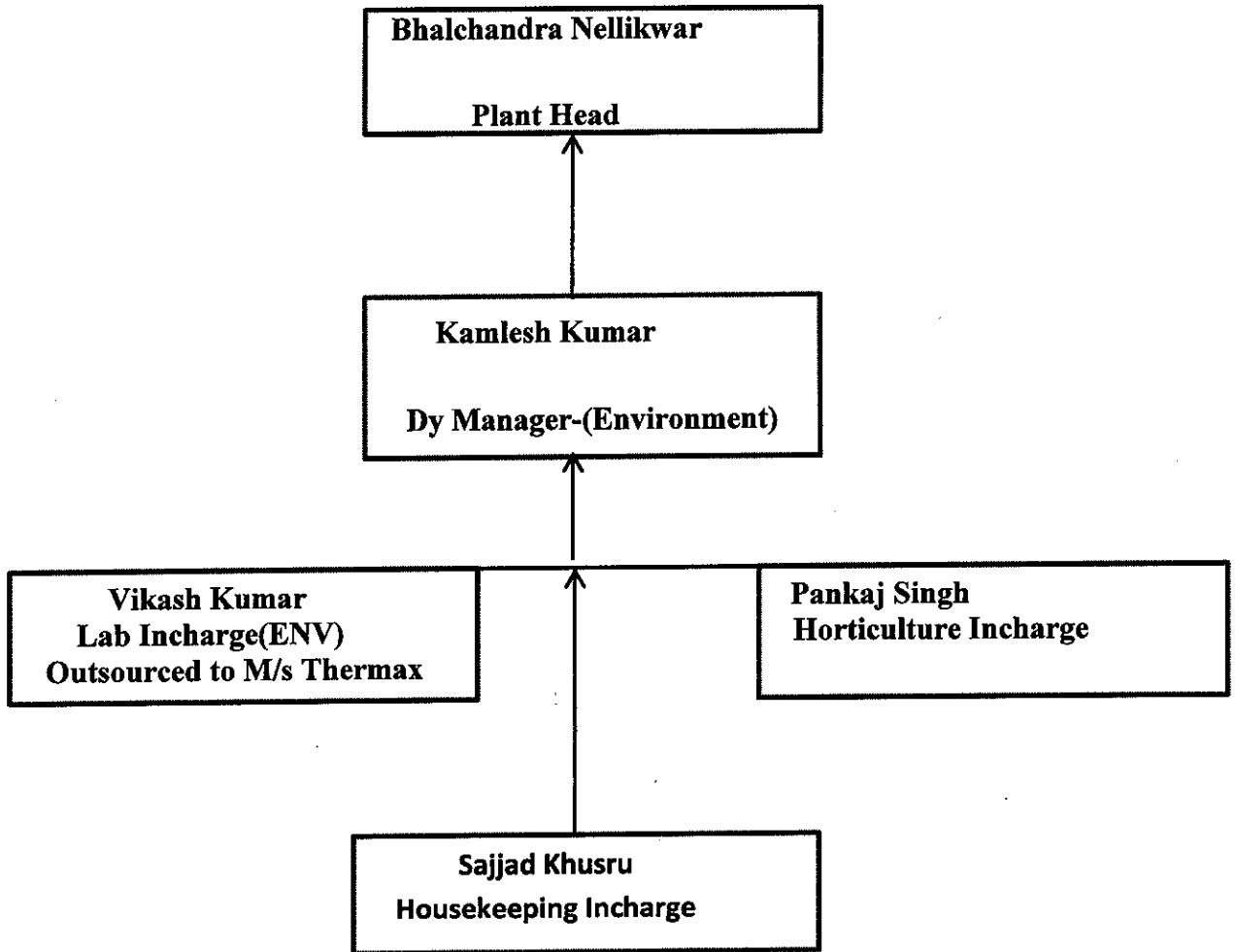
Verified by  
Pallavi Rani  
Section Incharge

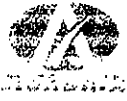
Issued by  
Umesh Das  
14/12/16

Technical Manager  
Yugantar Bharati Analytical &  
Environmental Engineering Laboratory

An ISO 9001: 2008 Certified Laboratory

ORGANISATION CHART  
ENVIRONMENT MANAGEMENT CELL





# ADHUNIK POWER & NATURAL RESOURCES LTD.

Ref: MOE&F, RNC/HYC/BN/281116/01

Dated: 28.11.2016

To,

Regional Office (ECZ),  
Ministry of Environment, Forest and Climate Change,  
Bungalow No. A-2, Shyamali Colony,  
Ranchi – 834002

Sub:- Submission of Half yearly compliance status report (Unit I) for the period – April 2016 to September 2016,-Reg.

Ref:- MoEF letter No.J-13011/8/2009-IA.II(T), dated 29<sup>th</sup> Aug 2009.

Sir,

With reference to the above referred Environmental Clearance, we are pleased to submit herewith the half yearly compliance status report (Unit I) for the period of April 2016 to September 2016,-.

This is for your reference and record; please.

Thanking you,

For Adhunik Power & Natural resources Limited

*Mitlesh Yadav*

(Authorized Signatory)

Encl: As Above

Copy to:

- i) Central Pollution Control Board, Kolkatta
- ii) Member Secretary, Jharkhand State Pollution Control Board, Jharkhand
- iii) Regional Officer, JSPCB, Jamshedpur





## ADHUNIK POWER AND NATURAL RESOURCES LIMITED

WORKS : Village – Padampur, Behind P.G.C.I.L Substation,  
Adityapur Kandra Road, Saraikela – Kharswan : 832402, Jharkhand  
Phone: + 91-657-6628400, Fax: + 91-657-6688440

Ref No APNRL/JSPCB/ES/2015-16/01

Date: 14th Sep 2016

The Member Secretary  
Jharkhand Pollution Control Board  
Jharkhand

Sub- Submission of Environmental Statement (Form V) for Unit I (1 x 270 MW) of M/s  
Adhunik Power & Natural Resources Limited, Village-Padampur, Dist-Saraikela-  
Kharswan, Jharkhand.

Ref: Environmental Clearance letter No J-13011/8/2009-IA.II(T), Dated 29<sup>th</sup> Aug 2009.

Dear Sir,

In line with compliance of above referred EC letter point No XXX of general condition,  
Please find attached herewith Environmental statement (Form V) for the financial year  
2015-16.

This is for your kind information & record please.

Thanking You

Your's faithfully

*Bhalchandra Nellikwar*

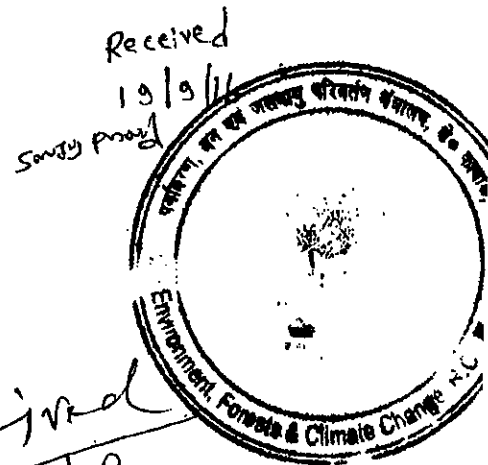
Bhalchandra Nellikwar  
(Plant Head)

Encl: As mentioned above

CC: 1. The Regional Office(ECZ)

Ministry of Environment & Forest & Climate Change,  
Bungalow No. A-2, Shyamali Colony, Ranchi-834002

2. The Regional Officer  
Jharkhand Pollution Control Board  
Jamshedpur, Jharkhand



*Received*  
*15-9-16*

*Ref*  
*Bodhi*  
*19/9/16*

**Recurring cost incurred on Environment protection measures of  
M/s Adhunik Power & Natural Resources Ltd. Year 2016-17(in  
Lakhs)**

SI No	Description of Environment Measures	Oct 2016- March 2017		
		Unit I		
		Energy	Other cost	Total Cost
1	ESP operation & Maintenance	132.47	2.63	135.10
2	ETP & STP operation & Maintenance	11.33	5.61	16.94
3	Plant Housekeeping	0.00	28.71	28.71
4	DE System Operation & Maintenance	25.80	3.58	29.38
5	DS operation & Maintenance	0.25	0.23	0.48
6	Green Belt development	0.10	8.00	8.10
7	Environment Management system(Monitoring, Equipment Calibration, Clebration of Environment Programmes & Preparation of Environment Audit,	0.61	2.78	3.39
8	Ash disposal system	0.00	504.71	504.71
9	Rain water harvesting system	0.00	0.26	0.26
10	CAAQMS & CEMS Operation & Maintenance	0.38	0.75	1.13
		<b>170.94</b>	<b>557.26</b>	<b>728.20</b>

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