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balco
BHARAT ALUMINIUM COMPANY LIMITED
P.O. - BALCO Nagar, Korba, CG
India - 495684

BALCO/ENV/A-02(A)/2023/306

29th November 2023

To,
The Regional Officer (IRO)
Ministry of Environment and Forest, Climate Change
Integrated Regional Office, Aranya Bhawan
North Block, Sector-19,
Nava Raipur, Atal Nagar (CG) 492002.

Sub: Half yearly compliance status (April-2023 to September-2023) for Chotia - I Captive Coal Mine.

Respected Sir,

On behalf of Bharat Aluminium Company Limited (hereinafter referred as "BALCO), please find enclosed herewith the half yearly compliance report for the period from April 2023 to September 2023 for the Environmental Clearance No. J-11015/96/2004-IA. II(M) dated 4th June 2015 (EC transferred from M/s Prakash industries Limited to BALCO) for Chotia-I - Captive Coal Mining project.

We hope that the above is in line with the requirements under the referred Environmental Clearance. In case you require any further information or clarification, we would be glad to furnish the same.

Yours truly,

BHARAT ALUMINIUM CO. LTD.

Amit Kumar Dubey
Head-Mines

Copy to:

Regional Officer, CECB, **-Korba**

Compliance -Status on Environmental Clearance
BALCO- CHOTIA-1 COAL MINES, KORBA (C.G.)
April - 2023 to September -2023

1. MoEF Letter No: J-11015/96/2004-IA.II (M), dated 4th June 2015 (Transfer of EC from M/s Prakash industries Limited to BALCO)
2. MoEF letter No: J – 11015/96/2004-IA. II (M) dated 10.11.2005.

Sl. No	Condition No	CONDITIONS GIVEN IN APPROVAL	STATUS OF IMPLEMENTATION
2.	**A.**	**Specific Conditions:**	
	(I)	The environmental clearance is subject to grant of forestry clearance by Ministry of Environment and Forests for diversion of 801.10 ha forestland under the provisions of Forest (Conservation) Act, 1980.	Agreed.
	(II)	Top soil should be stacked with proper slope at earmarked site (s) with adequate measures and should be used for reclamation and rehabilitation of mined out area.	Complied. The topsoil generated during the course of mining has been stacked in earmarked place. The stacked topsoil is being utilized for biological reclamation in mined out areas.
	(III)	OB dumps should be stacked at earmarked dump site (s) only and should not be kept active for long period. Proper terracing of OB dump should be carried out so that the overall slope will come down to 28 degree. Back filling should start from 3rd year onwards. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self sustaining. Progress report should be submitted to the Ministry of Environment & Forests on 6 monthly basis.	Complied. All OB dumps removed during mining operation were simultaneously backfilled in the mined-out area. Slopes are maintained as per the standard.
	(IV)	Catch Drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area, roads, greenbelt development etc. The drains should be regularly desilted and maintained properly. Garland Drain (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump should also provide adequate	Check dam with estimated storage capacity of 12000 KL is in place. Garland Drains are constructed around - Top soil dump, OB Dump - and Mineral dump area Sump is also constructed and adequate retention period to allow proper settling of silt material have been -provided.

		retention period to allow proper setting of silt material.	
	(V)	Dimension of the retaining wall at the toe of dumps and OB benches within the mine to check run-off and siltation should be based on the rain fall data.	Due care is being taken while designing dimension of retaining wall
	(Vl)	During Underground Working regular monitoring of subsidence movement on the surface over working area and impact on water bodies/ vegetation/ structures/ surrounding should be continued till movement ceases completely. In case of observation of any subsidence movement, mitigative measures should be taken to avoid loss of life and material. Cracks should be effective plugged with ballast and clayey soil/ suitable material.	Underground Mining operation in Chotia Coal Block has not yet started. All conditions given in approval letter will be strictly observed as soon as we commence Underground operation.
	(Vll)	During underground Working project authorities should check the possibility of existence of fault (s) before deciding about the thickness of safe barrier required to be maintained between the working face and the river in consultation with the Director General Mines & Safety (DGMS). De-pillaring should also be carried out after taking prior approval of the DGMS.	Underground Mining operation in Chotia Coal Block has not yet started. All conditions given in approval letter will be strictly observed as soon as we commence - underground operation.
	(Vlll)	Stage wise seam development plans incorporating subsidence study and its reports starting from 5th year of underground operation till the end of the mine at an interval of 5 years should be submitted to the Ministry within six months.	Underground Mining operation in Chotia Coal Block has not yet started. All conditions given in approval letter will be strictly observed as soon as we commence - underground operation.
	(lX)	Mine entries/ coal evacuation/ ventilation systems should be above the highest flood level to avoid any anticipated flooding of	Underground Mining operation in Chotia Coal Block has not yet started. All conditions given in approval letter will be

		mine from surface water during rainy season.	strictly observed as soon as we commence Underground operation.
	(X)	Green belt should be raised by planting the native species around the ML area, Coal Handling Plants, roads, OB dump sites etc. in consultation with the local DFO/ Agriculture Department. The density of the trees should be around 2500 plants per ha.	Complied with. Plants of only native species in consultation with Forest department are being planted.
	(XI)	The project authorities should meet the water requirement of nearby village (s) including agricultural need/ well water in case the village wells go dry due to de-watering of the mine from mine discharge after proper settling/treatment.	The water levels in the nearby villages are monitored regularly and no such decrease in water level has been reported. However, drinking water is being supplied to the local villagers as a part of CSR activity.
	(XII)	The project authorities should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Rainwater harvesting structures have been constructed in office complex and Bachelor's hostel for recharge of ground water. The design of Rainwater harvesting structures was approved by Regional Director, CGWA–Raipur vide no. 35-1/NCCR/CGWA/Vol-X/038 dated 20th October 2016. Check dams and garland drains are maintained regularly– (**Annexure-I).**
	(XIII)	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometer during the mining operation. The monitoring should be carried out four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment & Forests, Central Ground Water Authority and Regional Director Central Ground Water Board.	Regular monitoring of ground water level and Water Quality is being done at existing wells. Network of Piezometers have been constructed for monitoring the ground water. The data thus collected are being sent regularly to Ministry of Environment & Forests, Central Ground Water Authority and Regional Director, Central Ground Water Board. Water quality monitoring reports are attached herewith as **Annexure-II**
	(XIV)	Permission from the competent authority should be obtained for drawl of water required for mining and domestic use.	Agreed. NOC from Central Ground Water Authority (CGWA) has been obtained for Ground Water Abstraction. **Annexure-III** **CGWA/NOC/MIN/REN/2/2021/6179**
	(XV)	Coal handling plant should be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust	There is no Coal handling Plant at the Mine site. The ROM (Coal) is directly dispatched to EUP. However, adequate water Spraying arrangements has been provided for dust suppression due to Mining activities.

		control arrangements. These should be properly maintained and operated.	
	(XVl)	Sewage Treatment Plant should be installed for the colony. ETP should also be provided for workshop & CHP waste water.	STP and septic tank is there in the colony for treating sewage wastewater. ETP has also been constructed to treat the effluents from workshop.
	(XVll)	Consent to operate should be obtained from SPCB for the enhanced production.	Consent to operate obtained from Chhattisgarh Environment Conservation Board vide letter -No. 143/TS/CECB/2023 Naya Raipur dated 11.04.2023 and is valid till 31.03.2024. **Annexure-IV**
	(XVlll)	Blasting operation should be carried out only during day time. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Blasting operation being carried out in daytime only between 1pm-2pm. Controlled blasting technique practiced to minimize ground vibration & fly rocks. The Mine is not in operation presently.
	(XlX)	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna namely *Melursus urcinus* (bear) etc. spotted in the study area in consultation with the concerned forest officials. Action plan for conservation of endangered fauna should be prepared and submitted to the Ministry and its Regional Office within 3 months.	All precautions are being taken during mining operation for conservation and protection of endangered fauna. Fund for Wild Life Conservation and Management Plan has already been deposited to State Forest Department.
	(XX)	A Final Mine Closer Plan along with details of Corpus Fund should be submitted to Ministry of Environment Forests 5 years in advance of final mine closer for approval.	Agreed.

	B.	**General Conditions:**	
	(l)	No change in mining technology and scope of working should be made without prior approval of Ministry of Environment & Forests.	Agreed.
	(ll)	No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.	Agreed.
	(lll)	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with local forest department and experts.	Protection measures for flora & Fauna drawn up in consultation with Local Forest Department & Experts for time to time.
	(lV)	Four Ambient Air Quality monitoring	In consultation with Chhattisgarh

		stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO_2, NOx & CO monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.	Environment Conservation Board, Four Ambient Air Quality Monitoring Stations (AAQMS) have been established. Monitoring of each station is being done regularly. AAQ Monitoring reports from the month of April 2023 to September 2023 are attached herewith as **Annexure-V**
	(V)	Data of Ambient Air Quality (RPM, SPM, SO_2, NOx & CO) should be regularly submitted to the Ministry including its Regional Office at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in Six months.	Report of AAQM data are being sent regularly to all concerned. Refer to **Annexure-V**
	(Vl)	Fugitive dust emissions from all sources should be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul road, wagon loading, dump trucks (loading & unloading) should be provided and properly maintained. Vehicular emission should be kept under control and regularly monitored.	Complied.
	(Vll)	Drills should either be operated with dust extractors or should be equipped with water injection system.	Complied.
	(Vlll)	Adequate measures should be taken for control of noise level below 85 dBA in the work environment. Workers engaged in blasting and drilling operations of HEMM, etc should be provide with ear plugs/muffs.	Noise level is under control. Workers engaged in Drilling, Dozer, Pay Loader Operation are being provided with earplugs and muffs. Noise monitoring reports are attached herewith as **Annexure-VI.**
	(lX)	Industrial wastewater (work shop and waste water from mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluent.	5 Check dams and Settling pond of adequate capacity (about 12000 KL) are already in place. Oil & Grease Trap is already in working condition.
	(X)	Acid mine water, if any, has to be treated and disposed of after conforming to the standard prescribed by the competent authority.	Mine water is non acidic.
	(Xl)	Personnel working in dusty areas should wear protective respiratory devices and	Persons working in dusty Environment are provided with dust mask.

		they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to coal dust and take corrective measures, if needed.	Initial Vocational Training given to all employees at the time of appointment. Apart from that, issues on safety and health aspects are regularly discussed in Safety Committee Meeting every month. Initial Medical checkup of all workers done at the time of appointment. Regularly medical checkup is being conducted for all employees.
	(Xll)	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.	Separate Environmental Management Cell has already been set up in Chotia Mines.
	(Xlll)	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 the Ministry and its Regional Office located at Bhopal.	Budget & expenditure for EMP are maintained separately and not diverted for other purposes.
	(XlV)	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/ information/ monitoring reports.	Agreed.
	(XV)	A copy of clearance letter will be marked to concerned Panchyat/ local NGO, if any, from whom and suggestion/ representation has been received while processing the proposal.	Agreed & complied
	(XVl)	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tahsildar's office for 30 days.	Not applicable
	(XVll)	The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance and a copy of the clearance	Complied

		letter is available with the State Pollution Control Board and may also be seen at web site of the Ministry of Environment & Forests at **htt://envfor.nic.in**	
3.		The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.	Agreed.
4.		Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Agreed.
5.		The environmental clearance accorded shall be valid for a period of 5 years for starting construction/ operation of the power plant. In case, the project authorities fail to do so within this stipulated period, this environmental clearance shall stand lapsed automatically.	Agreed.
6.		The above conditions will be enforced *inter-alia,* under the provisions of the water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	Agreed.

SPEED POST

No. 35-1/NCCR/CGWA/Vol-X 1038

Central Ground Water Board,
North Central Chhattisgarh Region,
2nd Floor, Reena Apartment,
Pachpedinaka, Dhamtari Road,
Raipur – 492001
Telefax: 0771-2413689

Date:20.10.2016

20 OCT 2016

To,
Sh. Rajiv Kumar, AGM(Mines),
M/s Bharat Aluminium Company Limited,
Baloco Nagar , Korba, District-Korba-495684
Chhattisgarh

Sub: Approval for design of Artificial Recharge and Rain water harvesting Structures-Reg.

Sir,

Kindly refer to your letter no. Nil, dated 27.08.2016 on the above cited subject. The proposal submitted for Chotia Coal mines, Korba prepared by M/s Gumjuwala Lab & Projects Pvt. Limited has been examined and found satisfactory for Artificial Recharge and Rain water harvesting. After implementation of the proposal the firm is advised to carry out the impact assessment study of ground water recharge in and around 10km radius of the mines area and the report along with design details and photographs of the Artificial Recharge and Rain water harvesting structures constructed may be submitted to this office within a period of two years. After construction of the above structures the firm may intimate this office so that site visit for verification can be made accordingly.

Yours faithfully

(C. Paul Prabhakar)
Regional Director

Vimta Labs Limited
Registered Office
142, IDA Phase II, Cherlapally
Hyderabad-500 051,Telangana, India
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ISSUED TO:

M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/10824/001**
Issued Date	:	**2023-10-05**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-09-18	Sampling Date	:	2023-09-16
Analysis Starting Date	:	2023-09-18	Analysis Completion Date	:	2023-09-30
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
1	pH value	-	6.5-8.5 (NR)	6.71	6.89	6.87	6.94	6.73
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	<1.0	2	1	2	2
6	Total dissolved solids at 180°C	mg/l	500(2000)	230	347	125	250	142
7	Total Hardness as $CaCO_3$	mg/l	200(600)	129	171	72	117	82
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	85	125	46	70	50
9	Calcium as Ca	mg/l	75(200)	31.2	42.4	15.2	28.2	16.8
10	Magnesium as Mg	mg/l	30(100)	12.5	15.7	8.3	11.3	9.70
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2	<0.2
12	Boron as B	mg/l	0.5(1.0)	0.02	0.14	0.08	0.11	0.09
13	Chlorides as Cl	mg/l	250(1000)	55.4	86.5	31.1	76.8	38.3
14	Sulphates as SO_4	mg/l	200(400)	11.3	17.6	5.9	13.8	6.9
15	Fluorides as F	mg/l	1.0(1.5)	0.274	0.341	0.227	0.154	0.209
16	Nitrates as NO_3	mg/l	45(NR)	2.4	4.7	1.9	3.9	2.4
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001	<0.001
18	Cyanides as CN	mg/l	0.05(NR)	<0.02	<0.02	<0.02	<0.02	<0.02

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5

Dr. Subba Reddy Mallampati
Manager Environment

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Sample Registration Date	:	2023-09-18	Sampling Date	:	2023-09-16
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Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<0.003	<0.003	<0.003	<0.003	<0.003
22	Total Arsenic as As	mg/l	0.01(0.05)	<0.01	<0.01	<0.01	<0.01	<0.01
23	Copper as Cu	mg/l	0.05(1.5)	<0.01	0.02	<0.01	0.01	<0.01
24	Lead as Pb	mg/l	0.01(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
25	Manganese as Mn	mg/l	0.1(0.3)	<0.01	0.01	<0.01	0.01	<0.01
26	Molybdenum as Mo	mg/l	0.07(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.03	0.012	0.06	0.18	0.05
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.01	0.16	0.05	0.13	0.09
32	Aluminum as Al	mg/l	0.03(0.2)	<0.01	0.02	0.03	0.06	0.01
33	Mercury as Hg	mg/l	0.001(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
34	Sulphide as H2S	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
35	Chloramines as Cl2	mg/l	4.0(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
36	Ammonia (as total ammonia-N	mg/l	0.5(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
37	Barium as Ba	mg/l	0.7(NR)	0.012	0.013	0.011	0.016	0.012
38	Silver as Ag	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

Vimta VIMTA LABS RECD. No- DL 33C Sr. No.-5

Dr. Subba Reddy Mallampati
Manager—Environment

Vimta Labs Limited
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Test Required	:	Water Analysis as per IS 10500 : 2012			

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TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**							
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
49	Beta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<0.01	<0.01	<0.01	<0.01	<0.01
55	Endosulfan (alpha, beta and Sulphate)	µg/l	0.4	<0.01	<0.01	<0.01	<0.01	<0.01
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. NO- DL 33004/99 Sr. No.-5

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ISSUED TO:

M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/10824/001**
Issued Date	:	**2023-10-05**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023-09-18	Sampling Date	:	2023 09 16
Analysis Starting Date	:	2023-09-18	Analysis Completion Date	:	2023-09-30
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**							
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	BDL	BDL	BDL	BDL	BDL

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

-END OF THE REPORT-

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No. DL 33004/99 Sr.No.-5

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ISSUED TO:

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Report Number	:	**VLL/VLS/23-24/09226/001**
Issued Date	:	**2023-09-02**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-08-20	Sampling Date	:	2023-08-18
Analysis Starting Date	:	2023-08-20	Analysis Completion Date	:	2023-08-31
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
1	pH value	-	6.5-8.5 (NR)	6.52	6.94	7.32	6.68	6.55
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	<1.0	2	2	1	4
6	Total dissolved solids at 180°C	mg/l	500(2000)	161	372	95	140	104
7	Total Hardness as $CaCO_3$	mg/l	200(600)	85	147	45	56	41
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	60	110	40	55	38
9	Calcium as Ca	mg/l	75(200)	21.3	36.5	9.4	16	8.8
10	Magnesium as Mg	mg/l	30(100)	7.6	13.5	5.3	3.9	4.5
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2	<0.2
12	Boron as B	mg/l	0.5(1.0)	0.03	0.19	0.06	0.14	0.11
13	Chlorides as Cl	mg/l	250(1000)	39.1	92.4	18.9	28.5	19.3
14	Sulphates as SO_4	mg/l	200(400)	7.8	40.5	5.8	12.4	10.7
15	Fluorides as F	mg/l	1.0(1.5)	0.138	0.278	0.181	0.076	0.249
16	Nitrates as NO_3	mg/l	45(NR)	1.8	3.4	1.1	2.6	1.4
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001	<0.001
18	Cyanides as CN	mg/l	0.05(NR)	<0.02	<0.02	<0.02	<0.02	<0.02

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

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Chhattisgarh

Report Number	:	**VLL/VLS/23-24/09226/001**
Issued Date	:	**2023-09-02**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-08-20	Sampling Date	:	2023-08-18
Analysis Starting Date	:	2023-08-20	Analysis Completion Date	:	2023-08-31
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<0.003	<0.003	<0.003	<0.003	<0.003
22	Total Arsenic as As	mg/l	0.01(0.05)	<0.01	<0.01	<0.01	<0.01	<0.01
23	Copper as Cu	mg/l	0.05(1.5)	<0.01	0.01	<0.01	0.01	<0.01
24	Lead as Pb	mg/l	0.01(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
25	Manganese as Mn	mg/l	0.1(0.3)	<0.01	0.02	<0.01	0.02	<0.01
26	Molybdenum as Mo	mg/l	0.07(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.02	0.15	0.04	0.21	0.08
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.03	0.27	0.08	0.16	0.07
32	Aluminum as Al	mg/l	0.03(0.2)	<0.01	0.03	0.04	0.02	0.01
33	Mercury as Hg	mg/l	0.001(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
34	Sulphide as H2S	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
35	Chloramines as Cl2	mg/l	4.0(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
36	Ammonia (as total ammonia-N	mg/l	0.5(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
37	Barium as Ba	mg/l	0.7(NR)	0.014	0.016	0.009	0.018	0.013
38	Silver as Ag	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

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KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/09226/001**
Issued Date	:	**2023-09-02**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-08-20	Sampling Date	:	2023-08-18
Analysis Starting Date	:	2023 08 20	Analysis Completion Date	:	2023-08-31
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**							
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
49	Beta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<0.01	<0.01	<0.01	<0.01	<0.01
55	Endosulfan (alpha, beta and Sulphate)	µg/l	0.4	<0.01	<0.01	<0.01	<0.01	<0.01
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

ENVIRONMENTAL LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

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ISSUED TO:

M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/09226/001**
Issued Date	:	**2023-09-02**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023 08 20	Sampling Date	:	2023-08-18
Analysis Starting Date	:	2023-08-20	Analysis Completion Date	:	2023-08-31
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL	BDL
63	E. coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**							
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	BDL	BDL	BDL	BDL	BDL

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

-END OF THE REPORT-

Name and Designation of Authorized Signatory

ENVIRONMENTAL TESTING LABORATORY
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VIMTA LABS
REGD. No- DL 33004/99
Sr. No.-5

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Report Number	:	**VLL/VLS/23-24/07066/001**
Issued Date	:	**2023-08-03**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-07-06	Sampling Date	:	2023-07-04
Analysis Starting Date	:	2023-07-07	Analysis Completion Date	:	2023 07 31
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
1	pH value	-	6.5-8.5 (NR)	6.87	6.98	7.02	7.15	6.97
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	<1	2	1	2	1
6	Total dissolved solids at 180°C	mg/l	500(2000)	210	248	142	150	190
7	Total Hardness as $CaCO_3$	mg/l	200(600)	82	132	74	68	85
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	70	98	56	45	60
9	Calcium as Ca	mg/l	75(200)	16.2	25.4	13.5	12.8	14.8
10	Magnesium as Mg	mg/l	30(100)	10.2	16.6	9.8	8.7	11.6
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2	<0.2
12	Boron as B	mg/l	0.5(1.0)	0.02	0.23	0.07	0.16	0.08
13	Chlorides as Cl	mg/l	250(1000)	31.8	52.3	34.6	26.7	28.2
14	Sulphates as SO_4	mg/l	200(400)	6.9	28	17.8	20.4	14.7
15	Fluorides as F	mg/l	1.0(1.5)	0.152	0.094	0.045	0.039	0.028
16	Nitrates as NO_3	mg/l	45(NR)	1.6	2.4	1.3	1.1	1.20
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001	<0.001
18	Cyanides as CN	mg/l	0.05(NR)	<0.02	<0.02	<0.02	<0.02	<0.02

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No. DL S-0499 Sr. No.-5

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Report Number	:	**VLL/VLS/23-24/07066/001**
Issued Date	:	**2023-08-03**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-07-06	Sampling Date	:	2023-07-04
Analysis Starting Date	:	2023-07-07	Analysis Completion Date	:	2023-07-31
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<0.003	<0.003	<0.003	<0.003	<0.003.
22	Total Arsenic as As	mg/l	0.01(0.05)	<0.01	<0.01	<0.01	<0.01	<0.01
23	Copper as Cu	mg/l	0.05(1.5)	<0.01	0.02	<0.01	0.01	<0.01
24	Lead as Pb	mg/l	0.01(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
25	Manganese as Mn	mg/l	0.1(0.3)	<0.01	0.01	<0.01	0.01	<0.01
26	Molybdenum as Mo	mg/l	0.07(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.04	0.18	0.05	0.19	0.06
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.02	0.32	0.11	0.24	0.09
32	Aluminum as Al	mg/l	0.03(0.2)	<0.01	0.04	0.03	0.03	0.02
33	Mercury as Hg	mg/l	0.001(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
34	Sulphide as H2S	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
35	Chloraminos as Cl2	mg/l	4.0(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
36	Ammonia (as total ammonia-N	mg/l	0.5(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
37	Barium as Ba	mg/l	0.7(NR)	0.012	0.015	0.011	0.024	0.017
38	Silver as Ag	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY VIMTA LABS REGD. No- DL-33004/99 Sr. No.-5 VIMTA

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ISSUED TO:
M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/07066/001**
Issued Date	:	**2023-08-03**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023-07-06	Sampling Date	:	2023-07-04
Analysis Starting Date	:	2023-07-07	Analysis Completion Date	:	2023-07-31
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**							
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
49	Beta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<0.01	<0.01	<0.01	<0.01	<0.01
55	Endosulfan (alpha, beta and Sulphate)	µg/l	0.4	<0.01	<0.01	<0.01	<0.01	<0.01
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

Dr. Subba Reddy Mallampati
Manager - Environment

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ISSUED TO:

M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/07066/001**
Issued Date	:	**2023-08-03**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023 07 06	Sampling Date	:	2023-07-04
Analysis Starting Date	:	2023-07-07	Analysis Completion Date	:	2023-07-31
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL	BDL
63	E. coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**							
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	BDL	BDL	BDL	BDL	BDL

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

-END OF THE REPORT-

ENVIRONMENT LABORATORY VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

Name and Designation of Authorized Signatory

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ISSUED TO:

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Report Number	:	**VLL/VLS/23-24/05404/001**
Issued Date	:	**2023-06-27**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-06-12	Sampling Date	:	2023-06-09
Analysis Starting Date	:	2023 06 13	Analysis Completion Date	:	2023-06-26
Test Required	:	Water Analysis as per IS 10500 . 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
1	pH value	-	6.5-8.5 (NR)	7.14	7.05	6.97	6.84	7.11
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	<1	3	2	3	1
6	Total dissolved solids at 180°C	mg/l	500(2000)	228	270	165	138	144
7	Total Hardness as $CaCO_3$	mg/l	200(600)	127	163	86	67	66
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	70	80	60	50	65
9	Calcium as Ca	mg/l	75(200)	30.4	41	20.4	16.4	12.6
10	Magnesium as Mg	mg/l	30(100)	12.3	14.6	8.4	6.3	8.5
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2	<0.2
12	Boron as B	mg/l	0.5(1.0)	0.03	0.17	0.04	0.19	0.11
13	Chlorides as Cl	mg/l	250(1000)	54.1	75.8	32.6	26.7	20.6
14	Sulphates as SO_4	mg/l	200(400)	24.7	26.8	19.5	16.1	12.5
15	Fluorides as F	mg/l	1.0(1.5)	0.113	0.110	0.113	0.105	0.085
16	Nitrates as NO_3	mg/l	45(NR)	2.8	3.7	1.8	2.1	3.2
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001	<0.001
18	Cyanides as CN	mg/l	0.05(NR)	<0.02	<0.02	<0.02	<0.02	<0.02

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

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Report Number	:	VLL/VLS/23-24/05404/001
Issued Date	:	2023-06-27
P.O. No.	:	8500005780
P.O. Date	:	2022-06-29

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-06-12	Sampling Date	:	2023-06-09
Analysis Starting Date	:	2023-06-13	Analysis Completion Date	:	2023-06-26
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<0.003	<0.003	<0.003	<0.003	<0.003
22	Total Arsenic as As	mg/l	0.01(0.05)	<0.01	<0.01	<0.01	<0.01	<0.01
23	Copper as Cu	mg/l	0.05(1.5)	<0.01	0.01	<0.01	0.02	<0.01
24	Lead as Pb	mg/l	0.01(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
25	Manganese as Mn	mg/l	0.1(0.3)	<0.01	0.02	<0.01	0.02	<0.01
26	Molybdenum as Mo	mg/l	0.07(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.03	0.14	0.06	0.21	0.09
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.08	0.21	0.13	0.18	0.11
32	Aluminum as Al	mg/l	0.03(0.2)	<0.01	0.04	0.03	0.03	0.02
33	Mercury as Hg	mg/l	0.001(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
34	Sulphide as H2S	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
35	Chloramines as Cl2	mg/l	4.0(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
36	Ammonia (as total ammonia-N	mg/l	0.5(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
37	Barium as Ba	mg/l	0.7(NR)	0.014	0.021	0.017	0.012	0.019
38	Silver as Ag	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

Dr. Subba Reddy Mallampati
Manager-Environment

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 VIMTA

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KORBA
Chhattisgarh

Report Number	:	VLL/VLS/23-24/05404/001
Issued Date	:	2023-06-27
P.O. No.	:	8500005780
P.O. Date	:	2022-06 29

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023-06-12	Sampling Date	:	2023-06-09
Analysis Starting Date	:	2023 06 13	Analysis Completion Dule	.	2023-06-26
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**							
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
49	Beta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<0.01	<0.01	<0.01	<0.01	<0.01
55	Endosulfan (alpha, beta and Sulphate)	µg/l	0.4	<0.01	<0.01	<0.01	<0.01	<0.01
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

Dr. Subba Reddy Mallampati
Manager - Environment

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Report Number	:	VLL/VLS/23-24/05404/001
Issued Date	:	2023-06-27
P.O. No.	:	8500005780
P.O. Date	:	2022-06-29

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-06-12	Sampling Date	:	2023-06-09
Analysis Starting Date	:	2023-06-13	Analysis Completion Date	:	2023-06-26
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL	BDL
63	E. coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**							
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	BDL	BDL	BDL	BDL	BDL

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

-END OF THE REPORT-

Name and Designation of Authorized Signatory

Dr. Subba Reddy Mallampati
Manager-Environment

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Report Number	:	**VLL/VLS/23-24/03631/001**
Issued Date	:	**2023-06-03**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-05-18	Sampling Date	:	2023-05-16
Analysis Starting Date	:	2023-05-18	Analysis Completion Date	:	2023-05-31
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
1	pH value	-	6.5-8.5 (NR)	7.18	6.78	7.23	7.14	6.98
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	<1	1	2	1	1
6	Total dissolved solids at 180°C	mg/l	500(2000)	165	312	116	211	123
7	Total Hardness as $CaCO_3$	mg/l	200(600)	88	141	51	102	65
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	55	110	42	75	50
9	Calcium as Ca	mg/l	75(200)	21.6	29.3	11.4	18.6	13.4
10	Magnesium as Mg	mg/l	30(100)	8.3	16.7	5.6	13.7	7.6
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2	<0.2
12	Boron as B	mg/l	0.5(1.0)	0.01	0.21	0.03	0.14	0.05
13	Chlorides as Cl	mg/l	250(1000)	36.3	81.4	21.6	42.3	18.5
14	Sulphates as SO_4	mg/l	200(400)	14.5	28.3	10.4	19.6	11.4
15	Fluorides as F	mg/l	1.0(1.5)	0.191	0.236	0.109	0.06	0.07
16	Nitrates as NO_3	mg/l	45(NR)	1.8	3.4	1.7	2.2	1.9
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001	<0.001
18	Cyanides as CN	mg/l	0.05(NR)	<0.02	<0.02	<0.02	<0.02	<0.02

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD No- DL 3300/93 Dr.No.-5

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P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-05-18	Sampling Date	:	2023-05-16
Analysis Starting Date	:	2023-05-18	Analysis Completion Date	:	2023-05-31
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<0.003	<0.003	<0.003	<0.003	<0.003
22	Total Arsenic as As	mg/l	0.01(0.05)	<0.01	<0.01	<0.01	<0.01	<0.01
23	Copper as Cu	mg/l	0.05(1.5)	<0.01	0.01	<0.01	0.02	<0.01
24	Lead as Pb	mg/l	0.01(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
25	Manganese as Mn	mg/l	0.1(0.3)	<0.01	0.02	<0.01	0.01	<0.01
26	Molybdenum as Mo	mg/l	0.07(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.03	0.12	0.05	0.17	0.04
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.05	0.19	0.07	0.12	0.21
32	Aluminum as Al	mg/l	0.03(0.2)	<0.01	0.02	0.03	0.02	0.03
33	Mercury as Hg	mg/l	0.001(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
34	Sulphide as H2S	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
35	Chloramines as Cl2	mg/l	4.0(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
36	Ammonia (as total ammonia-N	mg/l	0.5(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
37	Barium as Ba	mg/l	0.7(NR)	0.012	0.017	0.011	0.023	0.014
38	Silver as Ag	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

Vimta VIMTA LABS REGD. No. BL 330 Sr. No.-5

Dr. Subba Reddy Mallampati
Dy. Manager – Environment

Sensitivity: Public (C4)

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ISSUED TO:

M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/03631/001**
Issued Date	:	**2023-06-03**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023-04-17	Sampling Date	:	2023-04-14
Analysis Starting Date	:	2023-04-17	Analysis Completion Date	:	2023-05-02
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**							
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
49	Beta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<0.01	<0.01	<0.01	<0.01	<0.01
55	Endosulfan (alpha, beta and Sulphate)	µg/l	0.4	<0.01	<0.01	<0.01	<0.01	<0.01
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

Name and Designation of Authorized Signatory

ENVIRONMENT LAB
Vimta
VIMTA LABS
REGD. No. DL 33004/99
Sr.No.-5

Dr. Subba Reddy Mallampati
Dy. Manager - Environment

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ISSUED TO:

M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/03631/001**
Issued Date	:	**2023-06-03**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023-05-18	Sampling Date	:	2023-05-16
Analysis Starting Date	:	2023-05-18	Analysis Completion Date	:	2023-05-31
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**							
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	BDL	BDL	BDL	BDL	BDL

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

-END OF THE REPORT-

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No.-DL-33005/01 Sr. No.-5 VIMTA

Dr. Subba Reddy Mallampati
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ISSUED TO:

M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	VLL/VLS/23-24/01732/001
Issued Date	:	2023-05-04
P.O. No.	:	8500005780
P O Date	:	2022 06 29

SAMPLE PARTICULARS : GROUND WATER SAMPLES (CHOTIA MINES)

Sample Registration Date	:	2023-04-17	Sampling Date	:	2023-04-14
Analysis Starting Date	:	2023 04 17	Analysis Completion Date	:	2023-05-02
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
1	pH value	-	6.5-8.5 (NR)	7.23	6.64	6.78	7.02	6.82
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	<1	2	2	2	1
6	Total dissolved solids at 180°C	mg/l	500(2000)	180	283	121	165	142
7	Total Hardness as $CaCO_3$	mg/l	200(600)	101	132	59	91	72
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	60	80	45	55	65
9	Calcium as Ca	mg/l	75(200)	24.6	32.4	12.3	16.3	18.5
10	Magnesium as Mg	mg/l	30(100)	9.7	12.4	6.8	12.2	6.3
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2	<0.2
12	Boron as B	mg/l	0.5(1.0)	0.02	0.18	0.05	0.21	0.09
13	Chlorides as Cl	mg/l	250(1000)	42.7	76.8	24.3	38.7	21.8
14	Sulphates as SO_4	mg/l	200(400)	16.8	26.9	12.3	18.7	13.5
15	Fluorides as F	mg/l	1.0(1.5)	0.103	0.231	0.074	0.082	0.114
16	Nitrates as NO_3	mg/l	45(NR)	2.6	4.5	2.9	1.7	2.5
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001	<0.001
18	Cyanides as CN	mg/l	0.05(NR)	<0.02	<0.02	<0.02	<0.02	<0.02

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

Name and Designation of Authorized Signatory

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M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	VLL/VLS/23-24/01732/001
Issued Date	:	2023-05-04
P.O. No.	:	8500005780
P.O. Date	:	2022-06-29

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023-04-17	Sampling Date	:	2023-04-14
Analysis Starting Date	:	2023-04-17	Analysis Completion Date	:	2023-05-02
Test Required	:	Water Analysis as per IS 10500 : 2012			

SAMPLE COLLECTED BY VIMTA LABS LTD.

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<0.003	<0.003	<0.003	<0.003	<0.003
22	Total Arsenic as As	mg/l	0.01(0.05)	<0.01	<0.01	<0.01	<0.01	<0.01
23	Copper as Cu	mg/l	0.05(1.5)	<0.01	0.02	<0.01	0.01	<0.01
24	Lead as Pb	mg/l	0.01(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
25	Manganese as Mn	mg/l	0.1(0.3)	<0.01	0.01	<0.01	0.02	<0.01
26	Molybdenum as Mo	mg/l	0.07(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.02	0.16	0.08	0.14	0.08
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.06	0.23	0.09	0.15	0.18
32	Aluminum as Al	mg/l	0.03(0.2)	<0.01	0.03	0.02	0.04	0.02
33	Mercury as Hg	mg/l	0.001(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
34	Sulphide as H2S	mg/l	0.05(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
35	Chloramines as Cl2	mg/l	4.0(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
36	Ammonia (as total ammonia-N	mg/l	0.5(NR)	<0.05	<0.05	<0.05	<0.05	<0.05
37	Barium as Ba	mg/l	0.7(NR)	0.016	0.025	0.019	0.013	0.021
38	Silver as Ag	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

ENVIRONMENT LABORATORY
Vimta
VIMTA LABS
REGD. No- DL 33004/99
Sr. No.-5
VIMTA

Name and Designation of Authorized Signatory
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ISSUED TO:

M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/01732/001**
Issued Date	:	**2023-05-04**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023-04-17	Sampling Date	:	2023-04-14
Analysis Starting Date	:	2023 04 17	Analysis Completion Date	:	2023-05-02
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**							
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
49	Beta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<0.01	<0.01	<0.01	<0.01	<0.01
55	Endosulfan (alpha, beta and Sulphate)	µg/l	0.4	<0.01	<0.01	<0.01	<0.01	<0.01
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<0.01	<0.01	<0.01	<0.01	<0.01

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

Name and Designation of Authorized Signatory

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ISSUED TO:

M/s. Bharat Aluminum Company Limited,
BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/23-24/01732/001**
Issued Date	:	**2023-05-04**
P.O. No.	:	**8500005780**
P.O. Date	:	**2022-06-29**

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (CHOTIA MINES)**

Sample Registration Date	:	2023-04-17	Sampling Date	:	2023-04-14
Analysis Starting Date	:	2023-04-17	Analysis Completion Date	:	2023-05-02
Test Required	:	Water Analysis as per IS 10500 : 2012			
SAMPLE COLLECTED BY VIMTA LABS LTD.					

TEST REPORT

Sr. No.	Parameters	UOM	Limit IS 10500 : 2012	Chotia-1 Guest house water	Chotia-1 mines water (B/W)	Chotia-2 Near Govt. Solar Panel (B/W)	Chotia-2 mines water (B/W)	Chotia-2 Bhujang nagar Village
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**							
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	BDL	BDL	BDL	BDL	BDL

Method of Testing: As per APHA 23rd edition and IS: 3025
Instrument Used: ICP-OES (Perkin-Elmer) & ICP-MS (agilent)
Analysis as per IS 10500: 2012 Drinking Water specification

-END OF THE REPORT-

Name and Designation of Authorized Signatory

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

Dr. Subba Reddy Mallampati
Dy. Manager - Environment

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
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केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Chotia Coal Mine		
Project Address:	Rajiv Kumar-head Mines, Bharat Aluminium Company Limited Chotia Mines Office, Near Chotia Chirimiri Road Tri Junction		
Village:	Chotiya	Block:	Podi Uparoda
District:	Korba	State:	Chhattisgarh
Pin Code:			
Communication Address:	Vijay Jain, Chotia Coal Mines, Bharat Aluminium Co. Ltd., Vill - Chotia, P.o. Madai, Tehsil - Podi Uproda, Dist - Korba, Podi Uparoda, Korba, Chhattisgarh - 495448		
Address of CGWB Regional Office :	Central Ground Water Board North Central Chhattisgarh, 2nd Floor, Lk Corporate And Logistic Park, Dhamtari Road, Nh-30, Dumartarai, Raipur, Chhattisgarh - 492015		

1.	**NOC No.:**	CGWA/NOC/MIN/REN/2/2021/6179			
2.	Application No.:	21-4/309/CT/MIN/2015	3.	Category: (GWRE 2017)	Safe
4.	Project Status:	Existing Ground Water	5.	NOC Type:	Renewal
6.	**Valid from:**	12/06/2021	7.	**Valid up to:**	11/06/2023

8. Ground Water Abstraction Permitted:

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
90.00	32850.00						

9. Details of ground water abstraction /Dewatering structures

	Total Existing No.:6						Total Proposed No.:0					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	4	0	0	0	0	0	0	0	0	0
Dewatering Structure*	0	0	0	0	2	0	0	0	0	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

10.	Ground Water Abstraction/Restoration Charges paid (Rs.):	28170.00

11.	Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
			Manual	DWLR**	DWLR With Telemetry
	**DWLR - Digital Water Level Recorder	1	0	1	0

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
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Website: cgwa-noc.gov.in

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) Industries abstracting ground water in excess of 100 m 3 /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.

25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCE list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.

26) In case of new infrastructure projects having ground water abstraction of more than 20 m3/day, the firm/entity shall ensure implementation of dual water supply system in the projects.

27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.

28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.

29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

CHHATTISGARH ENVIRONMENT CONSERVATION BOARD
Paryavas Bhawan, North Block, Sector - 19,
Nava Raipur Atal Nagar, District - Raipur (C.G.)
e-mail - hocecb@gmail.com

No. **143**/TS/CECB/2023 Nava Raipur Atal Nagar, Raipur, Dated **11/04/2023**

To,

M/s Bharat Aluminium Company Limited,
Balco Nagar, Korba,
District - Korba (C.G.) - 495684

Sub: - Renewal of the consent of the Board under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981.

Ref: -

1. Consent of the Board issued under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 vide letter no. 1771/TS/CECB/2006 Raipur, dated: 05/04/2006 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 vide letter no. 1773/TS/CECB/2006 Raipur, dated: 05/04/2006.
2. Transfer of the consent granted for Chotia Coal Mines, Captive Coal Mining (Mining of Coal)-1.0 MTPA vide letter no. 1631, dated 10/07/2015.
2. Amendment in consent and subsequent renewal of consent issued by the Board under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 for Captive Coal Mining (for Mining of Coal) Chotia-1 of capacity - 0.75 Million Tonnes per Year vide letter no. 11455/TS/CECB/2021 Nava Raipur Atal Nagar, Raipur, dated: 27/03/2021.
3. Last renewal of the consent issued under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 vide letter no. 9677/TS/CECB/2022 Naya Raipur Atal Nagar Raipur, dated: 31/03/2022.
4. Your online application no. 11741738, dated 14/02/2023.

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With reference to your above application, consents under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 are hereby renewed for the period of **one year i.e. from 01/04/2023 to 31/03/2024**,, subject to the fulfillment of the terms and conditions incorporated in the water consent letter no. **1771/TS/CECB/2006 Raipur, dated: 05/04/2006** and air consent letter no. **1773/TS/CECB/2006 Raipur,**

dated: 05/04/2006 and subsequent renewal(s)/amendment(s) issued by the Board and additional conditions mentioned below.

This renewal of consent is valid for production capacity of: -

Product	Production Capacity
Captive Coal Mining (for Mining of Coal) Chotia-1	0.75 Million Tonnes per Year (Zero Point Seven Five Million Tonnes per Year)

Additional Conditions

A. Water (Prevention and Control of Pollution) Act, 1974

1. Mine management shall submit a copy of revalidation of the Environmental Clearance issued by MoEF & CC before the production/mining operation.
2. Mine management shall operate and maintain the effluent treatment plant regularly and ensure the treated effluent quality within prescribed standards all the time. Mine management shall not discharge effluent outside the mine lease area in any circumstances. Zero discharge condition shall be maintained all the time.
3. Mine Management shall install separate digital meter for measurement of ground & surface water used.
4. Mine Management shall submit appraisal report for usage of water from competent authority.
5. Mine Management shall ensure maximum reuse of non-potable water.
6. Mine Water shall be reused in water sprinkling, plantation, irrigation etc.Mine management shall ensure maximum use of mine water.
7. Mine management shall comply the provisions of notification dated 31/12/2021 issued by MoEF & CC regarding utilization of fly ash in mixing with over burden back filling of mine.
8. Mine management shall transport the coal in properly covered vehicles to avoid dust emission during transportation. Mine management shall also ensure use of mechanically covered vehicles for transportation of coal before 12/07/2023 (if required).
9. Mine Management shall comply with the provision of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. (as amended upto date)
10. All the solid waste industrial and domestic shall be disposed off in environment friendly manner as per rule.
11. All the internal roads shall be maintained pucca. Roads shall be cleaned regularly. Dust, muck and sludge collected from roads shall be disposed properly.
12. Mine Management shall enhance the rain water harvesting system capacity to recharge the ground water.

13. Extensive tree plantation shall be carried out in the open areas available within and around the plant premises in during monsoon season. Fruit bearing species like mango, tamarind, guava etc. shall be given preference in this regard.

14. This renewal of consent is being issued under the "Scheme of Auto-Renewal of Consent" of the Board issued vide office order no. 5937 dated 29/01/2018 as per self certificate submitted by authorized signatory Mr. Vuyyala Santosh Prathik, Mines Manager of M/s Bharat Aluminium Company Limited, Post - Balco Nagar, Korba, District - Korba (C.G.).

15. In case, if the capital investment is increased by such amount that the total investment exceeds the range for which renewal fees has been paid, the industry shall have to pay the difference amount of renewal fees for the corresponding block years.

16. In case, the prescribed fee payable is amended in future, the industry shall be liable to pay the difference amount for corresponding block years.

17. Chhattisgarh Environment Conservation Board reserves the rights to revoke the consent / renewal of consent at any time for any violation/non-compliance.

B. Air (Prevention and Control of Pollution) Act, 1981

1. Mine management shall submit a copy of revalidation of the Environmental Clearance issued by MoEF & CC before the production/mining operation.

2. Mine management shall operate and maintain the air pollution control equipments properly. Mine management shall ensure the emission quality meets the standards prescribed by the Board. Chhattisgarh Environment Conservation Board may further stipulate stringent particulate matter emission limit depending upon environmental conditions.

3. Ambient air quality within mine area shall be kept within latest prescribed standards.

4. Mine management shall comply the provisions of notification dated 31/12/2021 issued by MoEF & CC regarding utilization of fly ash in mixing with over burden and back filling.

5. Mine Management shall comply with the provision of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. (as amended upto date)

6. All the solid waste industrial and domestic shall be disposed off in environment friendly manner.

7. All the internal roads shall be maintained pucca. Roads shall be cleaned regularly. Dust, muck and sludge collected from roads shall be disposed properly.

8. Mine management shall transport the coal in properly covered vehicles to avoid dust emission during transportation. Mine management shall also ensure use of mechanically covered vehicles for transportation of coal before 12/07/2023 (if required).

9. Extensive tree plantation shall be carried out in the open areas available within and around the plant premises in during monsoon season. Fruit bearing species like mango, tamarind, guava etc. shall be given preference in this regard.

10. This renewal of consent is being issued under the "Scheme of Auto-Renewal of Consent" of the Board issued vide office order no. 5937 dated 29/01/2018 as per self certificate submitted by authorized signatory Mr. Vuyyala Santosh Prathik, Mines Manager of M/s Bharat Aluminium Company Limited, Post - Balco Nagar, Korba, District - Korba (C.G.).

11. In case, if the capital investment is increased by such amount that the total investment exceeds the range for which renewal fees has been paid, the industry shall have to pay the difference amount of renewal fees for the corresponding block years.

12. In case, the prescribed fee payable is amended in future, the industry shall be liable to pay the difference amount for corresponding block years.

13. Chhattisgarh Environment Conservation Board reserves the rights to revoke the consent / renewal of consent at any time for any violation/non-compliance.

Member Secretary
Chhattisgarh Environment Conservation Board
Nava Raipur Atal Nagar, Raipur (C.G.)

Endt. No. **144**/TS/CECB/2023 Nava Raipur Atal Nagar, Raipur, Dated **11/04/2023**

Copy to: - Regional Officer, Regional Office, Chhattisgarh Environment Conservation Board, Korba (C.G.). Please ensure compliance and report, if any condition/conditions are violated by the industry.

Sd/-
Member Secretary
Chhattisgarh Environment Conservation Board
Nava Raipur Atal Nagar, Raipur (C.G.)

Signature Not Verified

Digitally Signed by :R P Tiwari
MS

Date: 2023.04.14 18:35:44 IST

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ISSUED TO:		
M/s. Bharat Aluminium Company Limited, KORBA (C.G.)	Report No.:	VLL/VLS/23-24/10824/001
	Issue Date:	2023-10-05
	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars AMBIENT AIR QUALITY MONITORING AT D G SET (CHOTIA 1)

Analysis starting date :- 2023-09-05 **Analysis Completion date :- 2023-10-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : D G SET - (CHOTIA 1)									
Sampling Date			2023-09-02	2023-09-04	2023-09-09	2023-09-11	2023-09-13	2023-09-15	2023-09-19	2023-09-22	2023-09-26	Method
Sulphur Dioxide (SO_2)	µg/m³	80	11.7	12.6	14.2	11.3	14.0	15.8	12.2	10.8	12.8	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	10.9	13.5	11.3	8.7	11.6	14.3	12.8	9.5	11.8	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	45.9	50.4	33.4	43.7	48.2	39.7	57.4	47.4	40.5	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	17.6	19.6	13.4	17.4	14.7	15.4	20.9	19.1	14.3	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.1	1.6	0.8	1.3	1.4	2.1	1.7	2.4	1.5	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.8	2.5	2.7	3.1	2.2	1.9	2.8	4.2	3.6	AAS/ICP Method
Lead as Pb	µg/m³	1	0.025	0.017	0.011	0.029	0.009	0.031	0.024	0.018	0.014	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	425	396	314	281	337	249	414	383	267	NDIR Spectroscopy Method
Ozone	µg/m³	100	2.3	3.6	1.8	2.9	4.1	2.5	3.2	4.9	2.7	UV photometric method

ENVIRONMENT LABORATORY Vimta Dr. Subba Reddy Mallampati Manager - Environment VIMTA

Sensitivity, Internal (C3)

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ISSUED TO:		
M/s. Bharat Aluminium Company Limited, KORBA (C.G.)	Report No.:	VLL/VLS/23-24/10824/002
	Issue Date:	2023-10-05
	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — AMBIENT AIR QUALITY MONITORING AT DHANSAR CAMP (CHOTIA - 1)

Analysis starting date :- 2023-09-05 — **Analysis Completion date :- 2023-10-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase. Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Dhansar Camp (Chotia - 1)									
Sampling Date			2023-09-02	2023-09-04	2023-09-09	2023-09-11	2023-09-13	2023-09-15	2023-09-19	2023-09-22	2023-09-26	Method
Sulphur Dioxide (SO_2)	µg/m³	80	13.6	11.5	9.1	16.4	18.4	20.6	15.8	12.9	15.5	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	7.3	13.9	11.6	9.5	12.1	15.8	12.7	10.4	14.2	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	55.2	41.7	46.3	50.8	53.6	47.8	52.9	46.7	51.5	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	16.4	17.3	14.9	12.0	14.0	17.8	19.5	17.7	15.1	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.8	1.3	2.1	1.9	1.4	1.8	2.2	2.7	1.2	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	2.6	2.1	3.7	1.2	2.8	3.9	1.6	1.8	2.5	AAS/ICP Method
Lead as Pb	µg/m³	1	0.018	0.009	0.014	0.031	0.028	0.019	0.022	0.025	0.027	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	546	421	307	361	295	464	449	359	418	NDIR Spectroscopy Method
Ozone	µg/m³	100	3.9	1.5	2.7	2.4	3.3	2.8	1.8	3.1	2.6	UV photometric method

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ISSUED TO:		
M/s. Bharat Aluminium Company Limited, KORBA (C.G.)	Report No.:	VLL/VLS/23-24/10824/003
	Issue Date:	2023-10-05
	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars AMBIENT AIR QUALITY MONITORING AT GUEST HOUSE (CHOTIA -1)

Analysis starting date :- 2023-09-05 **Analysis Completion date :- 2023-10-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Guest House (Chotia - 1)									
Sampling Date			2023-09-02	2023-09-04	2023-09-09	2023-09-11	2023-09-13	2023-09-15	2023-09-19	2023-09-22	2023-09-26	Method
Sulphur Dioxide (SO_2)	µg/m³	80	16.3	22.6	14.9	18.2	12.1	16.6	14.7	17.7	16.4	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	9.3	12.7	10.5	11.2	8.3	13.4	10.2	8.6	12.2	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	40.3	59.1	40.4	47.7	42.4	53.7	41.9	57.6	49.7	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	14.5	17.1	15.2	18.2	14.0	15.6	12.8	21.3	13.8	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	0.8	1.2	2.1	1.5	1.9	2.5	1.4	1.7	1.1	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	2.5	2.8	2.1	1.4	1.9	2.4	3.2	2.7	1.8	AAS/ICP Method
Lead as Pb	µg/m³	1	0.016	0.011	0.025	0.017	0.019	0.022	0.014	0.028	0.015	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	425	359	411	382	347	296	319	421	364	NDIR Spectroscopy Method
Ozone	µg/m³	100	2.9	4.6	2.7	2.4	3.6	3.4	2.7	1.9	2.1	UV photometric method

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ISSUED TO: **M/s. Bharat Aluminium Company Limited,** **KORBA (C.G.)**		Report No.:	VLL/VLS/23-24/10824/004
		Issue Date:	2023-10-05
		P.O.No:	8500005780
		P.O. Date:	2022-06-29

Sample Particulars

AMBIENT AIR QUALITY MONITORING AT WEIGH BRIDGE (CHOTIA -1)

Analysis starting date :- 2023-09-05

Analysis Completion date :- 2023-10-04

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Weigh Bridge (Chotia - 1)									
Sampling Date			2023-09-02	2023-09-04	2023-09-09	2023-09-11	2023-09-13	2023-09-15	2023-09-19	2023-09-22	2023-09-26	Method
Sulphur Dioxide (SO_2)	µg/m³	80	14.0	17.0	18.1	20.7	14.9	13.6	11.8	16.4	14.1	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	14.3	12.1	16.3	13.8	12.1	10.8	15.7	14.3	12.9	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	55.6	62.9	41.6	39.5	62.3	58.7	46.8	35.3	49.9	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	20.7	18.3	16.3	15.6	23.3	20.3	17.1	13.2	18.5	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.6	1.3	1.2	1.8	1.1	0.8	1.4	1.9	1.3	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.4	2.8	3.6	2.2	2.7	2.4	4.2	3.9	2.7	AAS/ICP Method
Lead as Pb	µg/m³	1	0.029	0.021	0.025	0.034	0.018	0.009	0.016	0.026	0.017	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	527	473	539	452	483	375	419	508	392	NDIR Spectroscopy Method
Ozone	µg/m³	100	5.1	3.9	4.8	3.6	2.8	4.4	3.8	4.1	2.5	UV photometric method

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	Issue Date:	2023-09-05
	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT D G SET (CHOTIA 1)**

Analysis starting date :- 2023-08-03 — **Analysis Completion date :- 2023-09-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : D G SET - (CHOTIA 1)									
Sampling Date			2023-08-01	2023-08-04	2023-08-07	2023-08-14	2023-08-16	2023-08-18	2023-08-21	2023-08-23	2023-08-25	Method
Sulphur Dioxide (SO_2)	µg/m³	80	14.5	11.8	9.6	14.3	12.6	13.9	11.5	12.8	11.6	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	9.3	8.5	10.8	9.5	10.2	11.6	7.4	8.7	6.7	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	48.4	31.5	38.0	37.0	41.7	52.4	41.1	60.3	58.3	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	15.6	10.9	11.1	10.1	14.8	13.8	11.0	16.9	15.6	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.6	2.1	2.2	1.5	0.9	0.8	1.2	1.6	1.1	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.6	1.2	2.1	1.5	1.8	2.5	3.1	1.6	1.8	AAS/ICP Method
Lead as Pb	µg/m³	1	0.021	0.014	0.011	0.025	0.019	0.021	0.015	0.013	0.017	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	226	351	258	341	465	382	471	352	389	NDIR Spectroscopy Method
Ozone	µg/m³	100	1.6	3.4	2.8	2.2	1.9	4.2	3.2	2.7	2.8	UV photometric method

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	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT DHANSAR CAMP (CHOTIA - 1)**

Analysis starting date :- 2023-08-03 — **Analysis Completion date :- 2023-09-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Dhansar Camp (Chotia - 1)									
Sampling Date			2023-08-01	2023-08-04	2023-08-07	2023-08-14	2023-08-16	2023-08-18	2023-08-21	2023-08-23	2023-08-25	Method
Sulphur Dioxide (SO_2)	µg/m³	80	9.3	11.0	8.2	6.6	11.6	11.2	9.8	10.4	12.2	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	6.3	8.2	10.7	7.6	11.3	8.5	10.8	12.1	8.1	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	51.2	34.9	28.5	36.1	46.2	40.8	39.5	45.3	47.2	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	15.5	10.3	8.1	9.8	12.3	11.6	9.1	14.0	13.1	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.3	2.1	1.5	1.8	2.5	3.2	1.3	1.6	1.0	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	2.2	1.6	1.3	0.9	0.8	1.3	1.1	1.7	1.2	AAS/ICP Method
Lead as Pb	µg/m³	1	0.019	0.021	0.015	0.034	0.028	0.022	0.017	0.019	0.025	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	462	357	391	228	485	374	229	318	404	NDIR Spectroscopy Method
Ozone	µg/m³	100	1.6	2.2	1.7	2.3	2.1	1.4	1.1	1.5	1.2	UV photometric method

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	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT GUEST HOUSE (CHOTIA -1)**

Analysis starting date :- 2023-08-03 — **Analysis Completion date :- 2023-09-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Guest House (Chotia - 1)									
Sampling Date			2023-08-01	2023-08-04	2023-08-07	2023-08-14	2023-08-16	2023-08-18	2023-08-21	2023-08-23	2023-08-25	Method
Sulphur Dioxide (SO_2)	µg/m³	80	13.1	10.7	15.3	14.5	9.5	11.2	13.6	10.5	12.3	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	12.1	10.3	8.2	11.9	13.6	8.6	11.7	7.2	9.1	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	54.8	32.2	47.4	33.7	44.2	56.9	53.7	49.5	58.2	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	16.7	8.8	13.2	9.2	11.6	16.2	11.7	15.6	18.0	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.2	2.5	1.6	0.8	1.6	1.2	1.7	1.4	0.9	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.6	1.3	2.2	1.8	1.4	2.5	2.1	1.9	2.8	AAS/ICP Method
Lead as Pb	µg/m³	1	0.012	0.026	0.018	0.014	0.027	0.019	0.015	0.021	0.013	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	419	297	336	309	287	332	174	263	381	NDIR Spectroscopy Method
Ozone	µg/m³	100	419	297	336	309	287	332	174	263	381	UV photometric method

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	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT WEIGH BRIDGE (CHOTIA -1)**

Analysis starting date :- 2023-08-03 — **Analysis Completion date :- 2023-09-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Weigh Bridge (Chotia - 1)									
Sampling Date			2023-08-01	2023-08-04	2023-08-07	2023-08-14	2023-08-16	2023-08-18	2023-08-21	2023-08-23	2023-08-25	Method
Sulphur Dioxide (SO_2)	µg/m³	80	16.3	11.8	14.1	11.0	8.7	12.5	15.7	11.6	10.9	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	11.6	13.8	15.1	12.7	14.1	13.9	10.8	12.4	9.8	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	43.5	38.9	45.6	42.8	56.6	51.0	46.4	58.3	51.1	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	19.9	12.1	12.5	11.6	15.4	16.5	13.6	17.5	14.7	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.2	0.8	1.9	1.3	1.1	0.5	1.5	2.1	1.8	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	2.6	3.1	1.9	2.5	1.6	2.8	3.2	3.5	2.9	AAS/ICP Method
Lead as Pb	µg/m³	1	0.014	0.025	0.019	0.031	0.029	0.025	0.014	0.031	0.027	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	249	532	228	364	447	419	383	472	359	NDIR Spectroscopy Method
Ozone	µg/m³	100	3.1	2.8	4.3	3.5	2.4	1.8	2.6	1.7	3.3	UV photometric method

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	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT D G SET (CHOTIA 1)**

Analysis starting date :- 2023-07-06 — **Analysis Completion date :- 2023-08-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_x), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : D G SET - (CHOTIA 1)								
Sampling Date			2023-07-03	2023-07-06	2023-07-11	2023-07-14	2023-07-17	2023-07-20	2023-07-24	2023-07-27	Method
Sulphur Dioxide (SO_2)	µg/m³	80	18.3	21.1	15.4	19.6	25.7	14.3	18.2	13.8	Improved West and Gaeke Method
Nitrogen Dioxide (NO_2)	µg/m³	80	12.1	9.6	7.6	11.3	10.6	8.4	7.1	14.7	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	49.8	52.9	44.6	54.3	46.2	50.9	57.2	54.9	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	12.9	13.3	11.2	15.8	10.9	14.7	18.3	15.2	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.5	1.1	0.8	1.3	0.9	1.8	1.6	1.2	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.3	0.9	2.1	1.1	2.6	2.2	1.7	0.8	AAS/ICP Method
Lead as Pb	µg/m³	1	0.008	0.013	0.017	0.015	0.011	0.021	0.017	0.032	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	482	336	372	293	317	259	443	241	NDIR Spectroscopy Method
Ozone	µg/m³	100	3.6	2.8	2.2	6.3	4.3	3.9	2.6	5.7	UV photometric method

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M/s. Bharat Aluminium Company Limited,	Issue Date:	2023-08-05
KORBA (C.G.)	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT DHANSAR CAMP (CHOTIA - 1)**

Analysis starting date :- 2023-07-06 — **Analysis Completion date :- 2023-08-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Dhansar Camp (Chotia - 1)								
Sampling Date			2023-07-03	2023-07-06	2023-07-11	2023-07-14	2023-07-17	2023-07-20	2023-07-24	2023-07-27	Method
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	14.3	11.3	18.3	16.7	20.3	15.9	13.7	12.6	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	8.9	6.3	11.3	7.4	15.6	13.4	8.2	10.9	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	$\mu g/m^3$	100	49.8	44.6	41.4	52.3	47.6	48.2	51.2	55.9	Gravimetric Method
Particulate Matter (PM2.5)	$\mu g/m^3$	60	15.1	12.9	10.6	18.1	14.8	12.1	15.4	17.3	Gravimetric Method
Ammonia (NH_3)	$\mu g/m^3$	400	0.9	0.3	1.1	1.3	0.8	1.7	1.9	1.2	Indophenol Blue Method
Benzene (C_6H_6)	$\mu g/m^3$	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m^3	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m^3	20	1.6	2.5	1.7	3.5	3.3	2.4	1.8	2.0	AAS/ICP Method
Lead as Pb	$\mu g/m^3$	1	0.025	0.012	0.008	0.016	0.031	0.021	0.018	0.011	AAS/ICP Method
Carbon Monoxide	$\mu g/m^3$	2000	381	264	229	461	394	345	287	215	NDIR Spectroscopy Method
Ozone	$\mu g/m^3$	100	4.6	2.8	3.9	3.1	5.2	1.7	2.7	3.9	UV photometric method

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KORBA (C.G.)	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT GUEST HOUSE (CHOTIA -1)**

Analysis starting date :- 2023-07-06 — **Analysis Completion date :- 2023-08-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Guest House (Chotia - 1)								
Sampling Date			2023-07-03	2023-07-06	2023-07-11	2023-07-14	2023-07-17	2023-07-20	2023-07-24	2023-07-27	Method
Sulphur Dioxide (SO_2)	µg/m³	80	15.2	21.2	16.3	18.7	11.9	12.6	19.3	25.2	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	15.3	18.2	9.4	11.6	12.1	8.4	10.6	13.4	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	54.3	52.8	48.9	47.3	50.6	44.7	58.4	56.1	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	17.1	18.3	16.3	15.4	18.6	13.5	20.2	19.4	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	2.3	1.6	1.1	2.7	1.9	1.3	1.1	1.4	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.5	1.7	1.3	2.2	1.9	0.8	0.4	1.6	AAS/ICP Method
Lead as Pb	µg/m³	1	0.025	0.031	0.029	0.024	0.018	0.014	0.024	0.011	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	339	374	482	229	409	392	419	227	NDIR Spectroscopy Method
Ozone	µg/m³	100	3.6	2.8	2.1	2.6	3.9	2.8	1.6	3.9	UV-photometric method

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	Issue Date:	2023-08-05
	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT WEIGH BRIDGE (CHOTIA -1)**

Analysis starting date :- 2023-07-04 — **Analysis Completion date :- 2023-08-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Weigh Bridge (Chotia 1)								
Sampling Date			2023-07-03	2023-07-06	2023-07-11	2023-07-14	2023-07-17	2023-07-20	2023-07-24	2023-07-27	Method
Sulphur Dioxide (SO_2)	µg/m³	80	21.3	25.1	18.4	16.3	17.4	22.6	10.3	14.9	Improved West and Gaeke Method
Nitrogen Dioxide (NO_2)	µg/m³	80	12.0	13.2	8.4	7.1	14.1	11.3	9.6	16.8	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	51.8	47.3	55.2	46.5	49.2	44.1	53.7	52.4	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	20.1	15.4	19.3	16.7	15.4	13.2	18.6	21.8	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.4	2.5	1.9	0.7	1.3	1.8	0.7	0.9	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	2.4	1.9	1.3	2.7	3.1	3.5	2.8	1.4	AAS/ICP Method
Lead as Pb	µg/m³	1	0.015	0.021	0.028	0.034	0.022	0.017	0.015	0.020	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	356	472	184	339	546	372	314	407	NDIR Spectroscopy Method
Ozone	µg/m³	100	2.3	4.1	3.9	2.2	2.8	3.9	4.3	[illegible]	UV photometric method

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	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT WEIGH BRIDGE (CHOTIA -1)**

Analysis starting date :- 2023-06-07 — **Analysis Completion date :- 2023-07-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Weigh Bridge (Chotia - 1)								
Sampling Date			2023-06-02	2023-06-05	2023-06-09	2023-06-12	2023-06-15	2023-06-19	2023-06-21	2023-06-24	Method
Sulphur Dioxide (SO_2)	µg/m³	80	19.9	23.4	28.5	21.3	18.4	20.1	25.5	20.2	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	14.3	18.8	14.6	21.1	26.2	16.6	15.3	22.4	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	54.1	58.2	52.2	60.2	55.4	59.7	50.1	43.5	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	26.5	23.3	24.9	26.4	23.8	25.5	22.7	21.1	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	2.4	2.1	1.1	0.9	1.4	0.9	1.8	2.2	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.6	2.4	3.1	2.1	1.9	2.3	1.7	2.8	AAS/ICP Method
Lead as Pb	µg/m³	1	0.022	0.016	0.019	0.011	0.020	0.013	0.018	0.016	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	489	531	321	364	421	298	258	301	NDIR Spectroscopy Method
Ozone	µg/m³	100	3.9	6.1	5.3	3.8	3.1	4.9	3.8	4.1	UV photometric method

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Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT GUEST HOUSE (CHOTIA -1)**

Analysis starting date :- 2023-06-07 — **Analysis Completion date :- 2023-07-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_x), Particulate Matter (PM 10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Guest House (Chotia - 1)								
Sampling Date			2023-06-02	2023-06-05	2023-06-09	2023-06-12	2023-06-15	2023-06-19	2023-06-21	2023-06-24	Method
Sulphur Dioxide (SO_2)	µg/m³	80	13.8	17.5	20.6	23.2	14.1	16.3	23.1	19.1	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	13.6	9.3	18.9	13.4	15.7	10.1	8.9	12.3	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	62.2	59.7	54.4	60.9	55.7	52.5	49.1	45.4	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	24.1	21.6	19.9	18.4	14.6	21.1	13.3	10.2	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	2.7	1.8	2.1	1.4	1.6	2.0	1.3	1.7	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.1	2.1	0.9	1.4	1.8	2.1	1.7	1.2	AAS/ICP Method
Lead as Pb	µg/m³	1	0.019	0.026	0.011	0.021	0.009	0.022	0.018	0.007	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	298	246	387	355	285	322	209	184	NDIR Spectroscopy Method
Ozone	µg/m³	100	2.8	1.9	2.5	2.1	2.9	2.1	3.7	2.4	UV photometric method

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Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT DHANSAR CAMP (CHOTIA - 1)**

Analysis starting date :- 2023-06-07 — **Analysis Completion date :- 2023-07-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Dhansar Camp (Chotia - 1)								
Sampling Date			2023-06-02	2023-06-05	2023-06-09	2023-06-12	2023-06-15	2023-06-19	2023-06-21	2023-06-24	Method
Sulphur Dioxide (SO_2)	µg/m³	80	17.8	21.2	23.9	22.5	19.8	24.3	18.8	22.6	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	11.6	14.5	10.4	13.3	16.4	12.7	11.8	14.1	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	52.1	49.7	51.3	54.4	50.5	57.1	44.2	47.1	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	22.1	15.4	18.7	24.6	20.7	18.4	16.5	19.9	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	2.1	1.9	0.9	1.2	1.8	2.7	0.7	1.1	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.9	2.4	1.6	2.1	2.8	2.0	1.9	2.0	AAS/ICP Method
Lead as Pb	µg/m³	1	0.014	0.017	0.029	0.021	0.028	0.018	0.011	0.019	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	521	321	298	344	397	333	223	286	NDIR Spectroscopy Method
Ozone	µg/m³	100	2.3	3.1	3.9	4.2	2.4	1.9	1.6	2.3	UV photometric method

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	P.O. Date:	2022-06-29

Sample Particulars AMBIENT AIR QUALITY MONITORING AT D G SET (CHOTIA 1)

Analysis starting date :- 2023-06-07 **Analysis Completion date :- 2023-07-04**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : D G SET - (CHOTIA 1)								
Sampling Date			2023-06-02	2023-06-05	2023-06-09	2023-06-12	2023-06-15	2023-06-19	2023-06-21	2023-06-24	Method
Sulphur Dioxide (SO_2)	µg/m³	80	24.6	26.1	18.3	21.4	24.4	20.3	16.4	18.2	Improved West and Gaeke Method
Nitrogen Dioxide (NO_2)	µg/m³	80	17.6	14.3	12.1	15.4	12.9	14.7	11.4	13.8	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	59.4	54.7	58.8	61.3	56.5	52.8	45.4	42.6	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	21.4	17.3	20.9	22.6	18.3	16.2	14.5	13.8	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	2.1	1.9	0.7	2.4	1.6	1.1	0.9	1.6	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	2.2	1.7	2.4	1.5	1.3	2.6	1.9	2.1	AAS/ICP Method
Lead as Pb	µg/m³	1	0.023	0.016	0.021	0.014	0.019	0.022	0.013	0.018	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	355	412	364	266	325	389	244	285	NDIR Spectroscopy Method
Ozone	µg/m³	100	1.9	2.1	2.7	3.2	4.1	2.9	3.2	2.4	UV photometric method

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	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT D G SET (CHOTIA 1)**

Analysis starting date :- 2023-05-08 — **Analysis Completion date :- 2023-06-05**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : D G SET - (CHOTIA 1)								
Sampling Date			2023-05-02	2023-05-05	2023-05-09	2023-05-12	2023-05-15	2023-05-18	2023-05-22	2023-05-25	Method
Sulphur Dioxide (SO_2)	µg/m³	80	21.3	17.5	19.2	22.7	26.3	21.4	16.4	14.8	Improved West and Gaeke Method
Nitrogen Dioxide (NO_2)	µg/m³	80	13.1	18.7	13.1	15.6	13.7	13.2	14.5	16.9	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	61.3	58.7	60.5	62.8	54.6	58.2	63.4	42.7	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	20.7	18.2	21.3	23.2	19.4	22.6	24.2	18.1	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	2.4	1.6	1.1	1.9	1.6	0.8	1.1	1.3	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.9	2.2	2.6	3.2	1.8	2.3	2.8	1.5	AAS/ICP Method
Lead as Pb	µg/m³	1	0.019	0.021	0.019	0.024	0.017	25	0.014	0.023	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	254	427	256	231	367	438	295	273	NDIR Spectroscopy Method
Ozone	µg/m³	100	2.4	1.9	3.5	4.1	3.9	2.2	3.7	3.2	UV photometric method

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ISSUED TO: M/s. Bharat Aluminium Company Limited, KORBA (C.G.)		
	Report No.:	VLL/VLS/23-24/03631/002
	Issue Date:	2023 06 05
	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT DHANSAR CAMP (CHOTIA - 1)**

Analysis starting date :- 2023-05-08

Analysis Completion date :- 2023-06-05

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Dhansar Camp (Chotia - 1)								
Sampling Date			2023-05-02	2023-05-05	2023-05-09	2023-05-12	2023-05-15	2023-05-18	2023-05-22	2023-05-25	Method
Sulphur Dioxide (SO_2)	µg/m³	80	23.2	19.2	25.7	18.4	21.6	30.8	22.7	32.9	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	13.5	11.8	14.1	10.9	15.6	16.8	12.1	15.2	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	46.8	53.2	50.9	56.8	61.7	45.3	55.9	58.1	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	15.9	17.8	15.8	19.6	22.3	15.4	18.6	20.3	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.5	2.4	1.9	3.1	2.8	1.1	0.8	1.6	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	2.2	2.6	1.9	1.4	2.1	1.6	2.8	1.2	AAS/ICP Method
Lead as Pb	µg/m³	1	0.026	0.018	0.034	0.019	0.014	0.027	0.015	0.026	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	384	547	364	287	409	321	329	436	NDIR Spectroscopy Method
Ozone	µg/m³	100	3.2	1.7	4.3	2.9	3.5	1.4	1.9	3.6	UV photometric method

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	Issue Date:	2023-06-05
	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars

AMBIENT AIR QUALITY MONITORING AT GUEST HOUSE (CHOTIA -1)

Analysis starting date :- 2023-05-08

Analysis Completion date :- 2023-06-05

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Guest House (Chotia - 1)								
Sampling Date			2023-05-02	2023-05-05	2023-05-09	2023-05-12	2023-05-15	2023-05-18	2023-05-22	2023-05-25	Method
Sulphur Dioxide (SO_2)	µg/m³	80	17.3	25.4	22.9	26.3	15.8	21.3	18.7	20.5	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	11.5	8.7	14.1	15.8	10.6	12.7	9.3	15.2	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	60.8	63.2	57.8	54.1	48.7	50.9	63.4	59.5	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	20.9	18.7	16.1	15.8	16.7	18.1	21.8	17.3	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	0.9	2.7	2.1	1.7	1.4	2.1	1.9	2.5	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.3	1.7	2.1	0.9	2.4	1.6	2.1	1.9	AAS/ICP Method
Lead as Pb	µg/m³	1	0.024	0.019	0.007	0.026	0.031	0.016	0.022	0.028	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	354	276	341	228	354	387	185	263	NDIR Spectroscopy Method
Ozone	µg/m³	100	3.2	5.8	2.1	4.9	3.5	1.8	4.1	3.9	UV photometric method

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	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT WEIGH BRIDGE (CHOTIA -1)**

Analysis starting date :- 2023-05-08 — **Analysis Completion date :- 2023-06-05**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Weigh Bridge (Chotia - 1)								
Sampling Date			2023-05-02	2023-05-05	2023-05-09	2023-05-12	2023-05-15	2023-05-18	2023-05-22	2023-05-25	Method
Sulphur Dioxide (SO_2)	µg/m³	80	27.6	30.1	26.5	19.3	14.8	25.5	21.7	16.9	Improved West and Gaeke Method
Nitrogen Dioxide (NO_2)	µg/m³	80	15.7	12.1	10.9	13.9	17.3	12.1	11.6	14.7	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	58.8	61.7	57.3	50.8	63.2	60.7	60.5	59.1	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	24.2	22.8	21.3	19.1	25.1	23.8	26.7	21.7	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	2.5	1.9	0.6	0.9	1.1	1.7	2.4	2.9	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.8	3.3	3.6	2.8	1.6	2.7	2.5	3.2	AAS/ICP Method
Lead as Pb	µg/m³	1	0.032	0.027	0.021	0.013	0.018	0.033	0.027	0.018	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	563	471	296	354	463	369	254	395	NDIR Spectroscopy Method
Ozone	µg/m³	100	4.3	7.3	4.9	3.6	2.8	5.1	4.3	3.1	UV photometric method

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M/s. Bharat Aluminium Company Limited, KORBA (C.G.)	Issue Date:	2023-05-05
	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT D G SET (CHOTIA 1)**

Analysis starting date :- 2023-04-05 — **Analysis Completion date :- 2023-05-05**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : D G SET - (CHOTIA 1)								
Sampling Date			2023-04-03	2023-04-06	2023-04-10	2023-04-13	2023-04-17	2023-04-21	2023-04-25	2023-04-28	Method
Sulphur Dioxide (SO_2)	µg/m³	80	14.8	20.1	37.8	32.2	28.5	31.0	19.9	26.7	Improved West and Gaeke Method
Nitrogen Dioxide (NO_2)	µg/m³	80	11.1	13.2	16.6	9.1	10.2	14.4	7.6	6.9	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	55.5	60.2	59.3	54.7	61.5	59.6	53.3	60.8	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	18.8	20.4	20.1	18.6	20.9	20.2	18.1	20.6	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.3	1.4	0.9	1.9	1.2	1.6	0.8	1.1	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	0.9	2.1	1.8	2.5	1.6	3.4	2.1	1.9	AAS/ICP Method
Lead as Pb	µg/m³	1	0.013	0.016	0.023	0.027	0.011	0.016	0.012	0.014	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	287	311	243	167	356	413	379	392	NDIR Spectroscopy Method
Ozone	µg/m³	100	3.4	2.9	3.2	4.2	5.1	2.7	2.3	3.4	UV photometric method

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M/s. Bharat Aluminium Company Limited, KORBA (C.G.)	Issue Date:	2023 05 05
	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT DHANSAR CAMP (CHOTIA - 1)**

Analysis starting date :- 2023-04-05 — **Analysis Completion date :- 2023-05-05**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_x), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Dhansar Camp (Chotia - 1)								
Sampling Date			2023-04-03	2023-04-06	2023-04-10	2023-04-13	2023-04-17	2023-04-21	2023-04-25	2023-04-28	Method
Sulphur Dioxide (SO_2)	µg/m³	80	13.2	21.9	27.6	17.8	26.6	20.8	12.7	19.9	Improved West and Gaeke Method
Nitrogen Dioxide (NO_x)	µg/m³	80	16.3	10.8	11.0	9.9	13.5	8.6	14.1	9.3	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	41.7	55.8	51.1	57.8	56.7	52.2	51.6	54.4	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	16.3	19.5	17.8	20.2	19.8	18.2	18.1	18.9	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	0.9	1.1	1.6	1.2	0.8	1.4	1.1	1.7	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	1.2	1.5	0.9	1.6	1.1	1.4	1.6	0.8	AAS/ICP Method
Lead as Pb	µg/m³	1	0.019	0.021	0.027	0.016	0.011	0.023	0.014	0.022	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	432	396	356	297	417	377	354	275	NDIR Spectroscopy Method
Ozone	µg/m³	100	2.8	4.2	3.9	4.7	2.9	3.1	2.6	5.1	UV photometric method

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M/s. Bharat Aluminium Company Limited,	Issue Date:	2023-05-05
KORBA (C.G.)	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT GUEST HOUSE (CHOTIA -1)**

Analysis starting date :- 2023-04-05 — **Analysis Completion date :- 2023-05-05**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Guest House (Chotia - 1)								
Sampling Date			2023-04-03	2023-04-06	2023-04-10	2023-04-13	2023-04-17	2023-04-21	2023-04-25	2023-04-28	Method
Sulphur Dioxide (SO_2)	µg/m³	80	14.5	23.8	27.2	17.2	19.6	34.2	15.5	18.6	Improved West and Gaeke Method
Nitrogen Dioxide (NO_2)	µg/m³	80	10.3	9.9	13.2	8.1	11.9	15.6	12.2	14.7	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	62.2	59.9	54.2	61.4	51.7	53.5	56.3	58.1	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	21.1	20.3	18.4	20.8	17.9	18.2	19.1	19.7	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.2	1.7	2.3	0.9	1.6	2.5	2.9	1.9	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	2.2	1.9	1.6	2.4	2.1	2.0	1.5	1.7	AAS/ICP Method
Lead as Pb	µg/m³	1	0.021	0.027	0.034	0.029	0.019	0.013	0.024	0.018	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	293	386	278	312	366	309	356	215	NDIR Spectroscopy Method
Ozone	µg/m³	100	4.9	2.7	5.3	4.5	3.9	2.6	3.2	2.9	UV photometric method

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KORBA (C.G.)	P.O.No:	8500005780
	P.O. Date:	2022-06-29

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT WEIGH BRIDGE (CHOTIA -1)**

Analysis starting date :- 2023-04-05 — **Analysis Completion date :- 2023-05-05**

Tests required: Sulphur Dioxide (SO_2), Nitrogen Dioxide (NOx), Particulate Matter (PM10), Particulate Matter (PM2.5), Ammonia (NH_3), Benzene (C_6H_6), Benzo (a) Pyrene in particulate phase, Heavy metals in particulate phase for Arsenic, Nickel & Lead.

TEST RESULTS

Parameters	Units	Limits	AAQ Location : Weigh Bridge (Chotia - 1)								
Sampling Date			2023-04-03	2023-04-06	2023-04-10	2023-04-13	2023-04-17	2023-04-21	2023-04-25	2023-04-28	Method
Sulphur Dioxide (SO_2)	µg/m³	80	32.2	28.9	36.1	39.1	21.3	29.5	24.7	20.8	Improved West and Gaeke Method
Nitrogen Dioxide (NO_2)	µg/m³	80	11.8	14.2	15.8	9.7	12.2	8.9	16.4	15.9	Modified Jacob & Hochheiser Method
Particulate Matter (PM10)	µg/m³	100	60.2	62.6	59.9	56.4	63.3	55.2	57.5	58.7	Gravimetric Method
Particulate Matter (PM2.5)	µg/m³	60	21.7	22.5	21.6	20.3	22.8	19.8	20.7	21.1	Gravimetric Method
Ammonia (NH_3)	µg/m³	400	1.3	1.8	1.1	0.9	1.5	1.2	1.6	1.4	Indophenol Blue Method
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Benzo(a) Pyrene in particulate phase	ng/m³	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Solvent Extraction followed by GC Analysis
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	AAS/ICP Method
Nickel as Ni	ng/m³	20	2.4	2.8	3.1	1.7	1.8	2.3	3.5	2.9	AAS/ICP Method
Lead as Pb	µg/m³	1	0.021	0.012	0.024	0.031	0.015	0.029	0.018	0.025	AAS/ICP Method
Carbon Monoxide	µg/m³	2000	422	290	281	422	277	390	355	299	NDIR Spectroscopy Method
Ozone	µg/m³	100	3.1	5.8	2.5	4.7	3.7	5.4	2.8	6.5	UV photometric method

Dr. Subba Reddy Mallampati
Sr. Manager - Environment

ENVIRONMENT LABORATORY
Vimta
VIMTA LABS
REGD. No- DL 33004/99
Sr. No.-5
VIMTA

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M/s. Bharat Aluminium Company Limited
KORBA (C.G)

Report Number: VLL/VLS/23-24/10824/001
Issue Date: 2023-10-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-09-02 6:00 to 22.00	Norms in dB(Night)	2023-09-02 22.00 to 6.00
1	Near haul Road	dB	75	56.4	70	36.7
2	Guest House	dB	75	54.1	70	35.1
3	R. P. L. Camp (Work Shop)	dB	75	52.8	70	32.8
4	Chotia Village	dB	55	48.3	50	33.1
5	Near D. G. Room	dB	75	52.9	70	36.4

ENVIRONMENT LABORATORY VIMTA LABS REGD. No- DL 3300/09

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Report Number: VLL/VLS/23-24/10824/001
Issue Date: 2023-10-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-09-25 6:00 to 22.00	Norms in dB(Night)	2023-09-25 22.00 to 6.00
1	Near haul Road	dB	75	56.2	70	35.1
2	Guest House	dB	75	57.4	70	33.2
3	R. P. L. Camp (Work Shop)	dB	75	53.1	70	32.8
4	Chotia Village	dB	55	56.8	50	34.1
5	Near D. G. Room	dB	75	54.9	70	35.9

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Report Number: VLL/VLS/23-24/09226/001
Issue Date: 2023-09-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-08-04 6:00 to 22.00	Norms in dB(Night)	2023-08-04 22.00 to 6.00
1	Near haul Road	dB	75	55.8	70	35.1
2	Guest House	dB	75	53.1	70	36.4
3	R. P. L. Camp (Work Shop)	dB	75	54.6	70	30.8
4	Chotia Village	dB	55	47.9	50	32.6
5	Near D. G. Room	dB	75	50.3	70	35.9

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Report Number: VLL/VLS/23-24/09226/001
Issue Date: 2023-09-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-08-18 6:00 to 22.00	Norms in dB(Night)	2023-08-18 22.00 to 6.00
1	Near haul Road	dB	75	55.8	70	33.6
2	Guest House	dB	75	54.7	70	32.9
3	R. P. L. Camp (Work Shop)	dB	75	52.9	70	34.2
4	Chotia Village	dB	55	50.4	50	31.7
5	Near D. G. Room	dB	75	52.6	70	36.9

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 3300-099 Sr. No.-5

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Report Number: VLL/VLS/23-24/07066/001
Issue Date: 2023-08-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-07-04 6:00 to 22.00	Norms in dB(Night)	2023-07-04 22.00 to 6.00
1	Near haul Road	dB	75	54.1	70	34.2
2	Guest House	dB	75	52.9	70	34.6
3	R. P. L. Camp (Work Shop)	dB	75	52.3	70	32.4
4	Chotia Village	dB	55	46.7	50	30.7
5	Near D. G. Room	dB	75	50.9	70	33.9

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No. DL 3300439 Sr. No.-5

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Report Number: VLL/VLS/23-24/07066/001
Issue Date: 2023-08-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-07-17 6:00 to 22.00	Norms in dB(Night)	2023-07-17 22.00 to 6.00
1	Near haul Road	dB	75	56.3	70	31.2
2	Guest House	dB	75	52.7	70	33.4
3	R. P. L. Camp (Work Shop)	dB	75	53.1	70	31.8
4	Chotia Village	dB	55	51.9	50	30.7
5	Near D. G. Room	dB	75	54.8	70	34.2

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REGD. No- DL 33004/99
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Report Number: VLL/VLS/23-24/05404/001
Issue Date: 2023-06-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-06-21 6:00 to 22.00	Norms in dB(Night)	2023-06-21 22.00 to 6.00
1	Near haul Road	dB	75	53.3	70	29.6
2	Guest House	dB	75	54.2	70	32.6
3	R. P. L. Camp (Work Shop)	dB	75	52.6	70	31.6
4	Chotia Village	dB	55	51.1	50	30.5
5	Near D. G. Room	dB	75	52.6	70	32.1

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Report Number: VLL/VLS/23-24/05404/001
Issue Date: 2023-07-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-06-08 6:00 to 22.00	Norms in dB(Night)	2023-06-08 22.00 to 6.00
1	Near haul Road	dB	75	52.3	70	32.1
2	Guest House	dB	75	53.4	70	31.7
3	R. P. L. Camp (Work Shop)	dB	75	52.4	70	30.5
4	Chotia Village	dB	55	40.6	50	31.2
5	Near D. G. Room	dB	75	52.5	70	32.5

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Report Number: VLL/VLS/23-24/03631/001
Issue Date: 2023-06-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-05-09 6:00 to 22.00	Norms in dB(Night)	2023-05-09 22.00 to 6.00
1	Near haul Road	dB	75	56.4	70	32.5
2	Guest House	dB	75	56.2	70	32.6
3	R. P. L. Camp (Work Shop)	dB	75	54.3	70	31.8
4	Chotia Village	dB	55	50.3	50	30.7
5	Near D. G. Room	dB	75	54.2	70	33.1

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Report Number: VLL/VLS/23-24/03631/001
Issue Date: 2023-06-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-05-27 6:00 to 22.00	Norms in dB(Night)	2023-05-27 22.00 to 6.00
1	Near haul Road	dB	75	57.4	70	30.6
2	Guest House	dB	75	55.1	70	31.5
3	R. P. L. Camp (Work Shop)	dB	75	53.8	70	32.8
4	Chotia Village	dB	55	50.1	50	31.5
5	Near D. G. Room	dB	75	56.4	70	33.1

ENVIRONMENT LABORATORY
VIMTA LABS
REGD. No- DL 33004/99
Sr. No. 5

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Report Number: VLL/VLS/23-24/01732/001
Issue Date: 2023-05-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-04-14 6:00 to 22.00	Norms in dB(Night)	2023-04-14 22.00 to 6.00
1	Near haul Road	dB	75	55.4	70	33.7
2	Guest House	dB	75	57.3	70	31.8
3	R. P. L. Camp (Work Shop)	dB	75	53.1	70	32.4
4	Chotia Village	dB	55	56.8	50	34.3
5	Near D. G. Room	dB	75	53.7	70	32.6

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

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Report Number: VLL/VLS/23-24/01732/001
Issue Date: 2023-05-05
P.O. No: 8500005780
P.O. Date: 2022-06-29

Sample Particulars: AMBIENT NOISE MONITORING (CHOTIA-1)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD **LAB REF.: EC**

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2023-04-27 6:00 to 22.00	Norms in dB(Night)	2023-04-27 22.00 to 6.00
1	Near haul Road	dB	75	58.3	70	32.7
2	Guest House	dB	75	56.1	70	33.8
3	R. P. L. Camp (Work Shop)	dB	75	54.8	70	34.1
4	Chotia Village	dB	55	58.7	50	33.5
5	Near D. G. Room	dB	75	55.1	70	34.9

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No- DL 33004/99 Sr. No.-5 VIMTA

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