

JSPL/DCPP/EMD/MOEF/DEC/2016/PH-I

The Additional Director
Ministry of Environment, Forests & Climate Change
Regional Office, (WCZ)
New Secretariat Building
Civil Lines
Nagpur - 440001

Date: 01.12.2016

Sub: - Six monthly compliance status of the conditions given in Environmental Clearance granted to our 2x150 MW Dongamahua Captive Power Plant, Phase # 1 at Dongamahua for the period between April 2016 to September 2016.

Ref: - Environmental Clearance letter no. J - 13011/72/2007 - IA - II (T) dated 31st July 2008

Dear Sir,

Please find enclosed herewith our compliance status (Hard & soft copy) of Environmental Clearance 2008 conditions for six months ending September 2016.

This is for your doing needful.

Thanking you,

Truly yours,

For **Jindal Steel & Power Limited**


S.A. Mansoori
(AVP & Plant Head)

- Cc: 1. **The Additional Director**
Ministry of Environment & Forests
Indira Paryavaran Bhawan
Jorbagh Road
New Delhi - 110 003, India
2. **The Zonal officer**
Central Pollution Control Board
4th Floor, Sahkar Bhawan
North TT Nagar
Bhopal - 462 003
3. **The Regional Officer**
Regional Office
Chhattisgarh Environment Conservation Board
TV Tower Road
Raigarh - CG

Jindal Steel & Power Limited

Work Office Dongamahua Captive Power Plant, Dhaurahata (PO), Raigarh 496107 (CG)

T +91 7767-200401 - 04 (04 lines) F +91 7767 200400 W www.jindalsteelpower.com

Registered Office O. P. Jindal Marg, Hlsar, 125 005, Haryana

Corporate Identity Number - L27105HR1979PLC009913

Compliance status of conditions of Environmental clearance vide letter No. J – 13011/72/2007 – IA – II (T) dated 31st July, 2008 for the period April 2016 –September 2016

Point No.	Conditions	Compliance status
3 (i)	The total land requirement for the project shall be restricted to 56 acres.	The Project has been set up in 56 acres only.
3 (ii)	Sulphur and ash contents in the mixed fuel (Middling and coal) to be used in the project shall not exceed 0.5% and 54% respectively at any given time.	The weighted average of Sulphur and ash contents in the mixed fuel (middling and coal) being used does not exceed 0.5% and 54% respectively.
3 (iii)	A bi-flue stack of not less than 220 m height with continuous online monitoring equipment for SO _x , NO _x and Particulate matter shall be provided. Exit velocity of flue gases shall not be less than 25m/sec.	A bi – flue stack of 220 m height with exit velocity of 25m/Sec and continuous online emission monitoring system (SO _x , NO _x and Particulate Matter) has been provided for the project.
3 (iv)	High efficiency Electrostatic Precipitator (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm ³ .	Electrostatic Precipitators (ESPs) of 99.8% has been installed. The ESP has been designed to achieve particulate emission <50 mg/Nm ³ .
3 (v)	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. 100% ash shall be used in cement plants, filling of low lying areas, road construction, brick manufacturing and back filling in the mined out areas of their captive coal mines.	The fly ash generated after coal combustion in boiler is pneumatically conveyed and stored in dry form in concrete silo. Same is utilized on 100% basis in back filling of de-coaled area of Gare Pelma IV/1 coal mines.
3 (vi)	Filling of low lying area shall be done with proper lining of the area to be filled up and proper clay layer over the filled material.	Presently, we are utilizing fly ash in back filling of de-coaled area of Gare Pelma IV/1 mines on 100% basis by mixing of fly ash with overburden as per approved DGMS guideline.
3 (vii)	Back filling of the mined out area of the captive coal mines shall be done with prior permission from DGMS.	Back filling the mined out area of the Gare Pelma IV/1 coal mines is being carried out as per DGMS guidelines and in accordance with interim order of Hon'ble High Court of Delhi.
3 (viii)	There shall be no ash pond for this power project.	No ash pond is provided.
3 (ix)	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 area and other vulnerable dusty areas shall be provided.	<ul style="list-style-type: none"> a. Dust extraction system at screen plant and crusher plant of the CHP area has been provided. b. Dust suppression system using water spray has been installed at coal transfer points including stacker/reclaimer. c. Pneumatic ash conveying system in AHP installed. Ash is conditioned in pug mill before unloading on dumper from silo and transported to Gare Pelma IV/1 mines for back filling.

3 (x)	Water requirement shall not exceed 942, which shall be met from the Mine sump water and harvested rainwater. No ground water shall be extracted for any activity of the power project including construction phase of the project.	Water requirement is within the specified limit. Further, no ground water is being extracted for operation of Power Plant.
3 (xi)	Closed cycle cooling system with cooling towers shall be provided. The effluents shall be treated to conform to the prescribed norms.	Closed cycle cooling system with cooling tower is in place. Effluent Treatment Plant (ETP) has been provided. The treated effluent is within the prescribed norms. Effluent report is enclosed as Annexure – 1
3 (xii)	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 for storm water. Arrangements shall be made so that effluents and storm water do not get mixed.	<ul style="list-style-type: none"> a. The treated effluent conforming to prescribed standard is reused in dust suppression/ plantation suitably. b. Nothing is being discharged from plant premises. c. Separate pipe line has been laid for transfer of process effluents to ETP so that effluents and storm water do not get mixed.
3 (xiii)	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt/ plantation.	Sewage Treatment Plant (STP) provided. The treated water from STP is used for horticulture activities. Treated effluent report is enclosed as Annexure – 2 .
3 (xiv)	Regular monitoring of ground water in and around the project area shall be carried out, records maintained and six monthly reports shall be furnished to the Regional Office of this Ministry.	Ground water quality monitoring is done at quarterly interval and records maintained. The results of ground water quality are within prescribed norms. Ground Water quality monitoring report is enclosed as Annexure – 3 .
3 (xv)	The storm water drainage shall be so designed and linked to the surface drainage so as to preserve the natural drainage of the area.	Complied
3 (xvi)	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.	Scheme for rainwater harvesting has been submitted to the Central Groundwater Board vide our letter dated 24.11.2008; same is being implemented in phases.
3 (xvii)	A green belt of adequate width and density shall be developed around the plant periphery covering about 7.47 ha of project area preferably with local species.	Green Belt has been developed in all available spaces in phased manner. We have already planted more than 36240 trees including local species so far within premises and balance shall be carried out progressively.




3 (xviii)	<p>Leq. of Noise levels emanating from turbines shall be limited to 75 dB A. For people working in the high noise area, requisite personal protective equipment like earplugs/ ear muffs etc. shall be provided. Workers engaged in noisy areas such as steam & gas turbines, air compressors etc shall be periodically examined and audio metric records shall be maintained. Treatment for any hearing loss including shifting to non noisy/ less noisy areas.</p>	<p>Following actions have been taken to minimize noise pollution-</p> <ol style="list-style-type: none"> 1. Provided acoustic insulation and enclosures around Turbines 2. Kept high noise areas unmanned as far as practical. 3. Use of ear plug/ muff made mandatory for people working in noisy areas. 4. Ensured rotation of duties. 5. Periodical medical checks are done as required and records maintained.
3 (xix)	<p>Regular monitoring of ground level concentration of SO₂, NO_x, SPM and RSPM 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. There should be at least one monitoring station in the predominant downwind direction at a distance of about 2.5 Km where the maximum ground level concentration due to emission from the stack is likely to occur. Six monthly reports shall be submitted to the Regional Office of this Ministry at Bhopal/SPCB/CPCB.</p>	<p>Environmental monitoring for ground level concentration of SO₂, NO_x, PM 10 and PM 2.5 is carried out at predefined sampling locations including predominant downwind direction at regular interval and record maintained. Monitoring report is enclosed as Annexure – 4. Six Monthly reports are being submitted to the Regional office of MoEF at Nagpur/SPCB/CPCB.</p>
3 (xx)	<p>Appropriate safeguard measures shall be taken to guard against fire hazards in coal storage area. DMP shall be prepared to handle such situation.</p>	<p>Complied.</p>
3 (xxi)	<p>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.</p>	<p>Complied.</p> <p>We have advertised in 2 local newspapers as required.</p> <p>Dainik Bhaskar – 07.08.2008 Nav Bharat – 07.08.2008</p>

3 (xxii)	A separate environmental management cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	We have a well established Environment Management Department. It is suitably staffed and is headed by a Sr. executive. He reports directly to head of the organization. The lab is equipped with necessary infrastructures/equipments.
3 (xxiii)	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards shall be submitted to this Ministry/ Regional Office/CPCB/SPCB.	The six monthly compliance report is being submitted regularly.
3 (xxiv)	Regional Office of the Ministry of Environment & Forests located at Bhopal 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.	Complied
3 (xxv)	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.	Separate funds have been earmarked for environment protection.
3 (xxvi)	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 and development work and commissioning of plant.	<ol style="list-style-type: none"> 1. Financial closure – 10th June 2008 2. EC from MOEF – 31st July 2008 3. Consent to establish – 17th November 2008 4. Start of land development work – 1st Dec. 2008 5. Consent to operate (Unit # 1 & 2) valid upto – 31.03.2017
3 (xxvii)	Full cooperation shall be extended to the Scientists/ Officers from the Ministry/ Regional Office of the Ministry at Bhopal/ the CPCB/ the SPCB who would be monitoring the compliance of environmental status.	Complete cooperation shall be provided for monitoring the compliance of environmental compliance.

	<p style="text-align: center;">Jindal Steel & Power Limited Dongamahua Captive Power Plant</p> <p style="text-align: center;">Environment Laboratory Effluent Quality Report</p>	<p>Format No.: DCPP/EMD/LAB/WFR/APRIL - SEPTEMBER/01</p>
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Sampling Location : ETP - Out let




Sl. No	Parameter	Unit	April 2016	May 2016	June 2016	July 2016	Aug 2016	Sept 2016	General Standards for discharge of Environmental Pollutants: Effluents
1	pH	-	7.51	7.16	7.38	7.46	7.40	7.29	5.5 - 9.0
2	Biological Oxygen Demand (BOD) at 27°C	mg/l	4.0	6.0	4.0	3.0	2.0	3.0	30
3	Chemical Oxygen Demand (COD)	mg/l	24.0	26.0	18.0	16.0	10.0	20.0	250
4	Oil & Grease	mg/l	0.5	0.7	1.6	1.0	1.0	1.1	10
5	Total Suspended Solids (TSS)	mg/l	34.0	43.0	28.0	41.0	27.0	31.0	100

 Signature (Analyst)	 Bhupendra Sharma (Asst. Manager - EMD)	 B.K. Srivastav (Dy. General Manager)
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	<p style="text-align: center;">Jindal Steel & Power Limited Dongamahua Captive Power Plant</p> <p style="text-align: center;">Environment Laboratory Effluent Quality Report</p>	<p>Format No.: DCPP/EMD/LAB/WFR/APRIL - SEPTEMBER/01.</p>
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Sampling Location : STP - Out let

Sl. No.	Parameter	Unit	April 2016	May 2016	June 2016	July 2016	Aug. 2016	Sept. 2016	General Standards for discharge of Environmental Pollutants: Effluents
1	pH	-	7.82	7.76	7.64	7.54	7.48	7.44	5.5 - 9.0
2	Biological Oxygen Demand (BOD) at 27°C	mg/l	18.0	16.0	12.0	16.0	12.0	8.0	30
3	Chemical Oxygen Demand (COD)	mg/l	32.0	42.0	48.0	44.0	38.0	36.0	250
4	Oil & Grease	mg/l	0.8	1.2	2.2	1.2	1.1	1.4	10
5	Total Suspended Solids (TSS)	mg/l	42.0	48.0	52.0	49.0	28.0	39.0	100

 Signature (Analyst)	 B Sharma (Asst. Manager - EMD)	 B.K. Srivastav (Dy. General Manager)
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Sl. No.	Parameter	Unit	Ground Water Sample				IS:10500 - 2012	
			Libra	Dhaurabhata	Janjgir	Dongamahua	Desirable Limit	Permissible Limit in the absence of alternate source
1	Colour	Hazen	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	BDL (DL 1.0NTU)	BDL (DL 1.0NTU)	BDL (DL 1.0NTU)	BDL (DL 1.0NTU)	1	15
5	pH	-	7.10	6.8	7.15	6.9	6.5 - 8.5	No relaxation
6	Total Hardness (as CaCO ₃)	mg/L	151.32	197.88	46.56	93.12	200	600
7	Iron (as Fe)	mg/L	0.12	0.16	0.12	0.11	0.3	200
8	Chloride (as Cl)	mg/L	33.03	87.42	13.6	5.83	250	1000
9	Residual Free Chlorine	mg/L	BDL (DL 0.2)	BDL (DL 0.2)	BDL (DL 0.2)	BDL (DL 0.2)	0.2	1.0
10	Fluoride (as F)	mg/L	0.05	0.04	BDL(DL 0.02)	BDL(DL 0.02)	1.0	1.5
11	Total Dissolved Solids	mg/L	254	348.2	120	96	500	2000
12	Calcium (as Ca)	mg/L	26.44	45.1	9.33	14	75	200
13	Magnesium (as Mg)	mg/L	20.74	20.74	5.66	14.14	30	100
14	Copper (as Cu)	mg/L	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	0.05	1.5
15	Manganese (as Mn)	mg/L	BDL(DL0.10)	BDL (DL 0.02)	BDL(DL0.10)	BDL (DL 0.10)	0.1	0.3
16	Sulphate (as SO ₄)	mg/L	7.52	6.17	3.22	0.27	200	400


Analyst


Asst. Manager


Dy. General Manager

	Jindal Steel & Power Limited Dongamahua Captive Power Plant	Format No.: DCP/EMD/LAB/WFR/01
	Environment Laboratory Ground Water Quality Report	Date of Sampling: 06/09/2016

17	Nitrate (as NO ₃)	mg/L	1.59	3.98	3.65	0.27	45	No relaxation
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	0.001	0.002
19	Mercury (as Hg)	mg/L	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	0.001	No relaxation
20	Cadmium (as Cd)	mg/L	BDL (DL 0.0005)	BDL (DL 0.0005)	BDL (DL 0.001)	BDL (DL 0.0005)	0.003	No relaxation
21	Arsenic (as As)	mg/L	BDL (DL 0.0005)	BDL (DL 0.0005)	BDL (DL 0.0005)	BDL (DL 0.0005)	0.01	0.05
22	Selenium (as Se)	mg/L	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	0.01	No relaxation
23	Cyanide (as CN)	mg/L	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	0.05	No relaxation
24	Lead (as Pb)	mg/L	BDL (DL 0.008)	BDL (DL 0.008)	BDL (DL 0.008)	BDL (DL 0.008)	0.01	No relaxation
25	Zinc (as Zn)	mg/L	0.13	0.34	0.14	0.16	5	15
26	Aluminium (as Al)	mg/L	BDL (DL 0.03)	BDL (DL 0.03)	BDL (DL 0.03)	BDL (DL 0.03)	0.03	0.2
27	Hexa Chromium (as Cr)	mg/L	BDL (DL 0.03)	BDL (DL 0.03)	BDL (DL 0.03)	BDL (DL 0.03)	0.05	No relaxation
28	Alkalinity (as CaCO ₃)	mg/L	122.14	114.26	82.74	78.80	200	600
29	Boron (as B)	mg/L	BDL (DL 0.20)	BDL (DL 0.2)	BDL (DL 0.2)	BDL (DL 0.2)	0.50	1.0
30	Anionic detergents (as MBAS)	mg/L	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	0.2	1.0
31	Total Coliforms	CFU/100 ml	Absent	Absent	Absent	Absent	Absent	Absent
32	E Coliforms	CFU/100 ml	Absent	Absent	Absent	Absent	Absent	Absent


Analyst


Asst. Manager


Dy. General Manager



Jindal Steel & Power Limited
Dongamahua Captive Power Plant

Environment Laboratory
Ambient Air Quality Report

Format No.:
DCPP/EMD/LAB/AAQFR/APR-SEPT/01

Location	Parameter	April - 16	May - 16	June - 16	July - 16	August - 16	September - 16	CPCB Norms ($\mu\text{g}/\text{m}^3$)
Location - 1 (Dongamahua)	PM 2.5 ($\mu\text{g}/\text{m}^3$)	39 - 53	32 - 51	35 - 47	18 - 28	19 - 28	22 - 31	60
	PM10 ($\mu\text{g}/\text{m}^3$)	78 - 92	71 - 91	69 - 83	41 - 52	40 - 66	41 - 73	100
	NOx ($\mu\text{g}/\text{m}^3$)	18 - 25	18 - 25	17 - 26	13 - 19	14 - 19	13 - 22	80
Location - 2 (Nizar old Hostel)	SO ₂ ($\mu\text{g}/\text{m}^3$)	11 - 19	11 - 18	11 - 18	08 - 14	08 - 14	10 - 15	80
	PM 2.5 ($\mu\text{g}/\text{m}^3$)	36 - 56	35 - 45	35 - 45	23 - 32	24 - 31	24 - 36	60
	PM10 ($\mu\text{g}/\text{m}^3$)	73 - 94	69 - 81	69 - 81	54 - 59	52 - 65	53 - 78	100
Location - 3 (Near Janjgir)	NOx ($\mu\text{g}/\text{m}^3$)	17 - 27	20 - 29	19 - 29	16 - 23	16 - 21	16 - 22	80
	SO ₂ ($\mu\text{g}/\text{m}^3$)	12 - 22	14 - 21	14 - 21	12 - 19	11 - 15	10 - 16	80
	PM 2.5 ($\mu\text{g}/\text{m}^3$)	31 - 38	34 - 43	29 - 39	21 - 31	18 - 30	19 - 33	60
Location - 4 (Near Dhaurabhata)	PM10 ($\mu\text{g}/\text{m}^3$)	63 - 72	67 - 74	62 - 76	44 - 65	42 - 61	44 - 69	100
	NOx ($\mu\text{g}/\text{m}^3$)	19 - 26	16 - 29	09 - 18	09 - 16	13 - 17	14 - 20	80
	SO ₂ ($\mu\text{g}/\text{m}^3$)	13 - 19	17 - 22	07 - 16	07 - 11	09 - 12	09 - 14	80
Location - 5 (Near STP)	PM 2.5 ($\mu\text{g}/\text{m}^3$)	37 - 55	35 - 56	35 - 49	24 - 34	17 - 28	25 - 38	60
	PM10 ($\mu\text{g}/\text{m}^3$)	73 - 94	73 - 95	72 - 85	51 - 69	41 - 59	52 - 79	100
	NOx ($\mu\text{g}/\text{m}^3$)	12 - 22	16 - 28	14 - 29	16 - 21	12 - 18	15 - 26	80
Location - 5 (Near STP)	SO ₂ ($\mu\text{g}/\text{m}^3$)	09 - 19	12 - 21	11 - 26	10 - 17	08 - 12	11 - 17	80
	PM 2.5 ($\mu\text{g}/\text{m}^3$)	31 - 42	37 - 44	36 - 49	14 - 25	17 - 23	22 - 33	60
	PM10 ($\mu\text{g}/\text{m}^3$)	69 - 81	69 - 79	72 - 85	38 - 59	41 - 52	50 - 69	100
Location - 5 (Near STP)	NOx ($\mu\text{g}/\text{m}^3$)	21 - 33	21 - 32	15 - 26	13 - 20	13 - 19	14 - 23	80
	SO ₂ ($\mu\text{g}/\text{m}^3$)	16 - 24	15 - 22	11 - 21	08 - 14	09 - 13	09 - 16	80


Signature
(Analyst)


Asst. Manager


Dy. General Manager

JSPU/DCPP/EMD/MOEF/DEC/2016/PH-II

The Additional Director
Ministry of Environment, Forests & Climate Change
Regional Office, (WCZ)
New Secretariat Building
Civil Lines
Nagpur - 440001

Date: 01.12.2016

Sub: - Six monthly compliance status of the conditions given in Environmental Clearance granted to our 2x150 MW Dongamahua Captive Power Plant, Phase # 2 at Dongamahua for the period between April 2016 to September 2016.

Ref: - Environmental Clearance letter no. J - 13012/1277/2008 - IA - II (T) dated 9th November 2010 and amended dated 9th January 2012

Dear Sir,

Please find enclosed herewith EC conditions compliance status (Hard & soft copy) of Environmental Clearance 2010 under reference for six months ending September 2016.

This is for your doing needful.

Thanking you.

Truly yours.

For Jindal Steel & Power Limited


S.A. Mansoori
(AVP & Plant Head)

- Recd*
- Cc: 1. The Additional Director**
Ministry of Environment & Forests
Indira Paryavaran Bhawan
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4th Floor, Sakkar Bhawan
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Jindal Steel & Power Limited

Work Office: Dongamahua Captive Power Plant, Dhanubhata (PO), Raigarh 498107 (CG)

T: +91 7767 200401 - 04 (04 lines) F: +91 7767 200400 W: www.jindalsteelpower.co.in

Registered Office: C. P. Jindal Marg, Hilar, 125 006, Haryana

Corporate Identity Number - L27105HR1117RPLC000913

Compliance status of conditions of Environmental Clearance vide letter No. J – 13012/127/2008 – IA.II (T) dated 9th November, 2010) for period April 2016 – September 2016

Point No.	Conditions	Compliance status
A-	Specific conditions:	
(i)	Sulphur and ash contents in the fuel to be used in the project shall not exceed 0.6% and 54% respectively at any given time. In case of variation of coal quality at any point of time fresh reference shall be made to MoEF for suitable amendments to environmental clearance condition wherever necessary.	The Sulphur and ash contents in the mixed fuel (middling and coal) used does not exceed 0.6% and 54% respectively as per EC amendment granted by MoEF vide letter no. J – 13012/127/2008 – IA.II(T) dated 9 th January 2012.
(ii)	A Bi – Flue stack of 220 m height shall be provided with continuous online monitoring equipment for SO _x , NO _x and Particulate matter (PM _{2.5} & PM ₁₀). Exit velocity of flue gases shall not be less than 25 m/sec. Mercury emissions from stack may also monitored on periodic basis.	A bi – flue stack of 220 m height with continuous online emission monitoring system (SO _x , NO _x and Particulate Matter) has been provided for the project.
(iii)	The company shall monitor free silica content in the coal dust and ash to prevent adverse health impact of workers.	Free silica content in coal dust is monitored at regular interval & records maintained.
(iv)	Provision for installation of FGD shall be provided for future use. High Efficiency Electrostatic Precipitation (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm ³ .	<ul style="list-style-type: none"> a. Provision for installation of FGD provided if required for future. b. Electrostatic Precipitators (ESPs) of 99.8% efficiency has been installed. The ESP has been designed to achieve particulate emission below prescribed limit of 50 mg/Nm³.
(v)	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 area and other vulnerable dusty areas shall be provided.	<ul style="list-style-type: none"> a. Dust extraction system at screen, crusher plant and bunkers of the CHP area installed. Dust suppression system using water spray has been installed at coal transfer points including stacker/ reclaimer and other vulnerable areas. b. Pneumatic ash conveying system in AHP installed. Ash is conditioned in pug mill before unloading on dumper from silo.
(vi)	Source sustainability study of water requirement shall be carried out by an institute of repute. The study shall also specify the source of water for meeting the requirement during lean season. The report shall be submitted to the Regional Office of the Ministry within six months.	The source sustainability study of water requirement has been conducted.
(vii)	Hydro geological study of the area shall be reviewed annually and report submitted to the Ministry.	Hydro geological study of the area has been carried submitted to MoEF & reviewed.
(viii)	No ground water shall be extracted for use in operation of the power plant even in lean season.	No ground water is being extracted for the operation of Power Plant

(ix)	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.	No natural drainage system has been altered and nothing shall be altered in future
(x)	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season.	Not applicable to the Coal base thermal Power Plant. Noted for compliance
(xi)	COC of 5.0 shall be adopted. The treated effluent 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. A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/ plantations.	<ul style="list-style-type: none"> a. Closed cycle cooling system with cooling tower has been installed. COC of cooling tower water is maintained 5.0. b. The plant has been designed on Zero Discharge concept. The effluent is reused in dust suppression/ plantation after suitable treatment. Treated Effluent analysis report is enclosed as Annexure – 1. c. Sewage Treatment Plant (STP) provided. The treated effluent from STP is used for horticulture activities. Treated effluent analysis report is enclosed as Annexure – 2.
(xii)	Additional soil for leveling 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.	Complied
(xiii)	Utilization of 100% fly ash generated shall be made from fourth year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	100% ash utilization is achieved. It is used in back filling of de-coaled areas of Gare Pelma IV/1 coal mines by mixing with overburden.
(xiv)	Fly ash shall be collected in dry form and storage facility (silo) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry. 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 existing ash pond. No ash shall be disposed off in low lying area.	The fly ash generated after coal combustion in boiler is pneumatically conveyed in dry form to concrete silo. Same is utilized for back filling of de-coaled area of Gare Pelma Coal Mines. Mercury and other heavy metals in ash are monitored and records are maintained.
(xv)	The company shall adopt high concentration (not less than 30%) ash slurry disposal system. Reconciliation Statement verify 100% fly ash utilization for both the Phases shall be submitted every six months. The disposal of bottom ash in the abandon mines shall be permitted only after the company has carried out feasibility study and by ensuring that no leachate of ash in the ground water takes place. This shall be subject to third party audit	<ul style="list-style-type: none"> a. Feasibility study for installing HCSDS is under progress b. Reconciliation statement for fly ash utilization for the six month ending September 2016 is enclosed as Annexure – 3. c. The study has been conducted by CIMFR, Dhanbad for impact on ground water quality due to ash disposal in coal mines

(xvi)	Ash pond shall be lined with HDPE/LDPE 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.	Ash is utilized in back filling of de-coaled areas of Gare Pelma IV/1 mines after mixing with overburden in required ratio according to procedure/ guideline laid down by DGMS.
(xvii)	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.	Back filling the mined out area of the Gare Pelma IV/1 coal mines is being carried out as per DGMS guidelines and in accordance with interim order of Hon'ble High Court of Delhi. The information regarding backfilling was intimated to state Pollution Control Board.
(xviii)	The company shall develop green belt in 33% of the area by optimization of plant layout. The width of green belt shall not be less than 50 m in the downwind direction of the plant area.	Green Belt has been developed in all available spaces in phased manner. We have already planted more than 36240 trees including local species so far within premises and balance shall be carried out progressively.
(xix)	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.	<p>CSR activities are initiated in two villages namely Dongamahua and Baljor. These villages have been identified for adoption in coordination with District administration. We have started providing basic amenities such as drinking water supply and primary health care in these adopted villages.</p> <p>We organized 09 Health checkup & Treatment camp at Dongamauha & Baljor 275 patient treated</p> <p>To ensure safe motherhood, child care, vaccination Vatsalaya program initiated in above 02 villages. 02 women village health volunteer engaged under the program, 240 women and 180 children benefited under the program, 30 adolescent girls benefited under adolescent health care program</p> <p>To reduce malnutrition among children "Chiranjeevi" project is implemented in villages in co-ordination with Health & ICDS department 17 malnourished children covered under the program</p> <p>06 women self-help group formed in villages with a membership of 63 women. To enhance the socio economics status of families, 04 income generation activities implemented with 43 members. These 43 women are engaged in Popuatri, Goatry, Mushroom Production, Namkeen Mixture making etc.</p>

(xx)	The project proponent shall also adequately contribute in the development of the neighboring villages. Special package with implementation schedule for free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	Free safe drinking water (24 hours supply) is provided through 8 bore wells. Maintenance of all these bore wells (as and when required) in the area is also taken care of. To ensure adequate water supply in summer season water tankers (13 trips to Dongamahua, 4 trips to Baljor) are provided on a daily basis in these two villages as well as surrounding areas.
(xxi)	A good action plan for R & R (as 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.	Complied
(xxii)	At least 5% of the total cost of the project should be earmarked towards the corporate social responsibility based on the need assessment of the nearby villages and item – wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhopal implementation of such program should be ensured accordingly in a time bound manner.	Necessary funds have been earmarked for development of nearby villages as part of Corporate Social Initiatives and it is being implemented in a time bound manner. Company has taken initiatives in the following areas: a. Health & sanitation - Regular visit of Mobile medical van (MMV) for providing medical assistance to the villager. Ambulance service is also provided in case of any emergency. b. Drinking water facilities - Free safe drinking water 24 hours supply is provided through 8 bore wells and water tanker in the area c. Education - Vehicle facility (44 seater bus) is provided for transportation of School going to 4 schools. Around 35-40 children are availing this facility.
(xxiii)	While identifying CSR programme the company shall conduct need based assessment for the nearby villages to study economics measures with action plan which can help in upliftment of poor section of 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.	Need base assessment carried out to ensure that local needs and requirement are taken care of. Systematic study of need based assessment has been done. Socio economic Impact assessment study has been done by NABARD consultancy.

	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.	
(xxiv)	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. Activities starting from planning, implementation, monitoring and evaluation to documentation etc. are being carried out by experienced development professionals. CSR activities are continuously monitored to ensure sustainability of programs. Reports are being regularly sent to the district administration and concerned officials, institutions for necessary compliance	Activities starting from planning, implementation, monitoring and evaluation to documentation etc. are being carried out by experienced development professionals. CSR activities are continuously monitored to ensure sustainability of programs. Reports are being regularly sent to the district administration and concerned officials, institutions for necessary compliance.
B. General Conditions:		
(i)	Rainwater harvesting should be adopted. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology with a period of three months from the date of clearance and details shall be furnished.	Scheme for rainwater harvesting has been submitted to the Central Groundwater Authority and same is being implemented in phases
(ii)	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.	Complied
(iii)	Storage facilities for auxiliary liquid fuel such as LDO and / HFO/LSHS shall be made in the plant area in consultation with Department of Explosive, 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.	a. Necessary permission from Petroleum & Explosives Safety Organization (PESO), Ministry of Commerce & Industry, Govt. of India granted vide Licence No: - P/HQ/CG/15/633 (P21847) dated 18.09.2013. b. Disaster Management Plan has been prepared to meet any eventuality in case of an accident taking place due to storage of oil.
(iv)	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	Ground water level and quality monitoring is being carried periodically through existing wells. Ground Water quality is comparable with base line data and values are within norms.

	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.	
(v)	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.	Surface water quality monitoring is carried at quarterly interval and records maintained and values are well within prescribed norms. Ground Water quality is also being monitored periodically. Ground Water quality report is enclosed as Annexure – 4 .
(vi)	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Complied
(vii)	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 db (A). For people working in the high noise area, requisite personal protective equipment like earplugs/ ear muffs 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.	<p>a. Following actions have been taken to minimize noise pollution-</p> <ol style="list-style-type: none"> 1. Provided acoustic insulation and enclosures. Noise in ambient air is less than 75 db (A). 2. Kept high noise areas unmanned as far as possible. 3. Use of ear plug/ muff made mandatory by people working in noisy areas. 4. Ensured rotation of duties. <p>b. Workers engaged in high noise area are regularly subjected to audiometric test and records maintained.</p>
(viii)	Regular monitoring of ground level concentration of SO ₂ , NO _x , PM _{2.5} and 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.	Environmental monitoring for ground level concentration of SO ₂ , NO _x , PM ₁₀ and PM _{2.5} is carried out at predefined sampling points including predominant downwind direction at regular interval and record maintained. AAQ monitoring report is attached: Annexure – 5
(ix)	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.




(x)	<p>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.</p>	<p>The EC has been advertised in news papers namely Kelo Pravah – 23.11.2010 Nav Bharat – 23.11.2010</p>
(xi)	<p>A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/ 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.</p>	<p>Complied</p>
(xii)	<p>An Environmental Cell shall be created at the project site itself and shall be headed by an officer of appropriate seniority and qualification. It shall be ensured that the head of the Cell shall directly report to the head of the organization.</p>	<p>We have well established Environment Management Department and is suitably staffed headed by Sr. executive. He reports to directly to head of the organization. The lab is equipped with all necessary infrastructures/equipments.</p>
(xiii)	<p>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} & PM₁₀), SO₂, 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.</p>	<p>Complied</p>
(xiv)	<p>The environment statement for each financial year ending 31st 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.</p>	<p>Complied</p>


(xv)	<p>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.</p>	<p>The Six monthly compliance report is being submitted regularly. The status of compliance of the environmental clearance conditions is being uploaded on website at www.jindalsteelpower.com</p>
(xvi)	<p>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 upload the compliance status in their website and update 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.</p>	<p>Complied</p>
(xvii)	<p>Separate funds shall be allocated for implementation of environmental protection measures along with item – wise breakup. 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.</p>	<p>Necessary funds have been earmarked for environment protection.</p>
(xviii)	<p>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.</p>	<ol style="list-style-type: none"> 1. Financial closure – 10th Nov. 2009 2. EC from MOEF – 9th Nov. 2010 3. Consent to establish – 22nd Jan. 2011 4. Start of land development work – 15th Feb. 2011 5. Consent to operate (Unit # I & II) valid upto – 31.10.2016
(xix)	<p>Full co – operation 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.</p>	<p>Complete cooperation shall be provided for monitoring the compliance of environmental compliance.</p>

	<p align="center">Jindal Steel & Power Limited Dongamahua Captive Power Plant</p> <p align="center">Environment Laboratory Effluent Quality Report</p>	<p>Format No.: DCPP/EMD/LAB/WFR/APRIL - SEPTEMBER/01</p>
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Sampling Location : ETP - Out let

Sl. No	Parameter	Unit	April 2016	May 2016	June 2016	July 2016	Aug 2016	Sept 2016	General Standards for discharge of Environmental Pollutants: Effluents
1	pH	-	7.51	7.16	7.38	7.46	7.40	7.29	8.5 - 9.0
2	Biological Oxygen Demand (BOD) at 27°C	mg/l	4.0	6.0	4.0	3.0	2.0	3.0	30
3	Chemical Oxygen Demand (COD)	mg/l	24.0	26.0	18.0	16.0	10.0	20.0	250
4	Oil & Grease	mg/l	0.5	0.7	1.6	1.0	1.0	1.1	10
5	Total Suspended Solids (TSS)	mg/l	34.0	43.0	28.0	41.0	27.0	31.0	100

 Signature (Analyst)	 Bhupendra Sharma (Asst. Manager - EMD)	 B.K. Srivastav (Dy. General Manager)
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	<p align="center">Jindal Steel & Power Limited Dongamahua Captive Power Plant</p> <p align="center">Environment Laboratory Effluent Quality Report</p>	<p>Format No.: DCPP/EMD/LAB/WFR/APRIL - SEPTEMBER/01</p>
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Sampling Location : STP - Out let

Sl. No.	Parameter	Unit	April 2016	May 2016	June 2016	July 2016	Aug. 2016	Sept. 2016	General Standards for discharge of Environmental Pollutants: Effluents
1	pH	-	7.82	7.76	7.64	7.54	7.48	7.44	5.5 - 9.0
2	Biological Oxygen Demand (BOD) at 27°C	mg/l	18.0	16.0	12.0	16.0	12.0	8.0	30
3	Chemical Oxygen Demand (COD)	mg/l	32.0	42.0	48.0	44.0	38.0	36.0	250
4	Oil & Grease	mg/l	0.8	1.2	2.2	1.2	1.1	1.4	10
5	Total Suspended Solids (TSS)	mg/l	42.0	48.0	52.0	49.0	28.0	39.0	100

 Signature (Analyst)	 B Sharma (Asst. Manager - EMD)	 B.K. Srivastav (Dy. General Manager)
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etc

JINDAL
STEEL & POWER

Date: 07.10.2016

JSP/DCRP/EMO/OC/2015 - Fly Ash return

The Member Secretary

Chhattisgarh Environment Conservation Board

Paryavas Bhavan, North Block, Sec-19,

Naya Raipur, Chhattisgarh - 490099, (C.G.)

Subject: - Six monthly returns on utilization of fly ash generated from Dongamahua Captive Power Plant (DCPP) for the period of April 2016 to September 2016

Dear Sir,

Please refer subject above. We submit below details of generation and Utilization of fly ash for the period of April 2016 to September 2016.

Unit	Fly Ash & Bottom Ash Generation (MT)	Total Utilization (T)							Total Utilization (MT)	% Utilization	Norms
		Supply to Cement Plant	Brick Making Plant	Land filling	Ash Dyke Raising/ Construction	Agriculture	Mine back filling	Road making / Other			
Phase I (Unit-I & II)	342219	-	-	-	-	-	-	342219	342219	100%	100%
Phase II (Unit-I & II)	278174	-	-	-	-	-	-	278174	278174	100%	100%
Total Ash	620393	-	-	-	-	-	-	620393	620393	100%	100%

This is for your information and record please.

Truly yours,

For Jindal Steel & Power Limited

(Dongamahua Captive Power Plant)

[Sandip Goswami]

President and Plant Head

Cc: The Regional Officer,
Chhattisgarh Environment Conservation Board,
T.V. Tower Road, Raigarh (C.G.)

Jindal Steel & Power Limited

Work Office (Dongamahua Captive Power Plant, Dhusurbhata (PO), Raigarh 499107 (CG)

T +91 7787-200401 - 04 (24 lines) | +91 7787 200405 | www.jindalsteelpower.com

Registered Office O.P. Jindal Marg, Near, 124 CCB, Raigarh

Corporate Identity Number: U21112HR1079PLC009874

	Jindal Steel & Power Limited Dongamahua Captive Power Plant	Format No.: DCP/EMD/LAB/WFR/01
	Environment Laboratory Ground Water Quality Report	Date of Sampling: 06/09/2016

Sl. No.	Parameter	Unit	Ground Water Sample				IS:10500 - 2012	
			Libra	Dhaurabhata	Janjgir	Dongamahua	Desirable Limit	Permissible Limit in the absence of alternate source
1	Colour	Hazen	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	BDL (DL 1.0NTU)	BDL (DL 1.0NTU)	BDL (DL 1.0NTU)	BDL (DL 1.0NTU)	1	15
5	pH	-	7.10	6.8	7.15	6.9	6.5 - 8.5	No relaxation
6	Total Hardness (as CaCO ₃)	mg/L	151.32	197.88	46.56	93.12	200	600
7	Iron (as Fe)	mg/L	0.12	0.16	0.12	0.11	0.3	200
8	Chloride (as Cl)	mg/L	33.03	87.42	13.6	5.83	250	1000
9	Residual Free Chlorine	mg/L	BDL (DL 0.2)	BDL (DL 0.2)	BDL (DL 0.2)	BDL (DL 0.2)	0.2	1.0
10	Fluoride (as F)	mg/L	0.05	0.04	BDL (DL 0.02)	BDL (DL 0.02)	1.0	1.5
11	Total Dissolved Solids	mg/L	254	348.2	120	96	500	2000
12	Calcium (as Ca)	mg/L	26.44	45.1	9.33	14	75	200
13	Magnesium (as Mg)	mg/L	20.74	20.74	5.66	14.14	30	100
14	Copper (as Cu)	mg/L	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	0.05	1.5
15	Manganese (as Mn)	mg/L	BDL (DL 0.10)	BDL (DL 0.02)	BDL (DL 0.10)	BDL (DL 0.10)	0.1	0.3
16	Sulphate (as SO ₄)	mg/L	7.52	6.17	3.22	0.27	200	400


Analyst


Asst. Manager


Dy. General Manager

	Jindal Steel & Power Limited Dongamahua Captive Power Plant		Format No.: DCP/EMD/LAB/WFR/01 Date of Sampling: 06/09/2016				
	Environment Laboratory Ground Water Quality Report						

17	Nitrate (as NO ₃)	mg/L	1.59	3.98	3.65	0.27	45	No relaxation
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	0.001	0.002
19	Mercury (as Hg)	mg/L	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	0.001	No relaxation
20	Cadmium (as Cd)	mg/L	BDL (DL 0.0005)	BDL (DL 0.0005)	BDL (DL 0.001)	BDL (DL 0.0005)	0.003	No relaxation
21	Arsenic (as As)	mg/L	BDL (DL 0.0005)	BDL (DL 0.0005)	BDL (DL 0.0005)	BDL (DL 0.0005)	0.01	0.05
22	Selenium (as Se)	mg/L	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	BDL (DL 0.001)	0.01	No relaxation
23	Cyanide (as CN)	mg/L	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	0.05	No relaxation
24	Lead (as Pb)	mg/L	BDL (DL 0.008)	BDL (DL 0.008)	BDL (DL 0.008)	BDL (DL 0.008)	0.01	No relaxation
25	Zinc (as Zn)	mg/L	0.13	0.34	0.14	0.16	5	15
26	Aluminium (as Al)	mg/L	BDL (DL 0.03)	BDL (DL 0.03)	BDL (DL 0.03)	BDL (DL 0.03)	0.03	0.2
27	Hexa Chromium (as Cr)	mg/L	BDL (DL 0.03)	BDL (DL 0.03)	BDL (DL 0.03)	BDL (DL 0.03)	0.05	No relaxation
28	Alkalinity (as CaCO ₃)	mg/L	122.14	114.26	82.74	78.80	200	600
29	Boron (as B)	mg/L	BDL (DL 0.20)	BDL (DL 0.2)	BDL (DL 0.2)	BDL (DL 0.2)	0.50	1.0
30	Anionic detergents (as MBAS)	mg/L	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	0.2	1.0
31	Total Coliforms	CFU/100 ml	Absent	Absent	Absent	Absent	Absent	Absent
32	E Coliforms	CFU/100 ml	Absent	Absent	Absent	Absent	Absent	Absent



Analyst



Asst. Manager




Dy. General Manager





Jindal Steel & Power Limited
Dongamahua Captive Power Plant
Environment Laboratory
Ambient Air Quality Report

Format No.:
DCPP/EMD/LAB/AAQFR/APR-SEPT/01

Location	Parameter	April - 16	May - 16	June - 16	July - 16	August - 16	September - 16	CPCB Norms (µg/m ³)
Location - 1 (Dongamahua)	PM _{2.5} (µg/m ³)	30 - 53	32 - 51	35 - 47	18 - 28	19 - 28	22 - 31	60
	PM ₁₀ (µg/m ³)	78 - 92	71 - 91	69 - 83	41 - 52	40 - 66	41 - 73	100
	NO _x (µg/m ³)	18 - 25	18 - 25	17 - 26	13 - 19	14 - 19	13 - 22	80
	SO ₂ (µg/m ³)	11 - 19	11 - 18	11 - 18	08 - 14	08 - 14	10 - 15	80
Location - 2 (Near old Hostel)	PM _{2.5} (µg/m ³)	36 - 56	35 - 45	35 - 45	23 - 32	24 - 31	24 - 36	60
	PM ₁₀ (µg/m ³)	73 - 94	69 - 81	69 - 81	54 - 59	52 - 65	53 - 78	100
	NO _x (µg/m ³)	17 - 27	20 - 29	19 - 29	16 - 23	16 - 21	16 - 22	80
	SO ₂ (µg/m ³)	12 - 22	14 - 21	14 - 21	10 - 19	11 - 15	10 - 16	80
Location - 3 (Near Janjgir)	PM _{2.5} (µg/m ³)	31 - 38	34 - 63	29 - 39	21 - 31	18 - 30	19 - 33	60
	PM ₁₀ (µg/m ³)	63 - 72	67 - 74	62 - 76	44 - 65	42 - 61	44 - 69	100
	NO _x (µg/m ³)	19 - 26	16 - 29	09 - 11	09 - 16	13 - 17	14 - 20	80
	SO ₂ (µg/m ³)	13 - 19	17 - 22	07 - 16	07 - 11	09 - 12	09 - 14	80
Location - 4 (Near Dhaurabhata)	PM _{2.5} (µg/m ³)	37 - 55	35 - 56	33 - 49	24 - 34	17 - 28	25 - 38	60
	PM ₁₀ (µg/m ³)	73 - 94	73 - 95	72 - 85	51 - 69	41 - 59	52 - 79	100
	NO _x (µg/m ³)	12 - 22	16 - 28	14 - 29	16 - 21	12 - 18	15 - 26	80
	SO ₂ (µg/m ³)	09 - 19	12 - 21	11 - 26	10 - 17	08 - 12	11 - 17	80
Location - 5 (Near STP)	PM _{2.5} (µg/m ³)	31 - 42	37 - 44	36 - 49	14 - 25	17 - 23	22 - 33	60
	PM ₁₀ (µg/m ³)	69 - 81	69 - 79	72 - 85	38 - 59	41 - 52	50 - 69	100
	NO _x (µg/m ³)	21 - 31	21 - 32	15 - 26	13 - 20	13 - 19	14 - 23	80
	SO ₂ (µg/m ³)	16 - 24	15 - 22	11 - 21	08 - 14	09 - 13	09 - 16	80


 Signature
 (Analyst)


 Asst. Manager


 Dy. General Manager