

Ref. No.: -HIL/EC/GP-IV-5/2017/15-49

Date: 25.05.2017

Shri Kanwarjeet Singh (IFS)
Additional Principal Chief Conservator of Forest,
Ministry of Environment Forests & Climate Change (MoEF)
Regional Office, (West Central Zone)
Ground Floor, East Wing
New Secretary Building,
Civil Lines, Nagpur -440001

Sub.: Six Monthly Environment Clearance Compliance Status Report for Gare Palma - IV/5 Coal Mine along with Environmental Monitoring reports of Ambient Air, Water, and Noise etc.

Ref. Environment Clearance No. J-11015/ 8/1998-IA.II (M) Dated: - 16th April 2015.

Sir,

With reference to subject matter on referred letter, we are submitting the six monthly Environmental Clearance Compliance status report along with environmental monitoring reports for Ambient Air, Water, Noise, during the period of **October 2016 to March 2017**.

This is for your kind information please.

Thanking you,

Yours faithfully,
For Hindalco Industries Limited,

(Dipesh Bhatia)
Asst. Vice President
Gare Palma IV/5,
Village: Milupara, Tehsil: Tamnar, District: Raigarh, Chhattisgarh – 496107.

Encl. : Six Monthly Environmental Clearance Compliance Report as Annexure-A.

CC To:

1. The Member Secretary, Chhattisgarh Environment Conservation Board, Paryavas Bhavan, Naya Raipur Chhattisgarh.
2. Zonal Officer, Central Pollution Control Board, Sahkar Bhawan, 3rd Floor, North T.T. Nagar, Bhopal – 462 003 (M. P.)
3. Regional Officer, Chhattisgarh Environment Conservation Board (CECB), T.V. Tower Road, Raigarh (C.G.)

Hindalco Industries Limited

Gare Palma Mines (IV/4 & IV/5), Vill & Po: Milupara , Tehsil: Tamnar Dist: Raigarh- 496107 , Chhattisgarh , T: +91 7762 228212
Website : www.hindalco.com E mail : hindalco@adityabirla.com
Registered Office : Century Bhavan, 3rd Floor, Dr. Annie, Besant Road, Worli, Mumbai 400 030, India, T +91 22 6662 6666
Corporate Identity No. L27020MH1958PLC011238.



Compliance Report on conditions of Environment Clearance for Gare-Palma IV/5 coal mining project Transfer by Ministry of Environment & Forests vide letter no. J-11015/ 8/1998-IA.II (M) Dated: - 16th April 2015 for Under Ground Mining 1.0 Million Ton/Annum Production Capacity

SI No	Conditions	Status
1	Any change in scope of work will attract the provisions of Environment Protection Act (EPA), 1986 and Environment Impact Assessment Notification, 2006 in conjunction with the subsequent amendments/circulars.	Noted please.
2	All conditions stipulated in the EC letter No.J-11015/8/1998-IA.II (M) dated 31 st August, 2000 shall remain unchanged.	Noted please.
3	The successful bidder shall be liable, if any, for any act of violation of the EPA 1986/EIA Notification 2006/subsequent amendments and circulars which it has inherited during the transfer.	Noted please.
4	Successful bidder shall be liable for compliance of all court directions, if any.	Noted please.

Compliance Report on conditions of Environment Clearance for Gare-Palma IV/5 coal mining project given by Ministry of Environment & Forests vide letter no. J-11015/ 8/1998-IA.II (M) Dated: - 31st August 2000 for Under Ground Mining 1.0 Million Ton/Annum Production Capacity

SI no	Specific Conditions	Status
i	Regular Monitoring of subsidence movement on the surface over working areas and impact on water bodies/ vegetation/ structures/ surroundings should be continued till movement ceases completely. In case of observation of any high rates of subsidence movement, appropriate measures should be taken to avoid loss of life and materials. Cracks should be effectively plugged with ballast and clayey soil/ suitable material.	The method of mining at Gare Palma IV/5 coal mine is Board & Pillar. Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural pattern, water bodies, vegetation, structure, roads and surroundings is being done internal expert. During the observation no subsidence movement has been observed. In future, if any, appropriate effective corrective measures will be taken to avoid loss of life and material. Cracks will be effectively plugged with ballast and clayey soil/suitable material if observed.
ii	Adequate underground barrier should be left in consultation with the Director General of Mines & Safety (DGMS). Depillaring should also be carried out after taking approval from DGMS.	Adequate underground barrier as required are being maintained between the working face and the river in consultation with DGMS and also at other places whenever required. Depillaring will be carried out after taking prior approval of the DGMS.
iii	Garland drains should be constructed around the waste rock and ore stockpiles to prevent surface run-off.	Garland drain have been constructed around the coal stock yard to prevent the surface run-off.
iv	A Green Belt of adequate width should be raised by planting the local species along the mine	Planation in mines area is being done. At present around 32000 nos. of trees have been planted

	boundary, Waste rock dumps, ore stockpile, ventilation fan road and selected open areas in consultation with local DFO/ Agriculture Department. Density of tree should be at least 2500 plants per ha.	including the Mine boundary and other places. Trees species planted are Gulmohar, Ashoka Aam, Imli, Shisam, Eucalyptus, Neem, Jamun, Accassia spp. etc. in consultation with DFO. Plantation has been carried out @2500 per hectare and will also be ensure in future. Plantation details enclosed as Annexure -I.
v	Compensation to the 14 land losers from whom private land will be acquired should be paid as per the state government norms.	Compensation to the 14 land losers has been paid by the company.
vi	The project authority should conduct a subsidence estimation study and submit the report to the Ministry within six months.	Subsidence estimation study report has been submitted to the Ministry by Prior allottee. Recently a fresh study has been carried out by CIMFR for the subsidence analysis for depillaring. Copy enclosed as Annexure-II.
vii	The project proponent will construct "Check dams "at the sites proposed by the State Ground water Department in their report. While undertaking the proposed mining, the construction of the check dams should be carried out in with Ground water survey department, Government of MP (presently Chhattisgarh) and should have necessary financial provision and technical expertise. This should be communicated to the MoEF and CGWB.	As per requirement the check dams at the site will be constructed in consultation with state forest department and Ground water survey department, Government of Chhattisgarh and will be communicated to MOEF& CC and CGWB.
viii	Regular monitoring of the Ground water level and quality should be carried out by establishing a network of existing wells and constructing new Piezometer during the mining operations. The interval of monitoring should be four times a year- Pre monsoon (April to May), Monsoon (August), Post Monsoon (November) and winter (January). The data thus collected may be sent regularly to MoEF and CGWB for information.	Regular monitoring of groundwater level and quality is being carried out by establishing a network of existing wells. Report on ground water level monitoring and quality is enclosed as Annexure-III.
ix	Digital processing of the entire lease using remote sensing technique should be regularly once in three years for monitoring land use pattern and report submitted to MoEF and its regional officer.	Study report on digital processing of entire mine lease area has been carried out. The copy enclosed as Annexure-IV.
x	A detailed mine decommissioning plan should be submitted to the MoEF, five years in advance for approval.	Detailed mine decommissioning plan will be submitted to the Ministry of Environment and forests, five years in advance for approval.
B	General Conditions	
i	No change in mining technology and scope of working should be made without prior approval of the MoEF.	Agreed and will be complied accordingly.
ii	No change in the calendar plan including excavation quantum of mineral coal and waste should be made.	Agreed and will be complied accordingly.
iii	Four ambient air quality stations should be established in the core zone as well as the buffer	Four ambient air quality monitoring stations have been established in consultation with the State

	zone for RPM, SPM, SO ₂ , NO _x & CO Monitoring. Location of stations should be decided based on the meteorology data, topographical features and environmental and ecologically sensitive targets in consultation with the State Pollution Control Board.	Pollution Control Board and regular monitoring is being carried out. Monitoring Report is enclosed as Annexure -V .
iv	Data of ambient air quality (RPM, SPM, SO ₂ , NO _x & CO) should be regularly submitted to the Ministry including its Regional Officer at Bhopal (Currently Raipur) and the State Pollution Control Board & Central Pollution Control Board (Currently Raipur).	Ambient air quality monitoring report is enclosed as Annexure -V .
v	Drill should be wet operated.	Wet drilling is under practice.
vi	Fugitive dust emission from all the sources should be controlled, regularly monitored and the data recorded properly. Water spraying arrangement on haul roads, Wagons, loading dump trucks (loading and unloading) should be provided and properly maintained.	Fixed type water sprinkler has been provided at all along the roads, and loading points etc. to control the fugitive dust emission.
vii	Adequate measures should be taken for control of noise level below 80db in the work environment. Workers engaged in blasting and drilling operation, operations of HEMM etc. should be provided with ear plugs/ muffs	Ear muffs/plugs has been provided to the all workers engaged in blasting and drilling operations, operations of HEMM etc. The Noise monitoring report is enclosed as Annexure-VI .
viii	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform on the standards prescribed under GSR 422 dated 19.05.1993 and 31.12.1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents in to the pond.	Two numbers of Lamella clarifier (ETP-2 x200 m ³ per hour) plant has been installed for treatment of mine water. Report on water quality is enclosed as Annexure-VII
ix	Acid mine water if any has to be treated and disposed off after conforming to the standards prescribed by the competent authority.	There is no acid mine water. Lamella clarifier (ETP) plant has been installed for treatment of mine water. Report on water quality is enclosed as Annexure-VII
x	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board	Environmental laboratory has been established with adequate number and type of pollution monitoring and analysis equipment in consultation with the state pollution control Board. However we have engaged NABL laboratory for environmental quality monitoring of the mines area.
xi	Personnel working in dust area should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance of the workers should be undertaken periodically to observe any contractions due to exposure to coal dust and take corrective measures if needed.	Personnel working in dusty areas are wearing protective respiratory devices and they have also been provided with adequate training and information on safety and health aspect. Occupational health surveillance programme of the workers is being undertaken periodically to observe any contraction due to exposure to coal dust and corrective measures will be taken accordingly.

xii	A separate environmental management cell with suitable qualified personnel should be set up under the control of a senior executive who will report directly to the Head of the Organization.	Environmental Management cell has been established. Copy enclosed as Annexure-VIII .
xiii	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to Ministry.	The funds earmarked for environmental protection measures has been kept in separate account and not been diverted for other purposes. Annexure-IX
xiv	The Regional Officer of the ministry located at Bhopal (currently Raipur) shall monitor compliance of the stipulated conditions. The project authorities should extent full co-operation to the officer (s) of the Regional Officer by furnishing requisite data information / monitoring reports	Agreed and cooperation will be extended on time to time.
xv	A copy of the clearance letter will be marked to concerned Panchayat/ local NGO if any from whom suggestion / representation has been received while processing the proposal	Complied by Prior Allottee.
xvi	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/ Tehsildar's office for 30 days	Complied by Prior Allottee.
xvii	The project authorities should advertise at least two local newspapers widely circulated around the project one of which shall be in vernacular language of the locality concerned informing that the project has been accorded environmental clearance and the copy of the clearance letter is available with the State Pollution Control Board and may also be seen at web site of the MoEF at http://envfor.nic.in	Complied by Prior Allottee.



Annexure-I

Year wise Plantation Detail for Gare-Palma IV/5 Coal Mines

(Milupara Underground coal mine)

Sl. No.	Year	Plantation area in Acre	Numbers of saplings planted. (Approx.)	Nos. of saplings
1	Up to 2015	Coal mine lease area.	30000	Neem, Mahua, , Jamun, Mango, Guava, Imli, Drumstick, Teak, Shivan / Ghamar, Sisham, Sirus, Bamboo, Peltafarm, Nilgiri etc.
2	2016	Coal mine lease area	2000	
Total			32000	



. Annexure-II

CIMFR study report for the subsidence analysis

(Millipara Underground coal mine)

Sl. No.	Year	Plantation area in Acres	Numbers of saplings planted (Approx.)	No. of a
1	Up to 2016	Coal mine lease area	30000	Neem, Mahua, Mango, Gumstick, Teak, Ghansar, Sizal, Bamboon, Peepal, etc.
2	2016	Coal mine lease area	2000	
Total			32000	

ADVICE ON THE USE OF BOTTOM ASH FOR DEPILLARING WITH STOWING AT GARE PALMA IV/5 MINE OF HINDALCO INDUSTRIES LIMITED



December, 2016

CSIR - CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH, DHANBAD

(Council of Scientific and Industrial research)

**ADVICE ON THE USE OF BOTTOM ASH FOR
DEPILLARING WITH STOWING AT GARE PALMA
IV/5 MINE OF HINDALCO INDUSTRIES LIMITED**

Project No. CNP/4467/2016-17

by

Dr. C.N. Ghosh,

Mr. Prashant,

Mr. S.K. Behera

Mr. P.K. Mandal,

This report is meant for internal use of your organization only and it should not be published in full or part by your organization or staff. It should not be communicated/ circulated to outside parties except to concerned Government Departments. Director, CIMFR reserves the right to publish the results of the investigation in a general way for the benefit of the industry



Ground water level monitoring in and around the Coal Mine area

Sr.No.	Location	Types of structure	Water level (MBGL) January 17	Water level (MBGL) March 17
1	Bankheta (Near HIL Office)	Borewell	6.14	6.87
2	Banjikhola (Near Office)	Borewell	11.25	11.70
3	Milupara (PHC-HIL)	Dugwell	5.10	5.74
4	Urba (Near Intermediate school)	Dugwell	5.34	6.10
5	Sakta (Near Primary School)	Dugwell	2.40	2.56
6	Sidarpara (Primary School compound)	Dugwell	6.26	6.45



Sub Divisional Water Testing Lab, Gharghoda

(National Rural Drinking Water Programme)

District Raigarh Block Tomnar Village As Under
(Code No.)

Particulars of sample

(i) Date of Collection 31/03/2017
(ii) Date of Received — u —
(iii) Date of Analysis — u —
Reference (if any) 393/30.3.2017

Details of Location & Source

(i) Kelo River (up stream)
(ii) — u — (Down stream)
(iii) Bender Nala
(iv) Dumer Nala
(v) Banjikhol (Bor well)

Sl No.	Characteristics	Units	Acceptable	Cause for rejection	RESULTS				
					I	II	III	IV	V
PHYSICAL									
1.	Temperature	°C	—	—	30°	30°	30°	30°	30°
2.	Turbidity	N.T.U	2.5	10	1.90	2.08	1.75	1.36	1.05
3.	Colour	Pt.Cobalt Scale	5.0	25					
4.	Taste & Odour	-	Unobjectionable	Unobjectionable	Unobjectionable				
CHEMICAL									
5.	PH	PH Scale	7.0 To 8.5	6.5 To 9.2	7.65	7.30	7.85	7.21	7.05
6.	Conductivity	Micro mhos/cm	-	-		Not tested			
7.	Total Alkalinity	mg/l	-	-	240	210	230	200	140
8.	Chlorides	mg/l	200	1000	NIL	NIL	NIL	NIL	NIL
9.	Nitrates	mg/l	45	45	NIL	NIL	NIL	NIL	NIL
10.	Total Hardness as Ca CO ₃	mg/l	200	600	112	84	198	136	104
11.	Calcium (as Ca)	mg/l	75	200	84	60	178	134	58
12.	Magnesium (as mg)	mg/l	30	150	28	24	20	62	46
13.	Total Dissolved Solids	mg/l	500	1500		Not tested			
14.	Iron	mg/l	0.1	1.0	NIL	NIL	NIL	NIL	1.0
15.	Fluorides	mg/l	1.0	1.5	NIL	NIL	NIL	NIL	NIL
16.	Residual Chlorine by Jar Test	ppm	-	-		Not tested			
17.	Coagulant Dose	mg/l	-	-		Not tested			
Bacteriological									
18.	Coliform Organism at 37°C	M.P.N. 100ml	24Hr. 48Hr.		NIL	NIL	NIL	NIL	NIL
19.	Faecal Coliforms	Per 100 ml			NIL	NIL	NIL	NIL	NIL
20.	Special test :-								
	(i)								
	(ii)								
	REMARKS	Sample no. (i) to (iv) are acceptable & sample no. (v) is not acceptable for drinking purpose							

TESTED BY

Chemist

Water Testing Lab, Gharghoda
Distt- Raigarh (C.G)

Assistant Engineer
P.H.E. Sub. Dn. Gharghoda
Distt- Raigarh (C.G)

Sub Engineer/ Incharge
Water Testing Lab.
P.H.E. Sub.Dn. Gharghoda



Sub Divisional Water Testing Lab, Gharghoda

(National Rural Drinking Water Programme)

District Raigarh Block Tamnar Village As Under

(Code No.)

Particulars of sample

(i) Date of Collection 21.4.2017
 (ii) Date of Received do
 (iii) Date of Analysis do
 Reference (if any)

Details of Location & Source

(i) Milupara (Ground water)
 (ii) Kodkel (—)
 (iii) Sakta (—)
 (iv) Si Darpara (—)
 (v)

Sl No.	Characteristics	Units	Acceptable	Cause for rejection	RESULTS				
					I	II	III	IV	V
PHYSICAL									
1.	Temperature	°C	—	—	32'	32'	32'	32'	
2.	Turbidity	N.T.U	2.5	10	0.86	1.00	0.90	0.96	
3.	Colour	Pt.Cobalt Scale	5.0	25	all	all	all	all	
4.	Taste & Odour	-	Unobjectionable	Unobjectionable	Unobjectionable				
CHEMICAL									
5.	PH	PH Scale	7.0 To 8.5	6.5 To 9.2	7.30	7.35	7.40	7.41	
6.	Conductivity	Micro mhos/cm	-	-	not tested				
7.	Total Alkalinity	mg/l	-	-	do				
8.	Chlorides	mg/l	200	1000	300	400	310	400	
9.	Nitrates	mg/l	45	45	all	all	all	all	
10.	Total Hardness as Ca CO ₃	mg/l	200	600	60	60	80	62	
11.	Calcium (as Ca)	mg/l	75	200	34	32	42	34	
12.	Magnesium (as mg)	mg/l	30	150	26	28	38	28	
13.	Total Dissolved Solids	mg/l	500	1500	not tested				
14.	Iron	mg/l	0.1	1.0	all	all	all	all	
15.	Fluorides	mg/l	1.0	1.5	all	all	all	all	
16.	Residual Chlorine by Jar Test	ppm	-	-					
17.	Coagulant Dose	mg/l	-	-					
Bacteriological									
18.	Coliform Organism at 37°C	M.P.N. 100ml	24Hr. 48Hr.		all	all	all	all	
19.	Faecal Coliforms	Per 100 ml			all	all	all	all	
20.	Special test :-								
	(i)								
	(ii)								
	REMARKS	All water sample are acceptable for drinking purpose.							

TESTED BY

[Signature]
 Chemist

Water Testing Lab. Gharghoda
 Distt- Raigarh (C.G)

[Signature]
 Assistant Engineer
 P.H.E. Sub. Dn. Gharghoda
 Distt- Raigarh (C.G)

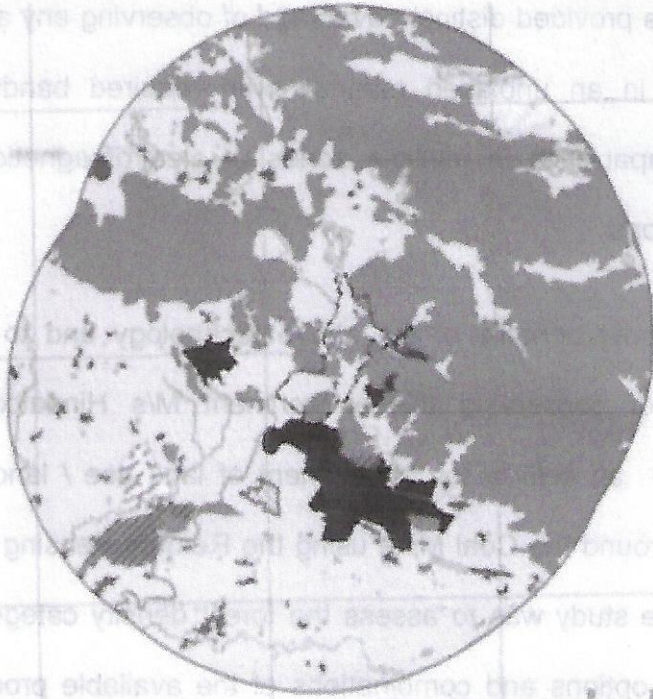
[Signature]
 Sub Engineer/ Incharge
 Water Testing Lab.
 P.H.E. Sub.Dn. Gharghoda

EXECUTIVE SUMMARY

**REPORT ON
SATELLITE IMAGERY DATA INTERPRETATION &
ASSESSMENT OF LAND USE/LAND COVER**

**FOR
GARE PELMA IV/5 COAL MINE**

Tehsil- Tamnar, District- Raigarh, Chattisgarh



**Project Proponent
HINDALCO INDUSTRIES LIMITED
Raipur**

**BY
SRUSHTI SEVA PRIVATE LIMITED
Nagpur

April 2016

Ambient Air Quality Monitoring report



Creative Enviro Services



Cert No.: T-2565

Accredited Organisation by National Accreditation Board for Testing and Calibration Laboratories (NABL), National Accreditation Board for training And Education (NABET) and ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007

TEST REPORT

AMBIENT AIR QUALITY REPORT

Name & Address of the Customer To, M/S Hindalco Industries Ltd., Gare Palma-IV/5, Milupara U/G Coal Mines, Block - Tamnar- Raigarh	Test Report No.: 689-1-2/CES/lab/16-17/HIL/111/15 Issue Date : 28.02.2017 Client Ref: MPO/SRV/1617/0153 Date: 22-SEP-2016
Method of test : IS: 5182	Sampling Details
Test required: As per work order	Sample Monitored : Ambient Air Quality Date of Receipt : 24.02.2017
Sample Collected By:- CES Representative	Period of testing : 24.02.2017 to 28.02.2017
Instrument to be used: Eco Tech FDS	Duration of sampling : 8 hrs
Page 1 of 1	Atmospheric condition : OK

AMBIENT AIR QUALITY RESULTS

S. No.	Parameters	NAAQ Standards	Pollutant Concentration	
			Office Area Milupara Mine	Hil Staff Quarter
1	Date of Sampling		20.02.2017	20.02.2017
2	Wind direction		WNW	WNW
3	Wind speed km/h		9.1	9.1
4	Relative Humidity %		37	37
5	Ambient Temp. (°C)		20	20
	Parameters		Pollutant Concentration	
1	Particulate matter (size less than 10µm) or PM ₁₀ (µg/m ³) - Part-23/2006	100	38.00	29.11
2	Particulate matter (size less than 2.5µm) or PM _{2.5} (µg/m ³)	60	29.70	20.26
3	Sulphur Di-Oxide (SO ₂) (µg/m ³) - Part-2	80	10.31	8.90
4	Oxide of Nitrogen (NO ₂) (µg/m ³) - Part-4	80	11.02	11.22
5	*Carbon monoxide (CO) (mg/m ³)	4	<1.00	<1.00

NAAQ: National Ambient Air Quality Standards CPCB Notification 18th Nov 2009

For Creative Enviro Services



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TEST REPORT

AMBIENT AIR QUALITY REPORT

Name & Address of the Customer To, M/S Hindalco Industries Ltd., Gare Palma-IV/5, Milupara U/G Coal Mines, Block - Tamnar- Raigarh	Test Report No.: 689-3-4/CES/lab/16-17/HIL/JMS Issue Date : 28.02.2017 Client Ref. : MPO/SRV/1617/0153 Date: 22-SEP-2016
Method of test : IS: 5182	Sampling Details
Test required: As per work order	Sample Monitored : Ambient Air Quality Date of Receipt : 24.02.2017
Sample Collected By:- CES Representative	Period of testing : 24.02.2017 to 28.02.2017
Instrument to be used: Eco Tech FDS	Duration of sampling : 8 hrs
Page 1 of 1	Atmospheric condition : OK

AMBIENT AIR QUALITY RESULTS

S. No.	Parameters	NAAQ Standards	Pollutant Concentration	
			ETP Area - Kondkel	HIL Colony - Kondkel
1	Date of Sampling		20.02.2017	20.02.2017
2	Wind direction		WNW	WNW
3	Wind speed km/h		9.1	9.1
4	Relative Humidity %		37	37
5	Ambient Temp. (°C)		20	20
	Parameters		Pollutant Concentration	
1	Particulate matter (size less than 10µm) or PM ₁₀ (µg/m ³) - Part-23-2006	100	39.36	48.13
2	Particulate matter (size less than 2.5µm) or PM _{2.5} (µg/m ³)	60	35.88	33.31
3	Sulphur Di-Oxide (SO ₂) (µg/m ³) - Part-2	80	10.77	6.99
4	Oxide of Nitrogen (NO ₂) (µg/m ³) - Part-4	80	12.23	10.84
5	*Carbon monoxide (CO) (mg/m ³)	4	<1.00	<1.00

NAAQ- National Ambient Air Quality Standards CPCB Notification 18th Nov. 2009

For Creative Enviro Services

Authorised Signatory



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Noise level Monitoring



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Cert No.: T-2565

TEST REPORT

Name & Address of the Customer To, M/S Hindalco Industries Ltd., Gare Palma-IV/5, Milupara U/G Coal Mines, Block - Tamnar- Raigarh	Test Report No: N - 250/CES/Lab/16-17/HIL/ 1145 Issue Date :- 28.02.2017 Client Ref: MPO/SRV/1617/0153 Date: 22-SEP-2016
Sample Particulars: Ambient Noise Level Monitoring	Date of monitoring : 20.02.2017
Location: Industrial Area	Date of Receipt : 24.02.2017
	Date of commencement of testing : 24.02.2017
Test required: As given below	Sample condition at receipt : Ok
Sample collected by: CES representative	Page no. : 1 of 2

TEST RESULTS

Sr. No	Location	Unit	Noise level (Day Time)		Noise level (Night Time)	
			Minimum	Maximum	Minimum	Maximum
1	Milupara Office Area	dB(A)	55.40	59.60	47.20	51.70
2	Milupara Bunker area	dB(A)	62.50	70.10	57.60	63.70
3	Milupara Area Near Incline	dB(A)	62.40	71.40	55.60	68.90
4	Milupara mine weight bridge	dB(A)	66.30	72.30	62.70	69.10
5	Kondkel Office Area	dB(A)	61.80	66.10	55.40	62.90
6	Kondkel Bunker Area	dB(A)	49.70	65.40	60.20	66.70
7	D.G. Set Area Kondkel	dB(A)	68.50	71.50	62.30	67.40
	CPCB Standards					
	Industrial Area	dB(A)	70.00	75.00	70.00	75.00

For Creative Enviro Services

Authorized Signatory



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ETP Water Analysis



Creative Enviro Services

Accredited Organisation by National Accreditation Board for Testing and Calibration Laboratories (NABL), National Accreditation Board for training And Education (NABET) and ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007



Cert No.: T-2565

TEST REPORT

Name & Address of the Customer To, M/S Hindalco Industries Ltd., Gare Palma-IV/5, Milupara U/G Coal Mines, Block - Tamnar- Raigarh Qty : 1No. x 2 litre Method of test : APHA 22 nd edition Packing : Plastic bottle Sample Condition at receipt: Ok Sample Particulars: Effluent Water Sample collected by: CES Representative	Test Report No.: 1127-1-3/CES/Lab/16-17/HIL/1145 Issue Date : 28.02.2017 Client Ref: MPO/SRV/1617/0153 Date: 22-SEP-2016 Date of Collection : 20.02.2017 Date of Receipt : 24.02.2017 Period of testing : 24.02.2017 to 28.02.2017 Method of sampling : BIS/3025 Sample tested as received : OK Page no. : 1 of 2
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S.No	Test Parameters	Unit	Method No.	Requirement as per IS-10500-2012		ETP Inlet (1127-1)	ETP Outlet-1 (1127-2)	ETP Outlet-II (1127-3)
				Desirable Limit	Permissible limit			
1	pH	-	4500 H-B	6.5-8.5	No relaxation	7.77	7.62	7.58
2	Conductivity	µmhos/cm	2510 B	-	-	428.50	420.33	422.56
3	Turbidity	NTU	2130 B	1	10	1.50	0.62	0.73
4	Total Solid	mg/lit	2540 B	-	-	360.00	200.00	210.00
5	Total Dissolved Solid	mg/lit	2540 C	500	2000	292.00	178.00	186.00
6	Total suspended solid	mg/lit	2540 D	100	-	68.00	22.00	24.00
7	Total Alkalinity	mg/lit	2320 B	200	600	96.00	94.00	90.00
8	Total Hardness as CaCO ₃	mg/lit	2340 C	200	600	72.00	68.00	66.00
9	Ca Hardness as CaCO ₃	mg/lit	3500 B	-	-	26.00	44.00	38.00
10	Mg Hardness as CaCO ₃	mg/lit	3500 B	-	-	46.00	24.00	28.00
11	*Calcium as Ca	mg/lit	3500 B	75	200	10.42	17.63	15.23
12	*Magnesium as Mg	mg/lit	3500 B	30	100	11.17	5.83	6.80
13	Sulphates as SO ₄	mg/lit	4500-SO ₄ E	200	400	59.99	30.13	28.90
14	Chlorides as Cl	mg/lit	4500-Cl B	250	1000	28.78	26.80	25.80
15	Iron as Fe	mg/lit	3500-Fe B	0.30	1	<0.05	<0.05	<0.05
16	Nitrate as NO ₃	mg/lit	4500-NO ₃ B	45	No relaxation	3.00	1.99	0.78
17	Nitrite as NO ₂ -N	mg/lit	4500-NO ₂ B	-	-	<0.10	<0.10	<0.10
18	Phosphate as P	mg/lit	4500-PD	-	-	0.24	<0.10	<0.10
19	Fluoride as F	mg/lit	4500-F D	1.0	1.5	<0.10	<0.10	<0.10
20	Copper as Cu	mg/lit	3500-Cu B	0.05	1.5	<0.10	<0.10	<0.10
21	Chromium as Cr ⁶⁺	mg/lit	3500-Cr ⁶⁺ B	0.05	No relaxation	<0.10	<0.10	<0.10
22	*Coliform	MPN/100ml	15-1510 ⁵	-	-	<2.00	<2.00	<2.00
23	Manganese as Mn	mg/lit	3500-Mn B	0.1	0.3	<0.10	<0.10	<0.10
24	Residual Chlorine	mg/lit	4500-Cl B	0.2	1.0	<1.00	<1.00	<1.00
25	* Phenolic Compound	mg/lit	5530-D	0.001	0.002	ND	ND	ND
26	*Anionic Detergent as MBAS	mg/lit	5540-C	0.2	1.0	ND	ND	ND

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TEST REPORT

Name & Address of the Customer To, M/S Hindalco Industries Ltd., Gare Palma-IV/5, Milupara U/G Coal Mines, Block - Tamnar- Raigarh	Test Report No: 1127-1-3/CES/Lab/16-17/HIL/ 114 5 Issue Date : 28.02.2017 Client Ref: M/PO/SRV/1617/0018 Date: 30-APR-2016
Qty : 1No. x 2 litre	Date of Collection : 20.02.2017
Method of test : APHA 22 nd edition	Date of Receipt : 24.02.2017
Packing : Plastic bottle	Period of testing : 24.02.2017 to 28.02.2017
Sample Condition at receipt: Ok	Method of sampling : BIS/3025
Sample Particulars: Effluent Water	Sample tested as received : OK
Sample collected by: CES Representative	Page no. : 2 of 2

Sr. No	Test Parameters	Unit	Method No.	Requirement as per IS-10500-2012		ETP Inlet (1127-1)	ETP Outlet-1 (1127-2)	ETP Outlet-II (1127-3)
				Desirable Limit	Permissible limit			
27	* Zinc as Zn	mg/lit	3111-Zn B	5	15	<0.05	<0.05	<0.05
28	* Total Chromium	mg/lit	3500-Cr B	0.05	No relaxation	<0.05	<0.05	<0.05
29	* Cadmium as Cd	mg/lit	3111-Cd B	0.003	No relaxation	<0.05	<0.05	<0.05
30	* Lead as Pb	mg/lit	3111-Pb B	0.01	No relaxation	<0.05	<0.05	<0.05
31	* Mercury as Hg	mg/lit	3112- Hg B	0.001	No relaxation	<0.05	<0.05	<0.05
32	* Nickel as Ni	mg/lit	3111-Ni B	0.02	No relaxation	<0.05	<0.05	<0.05
33	* Arsenic as As	mg/lit	3114-As B	0.01	0.05	<0.05	<0.05	<0.05
34	* Pesticides	mg/lit	USEPA	-	-	ND	ND	ND
35	Sodium Na	mg/lit	3500- Na B	-	-	25.63	20.89	23.66
36	Potassium K	mg/lit	3500- K B	-	-	20.38	17.44	21.59
37	* Boron as B	mg/lit	4500-B B	0.5	1.0	<0.10	<0.10	<0.10
38	# Mineral Oil	mg/lit	IS 3025 (Part 39)	0.5	No relaxation	ND	ND	ND
39	* Selenium as Se	mg/lit	3114-Se B	0.01	No relaxation	<0.05	<0.05	<0.05
40	* Polynuclear aromatic hydrocarbons as PAH	mg/lit	APHA 6440	0.0001	No relaxation	ND	ND	ND
41	Oil & grease	mg/lit	5520 B	-	-	3.00	<2.00	<2.00

Note: - (1) The Test Parameters are marked with an # are not analysis by us, these Parameters are covered under Subcontract.

(2) Remark: - ND - Non Detectable

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ADITYA BIRLA



Annexure -VIII

Environment Management Cell

ADITYA BIRLA



Date: 02.03.2016

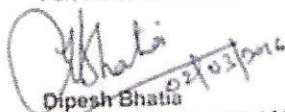
Environment Management Cell

An Environment Management Cell of Gare Palma IV/5 Coal Mine is hereby constituted consisting of the following persons which will take care of Environment related matters such as Pollution Monitoring, Pollution Control, Plantation, Waste management, Awareness & Training Programs etc in the mine area.

Sr. No.	Name of person	Designation in the mine	Designation in the EMD Cell
1.	Dipesh Bhatia	Asst Vice President	Chairman
2.	Dr.V.Mishra	DGM (HR & Admin)	Member
3.	A N Swamy	DGM (Mines)	Vice -Chairman
4.	S. K. Jain	DGM (E & M)	Member
5.	B. Gopal Krishna	AGM (MINES)	Member
6.	Ajay Agrawal	AGM (Commercial)	Member
7.	Dipankar Khan	DGM (Geology)	Member
8.	Sandeep Kumar Mishra	Manager (EMD)	Secretary
9.	B.P.Chandra	Jr.Engineer (Civil)	Member
10.	Girja Shankar Tamrakar	Jr.Engineer (EMD)	Member

The Environment Cell Meeting will be held on every 4th day of the month. All members are requested to be present in the meeting and to discuss on issues related to Environmental Management.

For, Hindalco Industries Limited

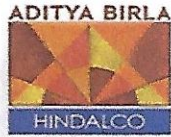

Dipesh Bhatia

Chairman (Environment Management Cell)
Gare Palma IV/5 Coal Mine

HINDALCO INDUSTRIES LIMITED
Gare Palma IV/4 & IV/5
VII & P.O. Milupara, Tehsil - Tamnar
Dist - Raigarh 496 107, Chhattisgarh

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Corporate
Identity No L27020MH1958PLC011238



Annexure –IX

Environment Expenditure Details for FY 2016-17.

Sl.No	Description	Amount
1	Pumps for ETP,RO,WTP,IRP	₹ 334,550.50
2	Consumables for ETP,RO,WTP,IRP	₹ 240,064.31
3	Chemical for ETP,RO,WTP,IRP	₹ 508,998.90
4	Calibration of Env. Instruments	₹ 12,822.50
5	Environmental Monitoring NABL	₹ 378,975.00
7	Effluent Treatment Plant –Lamella Clarifier	₹ 3,913,139.04
8	Reverse Osmosis System	₹ 586,500.00
9	Construction of settling Pond	₹ 3,744,514.00
10	Electric item for ETP	₹ 93,418.98
11	Plantation	₹ 40,000.00
	Total	₹ 9,852,983.23

CSR Expenditure details of Gare Palma IV/5 for the FY 2016-17

S.N.	Heads of Activities	Amount
1	Toilet Construction under Swachh Bharat Mission	4,998,000
2	White Washing of School Boundary Wall, Water Tank, Bus waiting room	120,000
3	CC Road at Kondkel village	577,909
4	Road Cleaning at Gare, Khamaria & Milupara	514,220
5	Samlai Mandir renovation	750,000
6	Almirah, Table, Carpet, Mosquito Net, Sound System	95,000
7	Sewing Centre (22 ladies trained)	75,000
8	Computer Class for 50 children	275,000
9	School Bus provided to village children	1,360,000
10	Health Camp	200,000
11	CSR Teacher	404,000
12	Solar Street Light	398,000
13	Social Event	1,400,000
14	Others	240,000
	Total	11,407,129