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

BALCO/ENV/A-02(A)/2022/117 31st May , 2022

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

Sub: Half Yearly Compliance Status Report (**October-2021 to March 2022**) of the Smelter 5.5 LTPA &300 MW PP.

Dear Sir,

As per the Environmental Clearance (No. J- 11011/123/2007.IA-II (I) dated 16 September 2008) received for the Expansion of Smelter & Power Plant, M/s Bharat Aluminium Company Limited, Korba has set up smelter plant, phase-1, (3.25 LTPA). Please find enclosed herewith the compliance report along with the necessary supporting documents.

We hope that the above is in line with provisions stipulated in the Environmental Clearance. If you require any further information, we will be glad to furnish the same.

Thanking you,

Yours truly,

RK Singh
COO-Metal

Encl: a/a
Copy to:
1. Regional Officer, CECB, KORBA
2. The APCCF, MoEFCC Civil Lines Nagpur

Expansion of Aluminium Smelter Plant by 3.5 to 9.0 LTPA and Power Plant 300 MW
BALCO, KORBA (C.G.)
No. J-11011/123/2007-IA-II (I) MoEF – 16 September 2008
Duration: October 2021 to March- 2022

A – SPECIFIC CONDITION

S. No.	Conditions	Compliance status
i	The gaseous emissions (PM, SO_2, NOx, PAH, HC, VOCs, and Fluoride) from various process units shall conform to the standard prescribed from time to time. The CECB may specify more stringent standards for the relevant parameters keeping in view the nature of the industry, its size and location. At no time the emission level should go beyond the prescribed standards, In the event of failure of any pollution control system adopted by the unit, the respective unit should not be restarted until the control; measures are rectified to achieve the desired efficiency. The particulate emissions from the bake oven plant shall not exceed 50 mg/Nm3.	Pollution Control devices like bag filters, dry scrubbers and FTP have been installed to ensure that emissions are well within the permissible limits, including the particulate emissions from bake oven plant. CEMS has been installed in the consented stacks of all units and the CEMS has been connected with CPCB/CECB servers for real-time continuous data monitoring. The monthly stack monitoring reports are submitted to CECB every month. Copy of monthly stack monitoring reports are attached as **Annexure - I**
ii	Electrostatic precipitator (ESP) shall be provided to Captive Power Plant (CPP) to control emissions below 50 mgINm3. The company shall provide bag-filters, dry scrubbing system and dust suppression system to control all the emissions including fluoride emissions from all melting and casting units. Tar, dust and fluoride in the fumes shall be controlled in baking furnace by providing dry scrubber. The emissions shall conform to the standards prescribed by the Ministry/CPCB/SPCB whichever is more stringent.	300 MW power plant has not been setup as per EC approval hence the condition "Electrostatic precipitator (ESP) shall be provided to Captive Power Plant (CPP) to control emissions below 50 mgINm3" is not applicable. The company has installed bag-filters, dry scrubbing system and dust suppression system to control the emissions including fluoride emissions from all units. Tar, dust and fluoride in the fumes are controlled in baking furnace by the dry scrubber. CEMS has been installed in the consented stacks of all units and the CEMS has been connected with CPCB/CECB servers for real-time continuous data monitoring. The monthly stack monitoring reports are submitted to CECB every month. Copy of monthly stack monitoring reports are attached as **Annexure - I**
iii	The poly-aromatic hydrocarbons (PAH) from the carbon plant (anode bake oven) shall not exceed 2 mg/Nm3. The data on PAH shall be	Poly-aromatic hydrocarbons (PAH) from Bake oven plant are regularly monitored and reported to CECB every month.

	monitored quarterly and report submitted regularly to the Ministry/Regional Office at Bhopal and CECB.	Copy of monthly stack monitoring reports are attached as **Annexure - I**
iv	Particulate fluoride emissions shall not be more than 0.65 mg/Nm3 and fugitive particulate fluoride emissions from pot room shall not be more than 1.85 mg/Nm3.	State of Art Technology (PFPB) has been installed in the smelters, system for covering the pots with properly designed hoods and fume treatment plant are in place to ensure particulate fluoride emission and fugitive fluoride emissions are within the stipulated norms. Copy of monthly fugitive emission monitoring reports are attached as **Annexure - II**
v	Fluoride consumption shall be less than 10 kg/ton of Aluminium produced as specified in the CREP guidelines.	Our smelter is based on GAMI technology and is designed for an AlF3 consumption of 20 kg/MT of Aluminium produced. The action plan to reduce fluoride consumption to less than 10 kg/MT has been submitted to MoEFCC. Action plant is being implemented for reduction of fluoride consumption to less than 10 KG/MT.
vi	In-plant control measures like fume extraction and dust extraction system for controlling fugitive emissions from all the material handling/transfer points shall be provided to control dust emissions. Fugitive fluoride emissions from the pot room and in the forage around the smelter complex shall be monitored and data submitted regularly to the Ministry's Regional Office at Bhopal and CECB. Further dry scrubbing system to control the emissions from the pot lines shall be provided.	State of Art Technology (PFPB) has been installed in the smelters, system for covering the pots with properly designed hoods, fume treatment plant based on dry scrubbing and bag filter technology and dust suppression and dust extraction systems are in place to check fugitive emissions. Fluoride emissions from pot room and forage fluoride around the smelter complex are monitored regularly. Copy of fugitive emission reports attached as **Annexure – II** and copy of forage fluoride monitoring reports attached as **Annexure – III**
vii	Total water requirement for the expansion from Hasdeo River shall not exceed 1253 m3/hr and prior permission for the existing and proposed expansion shall be obtained from the concerned department before commissioning of the plant. All the effluent including from cooling tower and de-mineralization plant shall be treated in the effluent treatment plant and treated effluent shall be recycled / reutilized in the process in the smelter and CPP and also for fire protection, dust suppression, green belt development etc. Domestic effluent shall be treated in Sewage Treatment Plant (STP) and treated domestic wastewater will be used for green belt development.	Total water requirement for the expansion from Hasdeo River is not exceeding 1253 m3/hr. Effluent Treatment Plant with RO system is in place and treated effluent from ETP is being used in the process and horticulture purposes. For treatment of Sewerage waste Common Sewage Treatment plant has been installed and treated water is being used for green belt development.

viii	No effluent shall be discharged outside the premises during the non-monsoon period and during the monsoon period water shall be discharged only after proper treatment and meeting the norms of the CECB/CPCB.	No effluent is being discharged as the plant is designed for zero discharge and treated water is being used in plant activities.
ix	Regular ground water monitoring shall be carried out by installing Peizometers all around the secured landfill site in consultation with the Chhattisgarh Environment Conservation Board, Central Ground Water Authority and State Ground Water Board and data submitted to the Ministry's Regional Office and CECB.	Piezometers have been installed all around the secured landfill site and ground water monitoring is being carried out every month. The monthly monitoring reports are submitted to CECB every month. Copy of ground water quality monitoring reports are attached as **Annexure – IV**
x	Anode butts generated from the pots shall be cleaned and recycled to the Anode Plant. The spent pot lining generated from the smelter shall be properly treated in spent pot lining treatment plant to remove fluoride and cyanide and disposed off to the Cement/Steel plants and as minimum as possible to secured landfill. The location and design of the landfill site shall be approved by the CECB as per Hazardous Wastes' (Management and Handling) Rules 1989 and amended in 2003. Leachate collection facilities shall be provided to the secured landfill facility (SLF). The dross shall be recycled in the cast house. STP sludge shall be utilized as manure for green belt development. All the used oil and batteries shall be sold to the authorized recyclers/ re-processors.	Anode butts generated from the smelter operations are recycled at Green Anode Plant within the plant premise. For utilizing the spent pot lining generated from the smelter, we have entered into agreement with CECB approved agencies for detoxification and further using it for manufacturing of cement/steel as per CPCB guidelines and SPL is provided to these authorized recyclers. Additionally SLF has been provided as per CPCB guidelines for disposal of Spent Pot linings and other HW after getting the location and design of the landfill site approved by the CECB as per Hazardous and Other Wastes' (Management and Transboundary Movement) Rules 2016. Dross generated is processed through Dross Processing Units / authorized recyclers with valid consent and authorization as per the guidelines of CECB. Used oil and batteries are being sold to the authorized recyclers/ re-processors.
xi	Integrated Ash Management Plan shall be prepared for the utilization of fly ash as per Fly Ash Notification, 1999 as amended in 2003 and implemented. A copy of the plan shall be submitted to the Ministry's Regional Office. Fly ash shall be collected pneumatically in silos and used by cement and brick manufacturers for further utilization. Bottom Ash shall be disposed off in ash pond using high concentrated slurry disposal method.	300 MW Power Plant has not been set up and this clause is not applicable.

xii	Green belt of adequate width and density around the project site shall be developed in 33 % area in consultation with the DFO as per the CPCB guidelines having density of 2,000 trees/ha.	Extensive tree plantation is being carried out every year in all open spaces available in and around the plant premises. Around 15000 saplings were planted in the year 2021-22. However for Smelter 3.25 LTPA a greenbelt has already been developed in 55 acres of land. The plantation has been verified by CECB approved 3rd party and verified plantation report has been submitted to CECB office. Copy of 3rd party verification report attached as **Annexure – V** and copy of greenbelt details attached as **Annexure – VI**
xiii	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Regular PME of employees is being conducted and records are maintained as per the Factories Act.
xiv	The company shall develop rainwater structures to harvest the run off water for recharge of ground water in consultation with the Central Ground Water authority/ State Ground Water Board.	Roof Top Rain Water Harvesting System has been constructed in consultation with CGWB. Photographs of the same are attached as **Annexure - VII**
xv	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium sector shall be strictly implemented.	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium sector being implemented
xvi	All the environmental conditions stipulated by the Ministry vide letter no. J-11011/34/2003-1A II (I) dated 5th November, 2003 for the Alumina Refinery and Aluminium Smelter Plant shall be complied and regular compliance report submitted to the Ministry's Regional Office at Bhopal.	Compliance status for the environmental conditions stipulated by the Ministry vide letter no. J-11011/34/2003-1A II (I) dated 5th November, 2003 for the Alumina Refinery and Aluminium Smelter Plant is submitted regularly to Ministry's Regional Office at Bhopal/Nagpur. Last report was submitted vide our letter no. BALCO/ENV/A-02(A)/2021/280, dated Nov 30, 2021. Copy of last submitted report attached as **Annexure – VIII**
xvii	The company shall comply with all the commitment made during public hearing/public consultation held on 16th November 2007. The company shall prepare the action plan for implementation of the commitments and same shall be submitted to the Ministry and its Regional Office at Bhopal and Chhattisgarh Environmental Conservation Board Raipur.	Being complied with.
xviii	Prior permission from the State Forest Department shall be obtained due to likely impact of transport of raw material and end product and gaseous emissions from the smelter on the surrounding reserve forests	BALCO, Korba has required transport infrastructure with Rail & Road connection in place. For prior permission from the State Forest Department a letter has been sent to the principal Chief Conservator of Forest on 18 Nov. 2015 Vide letter No. Balco /

	and wildlife. Recommendations regarding mitigative measures suggested by the State Forest department and Chief Wildlife Warden, Govt. of Chhattisgarh shall be strictly followed.	Sm3.25LTPA / Env / 01(A) / 2015 / 380 and being followed regularly. Copy of letter attached as **Annexure – IX..** **The Wild life consr plan has been prepared and approved by PCCF wild life.**
xix	Ministry of Environment and Forests shall regularly be informed about the source and quantity of Alumina procured from captive/indigenous/imported sources.	During the period from October 2021 to March 2022, 27,416 MT of Alumina was sourced from our sister concern at Lanjigarh Orissa, and 2,76,335 MT of Alumina was imported for Aluminum Smelter 3.25 LTPA.
xx	Alumina shall be obtained only from those refineries, which have been accorded environmental clearance by the Ministry of Environment and Forests.	Complied with.

B. General Condition

i	The Project authorities must strictly adhere to the stipulation made by the Chhattisgarh Environment Conservation Board and the State Government.	Complied with
ii	No expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Complied with.
iii	Adequate ambient air quality-monitoring stations should be established in the downward direction as well as where maximum ground level concentration of SPM, SO2 and Nox are anticipated in consultation with the State Pollution Control Board. Data on ambient air quality, fugitive emission and stack emissions should be regularly submitted to this ministry including its Regional Office at Bhopal and the State Pollution Control Board/Central Pollution Control Board once in six months.	AAQ stations have been set up both in upwind and downwind directions at locations approved by State Pollution Control Board. Copy of monthly stack emission monitoring reports attached as **Annexure – I** Copy of monthly fugitive emission monitoring reports attached as **Annexure –II** Copy of monthly ambient air quality monitoring reports attached as **Annexure – X**
iv	Industrial waste water 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 form time to time. The treated wastewater should be recycled in the plant as well as utilization for plantation purposes.	Effluent Treatment Plant with RO system is in place and treated effluent from ETP is being used in the plant activities. Plant is designed for zero discharge.
v	The project authorities shall with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management and Handling) Rules 2003. Authorization from the CECB must	Authorization in accordance with Hazardous and other Waste (Management, and Transboundary Movement) Rules 2016 has already been received from CECB on 24 October 2016 vide letter no 4201/HSMD/HO/CECB 2016 and its amendment vide letter No. 6714/HSMD/HO/CECB/2019 Raipur dated 06.11.2019

	be obtained for collection, storage, treatment and disposal of hazardous wastes.	and further amendment vide letter No. 5255/HSMD/HO/CECB/2021 Raipur Dated 21.10.2021, for generation, collection, storage, transport, reuse, recycling and disposal of hazardous wastes and the same is valid up to 23.10.2026. Copy of Authorization and its amendments attached as **Annexure - XI**
vi	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measured including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under Rules, 1989 viz.75 dBA (day time) and 70 dBA (Night time)	Equipments are designed to ensure that noise level at plant boundary area within the stipulated level of 85 dB Copy of noise monitoring reports attached as **Annexure – XII**
vii	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP/risk analysis and DMP report.	Complied with.
viii	As proposed in EIA/EMP Rs. 216.50 Crores earmarked toward the capital cost and recurring the expenditure/annum for environmental protection measures shall be used judiciously to implement the condition stipulated by the ministry of Environment And Forests as well as the state Government. The funds so provided shall not be diverted for any other purposes.	Complied with.
ix	The Regional Office of this Ministry at Bhopal/Central pollution Control Board/CECB will monitor stipulated conditions. A six monthly compliance report and the monitored data along with Statistical interpretation should be submitted to them regularly.	Complied with. EC Compliance was last submitted vide letter no BALCO/ENV/A-02(A)/2021/280, dated Nov 30, 2021. Copy of last submitted report attached as **Annexure – VIII**
x	The project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in. This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of	Complied with. Copy of newspaper advertisements attached as **Annexure – XIII**

	the same should be forwarded to the Regional office.	
xi	The project authorities should inform the regional office as well as the Ministry. The date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Date of commencing the land development work: 10.06.2009 and status updated in Half yearly compliance reports.
6.0	The Ministry may; revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted
7.0	The Ministry reserves the right to stipulated additional conditions if found necessary. The Company in at time bound manner will implement these conditions	Noted.
8.0	Any appeal against this environment clearance shall lie with the national environment appellate authority, if preferred within a period of 30 days as prescribed under section 11 of the National Environment Appellate Act, 1997.	Noted.
9.0	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, Hazardous Wastes (Management and Handling) Rules, 1989/2003 and the Public Liability insurance Act, 1991 along with their amendments and rules.	Noted.

Annexure – 1

Stack Emission Monitoring Report

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TO:
Bharat
minium
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(C.G.)

Report No.: VLL/VLS/21/09392/GAP 1
Issue Date: 2021-11-03
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 1

Ac ... ring date :- 2021-09-14 Analysis Completion date :- 2021-11-01

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 1				GAP - 1 D 6	GAP - 1 D 7	GAP - 1 D 8	GAP - 1 D 9	Method
ocation	Parameter	Norms	Units	(2021-09-14)	(2021-09-14)	(2021-09-14)	(2021-09-14)	
	Height	-	m	50	45	45	50	-
	Diameter	-	m	1.8	0.36	0.36	1.8	-
	Area of Cross section	-	m^2	2.54	0.1017	0.1017	2.54	-
	Temperature	-	°C	41	59	39	58	-
	velocity	-	m/s	9.28	10.36	6.12	11.24	USEPA 2
	Flow	-	Nm_3/Hr	78954.25	3847.21	2041.18	98742.53	USEPA 2
	Absolute Stack pressure	-	mmHg	724.26	725.12	724.93	725.11	USEPA 2
	PM	50	mg/Nm3	17.26	18.76	16.48	17.26	USEPA 5
AP - 1	SO2	-	mg/Nm3	18	9	8	24	Flue Gas Analyser (Electro Chemical)
	Nox	-	mg/Nm3	4	2	2	6	Flue Gas Analyser (Electro Chemical)
	Fluoride (PM)	-	mg/Nm3	0.014	0.019	0.008	0.024	USEPA 13 B
	Fluoride (Gas)	-	mg/Nm3	0.066	0.077	0.051	0.077	USEPA 13 B
	HC	-	PPM	*ND	*ND	*ND	*ND	Flue Gas Analyser (Electro Chemical)
	VOC	-	mg/Nm3	<0.001	<0.001	<0.001	<0.001	USEPA 30/31
	PAH	2	mg/Nm3	0.012	0.017	0.009	0.014	CARB 429

- ... Instrument Used – Stack Monitoring Kit
- ... ed: USEPA
- ... ducted
- ... own

ENVIRONMENT LABORATORY
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REGD. No.- D.L. ...
Dr. Subba Reddy Mallampati
Group Leader - Environment

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TO.
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C.G.)

Report No.: VLL/VLS/21/09392/GAP 2
Issue Date: 2021-11-03
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 2

Analysis Completion date :- 2021-11-01

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 2				GAP - 2 D 6	GAP - 2 D 7	GAP - 2 D 8	GAP - 2 D 9	Method
	Parameter	Norms	Units	(2021-10-09)	(2021-10-09)		(2021-10-09)	
	Height	-	m	50	45		50	-
	Diameter	-	m	1.8	0.36		1.8	-
	Area of Cross section	-	m^2	2.54	0.1017		2.54	-
	Temperature	-	°C	38	45		50	-
	Velocity	-	m/s	7.86	7.51		5.34	USEPA 2
	Flow	-	Nm_3/Hr	67132.18	1796.22		45955.52	USEPA 2
	Absolute Stack pressure	-	mmHg	726.83	727.58		726.14	USEPA 2
	PM	50	mg/Nm^3	12.43	14.63	SD	19.54	USEPA 5
- 2	SO2	-	mg/Nm^3	23	14		17	Flue Gas Analyser (Electro Chemical)
	Nox	-	mg/Nm^3	4	2		4	Flue Gas Analyser (Electro Chemical)
	luoride (PM)	-	mg/Nm^3	0.021	0.011		0.016	USEPA 13 B
	luoride (Gas)	-	mg/Nm^3	0.09	0.065		0.058	USEPA 13 B
	HC	-	PPM	*ND	*ND		*ND	Flue Gas Analyser (Electro Chemical)
	VOC	-	mg/Nm^3	<0.001	<0.001		<0.001	USEPA 30/31
	AH	2	mg/Nm^3	0.014	0.018		0.012	CARB 429

ed – Stack Monitoring Kit
A

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Dr. Subba Reddy Mallampati
Group Leader - Environment
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ISSUED TO:
M/s. Bharat
Aluminium
Company Limited
KORBA (C.G.)

Report No.: VLL/VLS/21/09392/BO
Issue Date: 2021-11-03
Your reference: 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT BAKE OVEN PLANT

Analysis starting date :- 2021-10-20 **Analysis Completion date :- 2021-10-30**

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

BAKE OVEN PLANT					Bake Oven FTP - 1	Bake Oven FTP - 2	Method
S.	Location	Parameter	Norms	Units	2021-10-20	2021-10-22	
	BAKE OVEN PLANT	Height	-	m	30	30	-
		Diameter	-	m	1.2	1.9	-
		Area of Cross section	-	m^2	1.13	2.84	-
		Temperature	-	°C	100	99	-
		velocity	-	m/s	10.62	9.89	USEPA 2
		Flow	-	Nm_3/Hr	40890.37	81425.25	USEPA 2
		Absolute Stack pressure	-	mmHg	727.98	726.24	USEPA 2
		PM	50	mg/Nm3	18.59	13.59	USEPA 5
		SO2	-	mg/Nm3	504	612	Flue Gas Analyser (Electro Chemical)
		Nox	-	mg/Nm3	49	58	Flue Gas Analyser (Electro Chemical)
		Fluoride (PM)	-	mg/Nm3	0.063	0.054	USEPA 13 B
		Fluoride (Gas)	-	mg/Nm3	0.197	0.151	USEPA 13 B
		HC	-	PPM	*ND	*ND	Flue Gas Analyser (Electro Chemical)
		VOC	-	mg/Nm3	<0.001	<0.001	USEPA 30/31
		PAH	2	mg/Nm3	0.016	0.019	CARB 429

IU: Instrument Used – Stack Monitoring Kit
MA: Method Adopted: USEPA
ND: Not Detected
MDL: Method Down

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

Report No.: VLL/VLS/21/09392/PL 1
Issue Date: 2021-11-03
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 1

Analysis starting date :- 2021-10-06

Analysis Completion date :- 2021-10-30

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 1					POTLINE - 1 FTP - 1	POTLINE - 1 FTP - 2	POTLINE - 1 FTP - 3	POTLINE - 1 FTP - 4	Method
S No.	Location	Parameter	Norms	Units	(2021/10/13)	(2021/10/06)	(2021/10/06)	(2021/10/15)	
1	POTLINE - 1	Height	-	m	40	40	40	40	-
2		Diameter	-	m	6.7	6.7	6.7	6.7	-
3		Area of Cross section	-	m^2	35.27	35.27	35.27	35.27	-
4		Temperature	-	°C	122	121	119	121	-
5		velocity	-	m/s	10.48	11.81	11.00	10.94	USEPA 2
6		Flow	-	Nm_3/Hr	1234874.53	1404802.40	1296988.97	1304163.89	USEPA 2
7		Absolute Stack pressure	-	mmHg	721.42	724.49	724.58	722.80	USEPA 2
8		PM	50	mg/Nm^3	3.64	3.58	4.72	3.92	USEPA 5
9		SO2	-	mg/Nm^3	249	232	223	255	USEPA 6
10		Fluoride (PM)	-	mg/Nm^3	0.072	0.069	0.091	0.084	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.170	0.167	0.180	0.183	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit

Method Adopted: USEPA

*ND – Not Deducted

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

Report No.: VLL/VLS/21/09392/PL 2
Issue Date: 2021-11-03
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 2

Analysis starting date :- 2021-10-07 Analysis Completion date :- 2021-11-01

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 2					POTLINE - 2 FTP - 1	POTLINE - 2 FTP - 2	Method
S No.	Location	Parameter	Norms	Units	(2021/10/19)	(2021/10/07)	
1	POTLINE - 2	Height	-	m	40	40	-
2		Diameter	-	m	8.2	8.2	-
3		Area of Cross section	-	m^2	52.83	52.83	-
4		Temperature	-	°C	111	109	-
5		velocity	-	m/s	11.53	10.78	USEPA 2
6		Flow	-	Nm^3/Hr	2046918.57	1916503.32	USEPA 2
7		Absolute Stack pressure	-	mmHg	721.16	726.72	USEPA 2
8		PM	50	mg/Nm^3	4.58	3.46	USEPA 5
9		SO2	-	mg/Nm^3	195	209	USEPA 6
10		Fluoride (PM)	-	mg/Nm^3	0.079	0.061	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.164	0.159	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No:- D.L.-33004/99 Sl. No. 9 VIMTA

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

Report No.: VLL/VLS/21/10611/GAP 1
Issue Date: 2021-12-03
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 1

Analysis starting date :- 2021-11-13

Analysis Completion date :- 2021-12-02

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 1					GAP - 1 D 6	GAP - 1 D 7	GAP - 1 D 8	GAP - 1 D 9	Method
S No.	Location	Parameter	Norms	Units	(2021-11-13)	(2021-11-13)	(2021-11-13)	(2021-11-13)	
1	GAP - 1	Height	-	m	50	45	45	50	-
2		Diameter	-	m	1.8	0.36	0.36	1.8	-
3		Area of Cross section	-	m^2	2.54	0.1017	0.1017	2.54	-
4		Temperature	-	°C	65	62	42	63	-
5		velocity	-	m/s	13.87	9.54	9.56	7.05	USEPA 2
6		Flow	-	Nm_3/Hr	121337.17	3330.61	3346.83	61895.54	USEPA 2
7		Absolute Stack pressure	-	mmHg	727.62	727.89	728.05	728.08	USEPA 2
8		PM	50	mg/Nm3	27.56	10.72	7.36	24.83	USEPA 5
9		SO2	-	mg/Nm3	17	20	6	9	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	2	4	1	1	Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm3	0.011	0.021	0.017	0.008	USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm3	0.046	0.078	0.062	0.035	USEPA 13 B
13		HC	-	PPM	*ND	*ND	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	<0.001	<0.001	<0.001	<0.001	USEPA 30/31
14		PAH	2	mg/Nm3	0.015	0.021	0.018	0.013	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
*ND – Not Deducted
*SD - Shut Down

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ISSUED TO:
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KORBA (C.G.)

Report No.: VLL/VLS/21/10611/GAP 2
Issue Date: 2021-12-03
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 2

Analysis starting date :- 2021-11-20

Analysis Completion date :- 2021-12-02

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 2					GAP - 2 D 6	GAP - 2 D 7	GAP - 2 D 8	GAP - 2 D 9	Method
S No.	Location	Parameter	Norms	Units	(2021-11-20)	(2021-11-20)			
1	GAP - 2	Height	-	m	50	45	SD	SD	-
2		Diameter	-	m	1.8	0.36			-
3		Area of Cross section	-	m^2	2.54	0.1017			-
4		Temperature	-	°C	50	80			-
5		velocity	-	m/s	8.24	10.87			USEPA 2
6		Flow	-	Nm_3/Hr	71020.53	2623.44			USEPA 2
7		Absolute Stack pressure	-	mmHg	724.21	724.7			USEPA 2
8		PM	50	mg/Nm^3	14.63	35.37			USEPA 5
9		SO2	-	mg/Nm^3	9	14			Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm^3	2	2			Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm^3	0.007	0.018			USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm^3	0.035	0.062			USEPA 13 B
13		HC	-	PPM	*ND	*ND			Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm^3	<0.001	<0.001			USEPA 30/31
15		PAH	2	mg/Nm^3	0.017	0.012			CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
*ND – Not Deducted

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ISSUED TO:
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KORBA (C.G.)

Report No.: VLL/VLS/21/10611/BO
Issue Date: 2021-12-03
Your reference: 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT BAKE OVEN PLANT

Analysis starting date :- 2021-10-20 **Analysis Completion date :- 2021-12-02**

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

BAKE OVEN PLANT					Bake Oven FTP - 1	Bake Oven FTP - 2	Method
S No.	Location	Parameter	Norms	Units	2021-10-20	2021-10-20	
1	BAKE OVEN PLANT	Height	-	m	30	30	-
2		Diameter	-	m	1.2	1.9	-
3		Area of Cross section	-	m^2	1.13	2.84	-
4		Temperature	-	°C	104	101	-
5		velocity	-	m/s	11.32	10.28	USEPA 2
6		Flow	-	Nm_3/Hr	52135.28	85617.34	USEPA 2
7		Absolute Stack pressure	-	mmHg	726.36	727.49	USEPA 2
8		PM	50	mg/Nm3	24.18	21.62	USEPA 5
9		SO2	-	mg/Nm3	547	593	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	51	57	Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm3	0.059	0.062	USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm3	0.173	0.168	USEPA 13 B
13		HC	-	PPM	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	<0.001	<0.001	USEPA 30/31
15		PAH	2	mg/Nm3	0.022	0.017	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit

Method Adopted: USEPA

***ND – Not Deducted**

***SD - Shut Down**

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ISSUED TO:
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Report No.: VLL/VLS/21/10611/PL 1
Issue Date: 2021-12-03
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 1

Analysis starting date :- 2021-11-03

Analysis Completion date :- 2021-12-02

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 1					POTLINE - 1 FTP - 1	POTLINE - 1 FTP - 2	POTLINE - 1 FTP - 3	POTLINE - 1 FTP - 4	Method
S No.	Location	Parameter	Norms	Units	(2021/11/15)	(2021/11/03)	(2021/11/08)	(2021/11/12)	
1	POTLINE - 1	Height	-	m	40	40	40	40	-
2		Diameter	-	m	6.7	6.7	6.7	6.7	-
3		Area of Cross section	-	m^2	35.27	35.27	35.27	35.27	-
4		Temperature	-	°C	117	116	112	113	-
5		velocity	-	m/s	10.74	10.85	11.51	10.97	USEPA 2
6		Flow	-	Nm_3/Hr	1299053.24	1305885.49	1400282.03	1321536.93	USEPA 2
7		Absolute Stack pressure	-	mmHg	729.16	730.14	728.23	727.68	USEPA 2
8		PM	50	mg/Nm^3	3.69	3.84	3.36	4.09	USEPA 5
9		SO2	-	mg/Nm^3	223	220	212	223	USEPA 6
10		Fluoride (PM)	-	mg/Nm^3	0.068	0.051	0.057	0.073	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.148	0.134	0.100	0.157	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**

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ISSUED TO:	Report No.:	VLL/VLS/21/10611/PL 2
M/s. Bharat Aluminium Company Limited KORBA (C.G.)	Issue Date:	2021-12-03
	Your reference:	P.O.No. 8500003497
	And Date:	2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 2

Analysis starting date :- 2021-11-01 **Analysis Completion date :- 2021-12-02**

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 2					POTLINE - 2 FTP - 1	POTLINE - 2 FTP - 2	Method
S No.	Location	Parameter	Norms	Units	(2021/11/22)	(2021/11/01)	
1	POTLINE - 2	Height	-	m	40	40	-
2		Diameter	-	m	8.2	8.2	-
3		Area of Cross section	-	m^2	52.83	52.83	-
4		Temperature	-	°C	115	112	-
5		velocity	-	m/s	12.78	11.00	USEPA 2
6		Flow	-	Nm^3/Hr	2326985.25	1971690.49	USEPA 2
7		Absolute Stack pressure	-	mmHg	729.82	725.64	USEPA 2
8		PM	50	mg/Nm^3	3.21	3.65	USEPA 5
9		SO2	-	mg/Nm^3	240	266	USEPA 6
10		Fluoride (PM)	-	mg/Nm^3	0.064	0.088	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.157	0.177	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit

Method Adopted: USEPA

***ND – Not Deducted**

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

Report No.: VLL/VLS/21/12527/GAP 1
Issue Date: 2022-01-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 1

Analysis starting date :- 2021-12-11 Analysis Completion date :- 2021-12-31

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 1					GAP - 1 D 6	GAP - 1 D 7	GAP - 1 D 8	GAP - 1 D 9	Method
S No.	Location	Parameter	Norms	Units	(2021-12-11)	(2021-12-11)	(2021-12-11)		
1	GAP - 1	Height	-	m	50	45	45	SD	-
2		Diameter	-	m	1.8	0.36	0.36		-
3		Area of Cross section	-	m^2	2.54	0.1017	0.1017		-
4		Temperature	-	°C	63	45	38		-
5		velocity	-	m/s	10.29	5.58	6.35		USEPA 2
6		Flow	-	Nm_3/Hr	89651.88	1952.82	2228.13		USEPA 2
7		Absolute Stack pressure	-	mmHg	731.85	732.8	732.29		USEPA 2
8		PM	50	mg/Nm3	16.24	10.73	16.64		USEPA 5
9		SO2	-	mg/Nm3	23	14	11		Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	4	2	2		Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm3	0.016	0.021	0.012		USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm3	0.083	0.092	0.065		USEPA 13 B
13		HC	-	PPM	*ND	*ND	*ND		Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	<0.001	<0.001	<0.001		USEPA 30/31
14		PAH	-	mg/Nm3	0.022	0.017	0.014		CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**
***SD - Shut Down**

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. No:- D.L.-3304/99 Sr. No. 5 VIMTA

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KORBA (C.G.)

Report No.: VLL/VLS/21/12527/GAP 2
Issue Date: 2022-01-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 2

Analysis starting date :- 2021-12-18

Analysis Completion date :- 2021-12-31

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 2					GAP - 2 D 6	GAP - 2 D 7	GAP - 2 D 8	GAP - 2 D 9	Method
S No.	Location	Parameter	Norms	Units	(2021-12-18)	(2021-12-18)	(2021-12-18)	(2021-12-18)	
1	GAP - 2	Height	-	m	50	45	45	50	-
2		Diameter	-	m	1.8	0.36	0.36	1.8	-
3		Area of Cross section	-	m^2	2.54	0.1017	0.1017	2.54	-
4		Temperature	-	°C	42	75	42	53	-
5		velocity	-	m/s	6.12	8.89	7.71	5.72	USEPA 2
6		Flow	-	Nm_3/Hr	54192.16	2160.87	1785.54	50302.25	USEPA 2
7		Absolute Stack pressure	-	mmHg	731.59	730.87	731.7	731.14	USEPA 2
8		PM	50	mg/Nm^3	17.91	21.79	12.54	15.21	USEPA 5
9		SO2	-	mg/Nm^3	12	20	26	17	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm^3	*ND	2	4	2	Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm^3	0.01	0.023	0.012	0.009	USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm^3	0.059	0.036	0.045	0.035	USEPA 13 B
13		HC	-	PPM	*ND	*ND	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm^3	<0.001	<0.001	<0.001	<0.001	USEPA 30/31
15		PAH	2	mg/Nm^3	0.013	0.019	0.024	0.016	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**

ENVIRONMENT LABORATORY
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ISSUED TO:
M/s. Bharat Aluminium Company Limited
KORBA (C.G.)

Report No.: VLL/VLS/21/12527/BO
Issue Date: 2022-01-05
Your reference: 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT BAKE OVEN PLANT

Analysis starting date :- 2021-12-27

Analysis Completion date :- 2022-01-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

BAKE OVEN PLANT					Bake Oven FTP - 1	Bake Oven FTP - 2	Method
S No.	Location	Parameter	Norms	Units	2021-12-27	2021-12-27	
1	BAKE OVEN PLANT	Height	-	m	30	30	-
2		Diameter	-	m	1.2	1.9	-
3		Area of Cross section	-	m^2	1.13	2.84	-
4		Temperature	-	°C	107	103	-
5		velocity	-	m/s	11.93	9.14	USEPA 2
6		Flow	-	Nm_3/Hr	59421.52	78462.39	USEPA 2
7		Absolute Stack pressure	-	mmHg	731.25	730.28	USEPA 2
8		PM	50	mg/Nm3	16.42	15.39	USEPA 5
9		SO2	-	mg/Nm3	582	521	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	49	57	Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm3	0.067	0.059	USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm3	0.199	0.142	USEPA 13 B
13		HC	-	PPM	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	<0.001	<0.001	USEPA 30/31
15		PAH	2	mg/Nm3	0.015	0.018	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**
***SD - Shut Down**

ENVIRONMENT LABORATORY
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REGD. No.: D.L.-33004/99
Sr. No - 5
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ISSUED TO: M/s. Bharat Aluminium Company Limited KORBA (C.G.)	Report No.: VLL/VLS/21/12527/PL 1 Issue Date: 2021-01-05 Your reference: P.O.No. 8500003497 And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 1

Analysis starting date :- 2021-12-02 Analysis Completion date :- 2021-12-31

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 1					POTLINE - 1 FTP - 1	POTLINE - 1 FTP - 2	POTLINE - 1 FTP - 3	POTLINE - 1 FTP - 4	Method
S No.	Location	Parameter	Norms	Units	(2021/12/21)	(2021/12/02)	(2021/12/10)	(2021/12/07)	
1	POTLINE - 1	Height	-	m	40	40	40	40	-
2		Diameter	-	m	6.7	6.7	6.7	6.7	-
3		Area of Cross section	-	m^2	35.27	35.27	35.27	35.27	-
4		Temperature	-	°C	115	109	112	105	-
5		velocity	-	m/s	9.91	11.52	10.42	13.99	USEPA 2
6		Flow	-	Nm_3/Hr	1211035.58	1395968.65	1261915.31	1697204.24	USEPA 2
7		Absolute Stack pressure	-	mmHg	731.83	732.35	732.11	731.17	USEPA 2
8		PM	50	mg/Nm^3	4.44	4.04	4.16	11.04	USEPA 5
9		SO2	-	mg/Nm^3	206	197	183	192	USEPA 6
10		Fluoride (PM)	-	mg/Nm^3	0.082	0.051	0.094	0.104	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.221	0.124	0.258	0.297	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit

Method Adopted: USEPA

***ND – Not Deducted**

ENVIRONMENT LABORATORY
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KORBA (C.G.)

Report No.: VLL/VLS/21/12527/PL 2
Issue Date: 2022-01-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 2

Analysis starting date :- 2021-12-17

Analysis Completion date :- 2021-12-31

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 2					POTLINE - 2 FTP - 1	POTLINE - 2 FTP - 2	Method
S No.	Location	Parameter	Norms	Units	(2021/12/17)	(2021/12/23)	
1	POTLINE - 2	Height	-	m	40	40	-
2		Diameter	-	m	8.2	8.2	-
3		Area of Cross section	-	m^2	52.83	52.83	-
4		Temperature	-	°C	119	102	-
5		velocity	-	m/s	12.43	10.22	USEPA 2
6		Flow	-	Nm^3/Hr	2265893.38	1860802.18	USEPA 2
7		Absolute Stack pressure	-	mmHg	730.50	729.07	USEPA 2
8		PM	50	mg/Nm^3	4.62	3.75	USEPA 5
9		SO2	-	mg/Nm^3	232	249	USEPA 6
10		Fluoride (PM)	-	mg/Nm^3	0.092	0.076	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.283	0.259	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit

Method Adopted: USEPA

***ND – Not Deducted**

ENVIRONMENT LABORATORY
Vimta VIMTA LABS
RECD. No-AD.L.-3300438
Sr. No. - 6
VIMTA

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

Report No.: VLL/VL5/21-22/14209/GAP 1
Issue Date: 2022-02-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 1

Analysis starting date :- 2022-01-16

Analysis Completion date :- 2022-02-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 1					GAP - 1 D 6	GAP - 1 D 7	GAP - 1 D 8	GAP - 1 D 9	Method
S No.	Location	Parameter	Norms	Units	(2022-01-15)	(2022-01-15)	(2022-01-15)	(2022-01-15)	
1	GAP - 1	Height	-	m	50	45	45	50	-
2		Diameter	-	m	1.8	0.36	0.36	1.8	-
3		Area of Cross section	-	m^2	2.54	0.1017	0.1017	2.54	-
4		Temperature	-	°C	55	45	34	60	-
5		velocity	-	m/s	9.66	5.75	5.99	7.36	USEPA 2
6		Flow	-	Nm_3/Hr	77421.58	1901.69	2050.82	58093.82	USEPA 2
7		Absolute Stack pressure	-	mmHg	730.91	730.77	730.67	731.06	USEPA 2
8		PM	50	mg/Nm3	14.37	26.34	17.14	22.57	USEPA 5
9		SO2	-	mg/Nm3	11	12	11	14	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	4	2	2	4	Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm3	0.027	0.039	0.042	0.025	USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm3	0.118	0.134	0.138	0.116	USEPA 13 B
13		HC	-	PPM	*ND	*ND	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	<0.001	<0.001	<0.001	<0.001	USEPA 30/31
14		PAH	2	mg/Nm3	0.016	0.023	0.018	0.013	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
*ND – Not Deducted
*SD - Shut Down

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

Report No.: VLL/VLS/21-22/14209/GAP 2
Issue Date: 2022-02-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 2

Analysis starting date :- 2022-01-12

Analysis Completion date :- 2022-02-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 2					GAP - 2 D 6	GAP - 2 D 7	GAP - 2 D 8	GAP - 2 D 9	Method
S No.	Location	Parameter	Norms	Units	(2022-01-11)	(2022-01-11)	(2022-01-11)		
1	GAP - 2	Height	-	m	50	45	45	SD	-
2		Diameter	-	m	1.8	0.36	0.36		-
3		Area of Cross section	-	m^2	2.54	0.1017	0.1017		-
4		Temperature	-	°C	49	51	38		-
5		velocity	-	m/s	7.79	8.58	6.29		USEPA 2
6		Flow	-	Nm_3/Hr	63535.18	1931.26	1475.14		USEPA 2
7		Absolute Stack pressure	-	mmHg	730.48	730.04	729.95		USEPA 2
8		PM	50	mg/Nm^3	19.96	20.58	14.69		USEPA 5
9		SO2	-	mg/Nm^3	11	14	23		Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm^3	*ND	2	2		Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm^3	0.014	0.01	0.029		USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm^3	0.061	0.052	0.08		USEPA 13 B
13		HC	-	PPM	*ND	*ND	*ND		Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm^3	<0.001	<0.001	<0.001		USEPA 30/31
15		PAH	2	mg/Nm^3	0.018	0.015	0.022		CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
*ND – Not Deducted
*SD – Shut Down

Dr. Subba Reddy Mallampati
Group Leader - Environment

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Sr. No - 5
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ISSUED TO:
M/s. Bharat Aluminium Company Limited
KORBA (C.G.)

Report No.: VLL/VLS/21-22/14209/BO
Issue Date: 2022-02-05
Your reference: 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT BAKE OVEN PLANT

Analysis starting date :- 2022-01-13

Analysis Completion date :- 2022-02-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

BAKE OVEN PLANT					Bake Oven FTP - 1	Bake Oven FTP - 2	Method
S No.	Location	Parameter	Norms	Units	2022-01-12	2022-01-12	
1	BAKE OVEN PLANT	Height	-	m	30	30	-
2		Diameter	-	m	1.2	1.9	-
3		Area of Cross section	-	m^2	1.13	2.84	-
4		Temperature	-	°C	92	90	-
5		velocity	-	m/s	10.69	10.28	USEPA 2
6		Flow	-	Nm_3/Hr	34259.84	85417.39	USEPA 2
7		Absolute Stack pressure	-	mmHg	731.94	731.29	USEPA 2
8		PM	50	mg/Nm3	25.48	23.19	USEPA 5
9		SO2	-	mg/Nm3	355	392	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	84	61	Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm3	0.061	0.087	USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm3	0.227	0.261	USEPA 13 B
13		HC	-	PPM	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	<0.001	<0.001	USEPA 30/31
15		PAH	2	mg/Nm3	0.027	0.022	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit

Method Adopted: USEPA

*ND – Not Deducted

*SD - Shut Down

Dr. Subba Reddy Mallampati, Group Leader - Environment

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ISSUED TO: **M/s. Bharat Aluminium Company Limited** **KORBA (C.G.)**	Report No.: VLL/VLS/21-22/14209/PL 1 Issue Date: 2022-02-05 Your reference: P.O.No. 8500003497 And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 1

Analysis starting date :- 2022-01-18 Analysis Completion date :- 2022-02-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 1					POTLINE - 1 FTP - 1	POTLINE - 1 FTP - 2	POTLINE - 1 FTP - 3	POTLINE - 1 FTP - 4	Method
S No.	Location	Parameter	Norms	Units	(2022/01/29)	(2022/01/17)	(2022/01/28)	(2022/01/31)	
1	POTLINE - 1	Height	-	m	40	40	40	40	-
2		Diameter	-	m	6.7	6.7	6.7	6.7	-
3		Area of Cross section	-	m^2	35.27	35.27	35.27	35.27	-
4		Temperature	-	°C	113	107	115	114	-
5		velocity	-	m/s	10.06	9.52	11.14	12.03	USEPA 2
6		Flow	-	Nm_3/Hr	763420.02	916715.12	1051006.63	1130001.44	USEPA 2
7		Absolute Stack pressure	-	mmHg	733.15	734.62	734.69	729.97	USEPA 2
8		PM	50	mg/Nm^3	5.54	4.48	4.94	3.72	USEPA 5
9		SO2	-	mg/Nm^3	235	197	183	209	USEPA 6
10		Fluoride (PM)	-	mg/Nm^3	0.054	0.078	0.041	0.027	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.176	0.268	0.157	0.101	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
*ND – Not Deducted

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ISSUED TO: **M/s. Bharat Aluminium Company Limited** **KORBA (C.G.)**	**Report No.:**	VLL/VLS/21-22/14209/PL 2
	Issue Date:	2022-02-05
	Your reference:	P.O.No. 8500003497
	And Date:	2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 2

Analysis starting date :- 2022-01-18 **Analysis Completion date :- 2022-02-04**

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 2					POTLINE - 2 FTP - 1	POTLINE - 2 FTP - 2	Method
S No.	Location	Parameter	Norms	Units	(2022/01/17)	(2022/01/25)	
1	POTLINE - 2	Height	-	m	40	40	-
2		Diameter	-	m	8.2	8.2	-
3		Area of Cross section	-	m^2	52.83	52.83	-
4		Temperature	-	°C	118	110	-
5		velocity	-	m/s	12.04	13.20	USEPA 2
6		Flow	-	Nm^3/Hr	1728321.74	1880089.31	USEPA 2
7		Absolute Stack pressure	-	mmHg	730.69	731.31	USEPA 2
8		PM	50	mg/Nm^3	4.51	4.32	USEPA 5
9		SO2	-	mg/Nm^3	212	266	USEPA 6
10		Fluoride (PM)	-	mg/Nm^3	0.054	0.062	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.152	0.162	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit

Method Adopted: USEPA

***ND – Not Deducted**

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

Report No.: VLL/VLS/21-22/15854/GAP 1
Issue Date: 2022-03-07
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 1

Analysis starting date :- 2022-02-25 Analysis Completion date :- 2022-03-06

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 1					GAP - 1 D 6	GAP - 1 D 7	GAP - 1 D 8	GAP - 1 D 9	Method
S No.	Location	Parameter	Norms	Units	(2022-02-25)	(2022-02-25)	(2022-02-25)	(2022-02-25)	
1	GAP - 1	Height	-	m	50	45	45	50	-
2		Diameter	-	m	1.8	0.36	0.36	1.8	-
3		Area of Cross section	-	m^2	2.54	0.1017	0.1017	2.54	-
4		Temperature	-	°C	58	47	36	66	-
5		velocity	-	m/s	9.71	6.13	6.01	7.98	USEPA 2
6		Flow	-	Nm_3/Hr	79584.17	2514.39	2117.25	62452.28	USEPA 2
7		Absolute Stack pressure	-	mmHg	729.41	729.78	730.14	730.58	USEPA 2
8		PM	50	mg/Nm3	19.57	20.69	11.49	15.79	USEPA 5
9		SO2	-	mg/Nm3	8	11	4	8	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	2	4	3	2	Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm3	0.024	0.032	0.027	0.019	USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm3	0.094	0.054	0.089	0.054	USEPA 13 B
13		HC	-	PPM	*ND	*ND	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	<0.001	<0.001	<0.001	<0.001	USEPA 30/31
14		PAH	2	mg/Nm3	0.015	0.018	0.008	0.011	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**
***SD - Shut Down**

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

Report No.: VLL/VLS/21-22/15854/GAP 2
Issue Date: 2022-03-07
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 2

Analysis starting date :- 2022-02-28 Analysis Completion date :- 2022-03-06

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 2					GAP - 2 D 6	GAP - 2 D 7	GAP - 2 D 8	GAP - 2 D 9	Method
S No.	Location	Parameter	Norms	Units	(2022-02-28)	(2022-02-28)	(2022-02-28)	(2022-02-28)	
1	GAP - 2	Height	-	m	50	45	45	50	-
2		Diameter	-	m	1.8	0.36	0.36	1.8	-
3		Area of Cross section	-	m^2	2.54	0.1017	0.1017	2.54	-
4		Temperature	-	°C	61	55	40	45	-
5		velocity	-	m/s	8.84	6.78	5.61	7.12	USEPA 2
6		Flow	-	Nm_3/Hr	69339.90	2170.33	1305.29	58678.69	USEPA 2
7		Absolute Stack pressure	-	mmHg	728.85	730.46	729.95	729.39	USEPA 2
8		PM	50	mg/Nm^3	31.96	22.68	10.69	14.59	USEPA 5
9		SO2	-	mg/Nm^3	9	6	20	14	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm^3	2	*ND	2	2	Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm^3	0.019	0.038	0.047	0.037	USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm^3	0.094	0.072	0.113	0.093	USEPA 13 B
13		HC	-	PPM	*ND	*ND	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm^3	<0.001	<0.001	<0.001	<0.001	USEPA 30/31
15		PAH	2	mg/Nm^3	0.019	0.021	0.014	0.016	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**
***SD – Shut Down**

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ISSUED TO:
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KORBA (C.G.)

Report No.: VLL/VLS/21-22/15854/BO
Issue Date: 2022-03-05
Your reference: 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT BAKE OVEN PLANT

Analysis starting date :- 2022-02-02 **Analysis Completion date :- 2022-03-04**

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

BAKE OVEN PLANT					Bake Oven FTP - 1	Bake Oven FTP - 2	Method
S No.	Location	Parameter	Norms	Units	2022-02-04	2022-02-02	
1	BAKE OVEN PLANT	Height	-	m	30	30	-
2		Diameter	-	m	1.2	1.9	-
3		Area of Cross section	-	m^2	1.13	2.84	-
4		Temperature	-	°C	96	90	-
5		velocity	-	m/s	13.38	10.63	USEPA 2
6		Flow	-	Nm_3/Hr	42069.20	85572.89	USEPA 2
7		Absolute Stack pressure	-	mmHg	726.43	729.84	USEPA 2
8		PM	50	mg/Nm3	7.14	6.96	USEPA 5
9		SO2	-	mg/Nm3	284	198	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	96	88	Flue Gas Analyser (Electro Chemical)
11		Fluoride (PM)	-	mg/Nm3	0.096	0.048	USEPA 13 B
12		Fluoride (Gas)	-	mg/Nm3	0.165	0.198	USEPA 13 B
13		HC	-	PPM	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	<0.001	<0.001	USEPA 30/31
15		PAH	2	mg/Nm3	0.034	0.027	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**
***SD - Shut Down**

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ISSUED TO:
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KORBA (C.G.)

Report No.: VLL/VLS/21-22/15854/PL 1
Issue Date: 2022-03-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 1

Analysis starting date :- 2022-01-18 Analysis Completion date :- 2022-03-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 1					POTLINE - 1 FTP - 1	POTLINE - 1 FTP - 2	POTLINE - 1 FTP - 3	POTLINE - 1 FTP - 4	Method
S No.	Location	Parameter	Norms	Units	(2022/02/03)	(2022/02/03)	(2022/02/03)	(2022/02/03)	
1	POTLINE - 1	Height	-	m	40	40	40	40	-
2		Diameter	-	m	6.7	6.7	6.7	6.7	-
3		Area of Cross section	-	m^2	35.27	35.27	35.27	35.27	-
4		Temperature	-	°C	114	109	109	104	-
5		velocity	-	m/s	7.79	9.5	9.65	9.99	USEPA 2
6		Flow	-	Nm_3/Hr	728879.09	903901.62	917317.38	957732.11	USEPA 2
7		Absolute Stack pressure	-	mmHg	727.1	729.86	728.91	725.69	USEPA 2
8		PM	50	mg/Nm^3	2.23	3.93	2.67	3.33	USEPA 5
9		SO2	-	mg/Nm^3	212	206	177	232	Flue Gas Analyser (Electro Chemical)
10		Fluoride (PM)	-	mg/Nm^3	0.052	0.114	0.094	0.142	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.175	0.362	0.258	0.397	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**

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ISSUED TO: **M/s. Bharat Aluminium Company Limited** **KORBA (C.G.)**	**Report No.:** VLL/VLS/21-22/15854/PL 2 **Issue Date:** 2022-03-05 **Your reference:** P.O.No. 8500003497 **And Date:** 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 2

Analysis starting date :- 2022-02-02 **Analysis Completion date :- 2022-03-04**

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 2					POTLINE - 2 FTP - 1	POTLINE - 2 FTP - 2	Method
S No.	Location	Parameter	Norms	Units	(2022/02/02)	(2022/02/02)	
1	POTLINE - 2	Height	-	m	40	40	-
2		Diameter	-	m	8.2	8.2	-
3		Area of Cross section	-	m^2	52.83	52.83	-
4		Temperature	-	°C	106	105	-
5		velocity	-	m/s	12.54	9.68	USEPA 2
6		Flow	-	Nm^3/Hr	1796615.07	1393537.62	USEPA 2
7		Absolute Stack pressure	-	mmHg	727.94	729.43	USEPA 2
8		PM	50	mg/Nm^3	3.63	2.05	USEPA 5
9		SO2	-	mg/Nm^3	217	240	Flue Gas Analyser (Electro Chemical)
10		Fluoride (PM)	-	mg/Nm^3	0.395	0.236	USEPA 13 B
11		Fluoride (GAS)	-	mg/Nm^3	0.251	0.379	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit

Method Adopted: USEPA

***ND – Not Deducted**

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

Report No.: VLL/VLS/21-22/17798/GAP 1
Issue Date: 2022-04-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 1

Analysis starting date :- 2022-03-28

Analysis Completion date :- 2022-04-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 1					GAP - 1 D 6	GAP - 1 D 7	GAP - 1 D 8	GAP - 1 D 9	Method
S No.	Location	Parameter	Norms	Units	(2022-03-28)	(2022-03-28)	(2022-03-28)	(2022-03-28)	
1	GAP - 1	Height	-	m	50	45	45	50	-
2		Diameter	-	m	1.8	0.36	0.36	1.8	-
3		Area of Cross section	-	m^2	2.54	0.1017	0.1017	2.54	-
4		Temperature	-	°C	45	65	39	68	-
5		velocity	-	m/s	10.12	12.61	6.23	8.12	USEPA 2
6		Flow	-	Nm_3/Hr	83655.93	3915.16	2098.88	62506.93	USEPA 2
7		Absolute Stack pressure	-	mmHg	730.99	729.68	731.04	730.72	USEPA 2
8		PM	50	mg/Nm3	17.47	26.16	9.76	11.58	USEPA 5
9		SO2	-	mg/Nm3	23	34	14	17	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	4	6	*ND	2	Flue Gas Analyser (Electro Chemical)
11		Fluoride (Particulate)	-	mg/Nm3	0.009	0.011	0.010	0.023	USEPA 13 B
12		Fluoride (Fluoride)	-	mg/Nm3	0.023	0.049	0.051	0.062	USEPA 13 B
13		HC	-	PPM	*ND	*ND	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	<0.001	<0.001	<0.001	<0.001	USEPA 30/31
15		PAH	2	mg/Nm3	0.012	0.016	0.009	0.013	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
*ND – Not Deducted
*SD - Shut Down

ENVIRONMENT LABORATORY VIMTA VIMTA LABS

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KORBA (C.G.)

Report No.: VLL/VLS/21-22/17798/GAP 2
Issue Date: 2022-04-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT GAP - 2

Analysis starting date :- 2022-03-12

Analysis Completion date :- 2022-04-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

GAP - 2					GAP - 2 D 6	GAP - 2 D 7	GAP - 2 D 8	GAP - 2 D 9	Method
S No.	Location	Parameter	Norms	Units	(2022-03-12)	(2022-03-12)	(2022-03-12)	(2022-03-12)	
1	GAP - 2	Height	-	m	50	45	45	50	-
2		Diameter	-	m	1.8	0.36	0.36	1.8	-
3		Area of Cross section	-	m^2	2.54	0.1017	0.1017	2.54	-
4		Temperature	-	°C	48	57	42	50	-
5		velocity	-	m/s	7.65	6.15	6.07	9.1	USEPA 2
6		Flow	-	Nm_3/Hr	66265.92	1468.75	1405.68	79005.37	USEPA 2
7		Absolute Stack pressure	-	mmHg	729.74	729.61	729.78	729.33	USEPA 2
8		PM	50	mg/Nm^3	19.97	8.34	23.85	12.6	USEPA 5
9		SO2	-	mg/Nm^3	22	17	20	26	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm^3	2	*ND	4	4	Flue Gas Analyser (Electro Chemical)
11		Fluoride (Particulate)	-	mg/Nm3	0.008	0.015	0.021	0.033	USEPA 13 B
12		Fluoride (Fluoride)	-	mg/Nm3	0.031	0.043	0.062	0.072	USEPA 13 B
13		HC	-	PPM	*ND	*ND	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm^3	<0.001	<0.001	<0.001	<0.001	USEPA 30/31
15		PAH	2	mg/Nm^3	0.017	*0.014	0.019	0.012	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit

Method Adopted: USEPA

***ND – Not Deducted**

***SD – Shut Down**

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ISSUED TO:
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KORBA (C.G.)

Report No.: VLL/VLS/21-22/17798/BO
Issue Date: 2022-04-05
Your reference: 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT BAKE OVEN PLANT

Analysis starting date :- 2022-03-22

Analysis Completion date :- 2022-04-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS), HC, VOC and PAH;

TEST RESULTS

BAKE OVEN PLANT					Bake Oven FTP - 1	Bake Oven FTP - 2	Method
S No.	Location	Parameter	Norms	Units	2022-03-22	2022-03-24	
1	BAKE OVEN PLANT	Height	-	m	30	30	-
2		Diameter	-	m	1.2	1.9	-
3		Area of Cross section	-	m^2	1.13	2.84	-
4		Temperature	-	°C	97	91	-
5		velocity	-	m/s	13.17	11.09	USEPA 2
6		Flow	-	Nm_3/Hr	40031.26	89647.28	USEPA 2
7		Absolute Stack pressure	-	mmHg	728.92	729.68	USEPA 2
8		PM	50	mg/Nm3	14.29	18.53	USEPA 5
9		SO2	-	mg/Nm3	254	213	Flue Gas Analyser (Electro Chemical)
10		Nox	-	mg/Nm3	87	78	Flue Gas Analyser (Electro Chemical)
11		Fluoride (Particulate)	-	mg/Nm3	0.093	0.183	USEPA 13 B
12		Fluoride (Fluoride)	-	mg/Nm3	0.102	0.218	USEPA 13 B
13		HC	-	PPM	*ND	*ND	Flue Gas Analyser (Electro Chemical)
14		VOC	-	mg/Nm3	≤0.001	<0.001	USEPA 30/31
15		PAH	2	mg/Nm3	0.018	0.024	CARB 429

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**
***SD - Shut Down**

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Report No.: VLL/VLS/21-22/17798/PL 1
Issue Date: 2022-04-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 1

Analysis starting date :- 2022-03-02

Analysis Completion date :- 2022-04-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 1					POTLINE - 1 FTP - 1	POTLINE - 1 FTP - 2	POTLINE - 1 FTP - 3	POTLINE - 1 FTP - 4	Method
S No.	Location	Parameter	Norms	Units	(2022/03/24)	(2022/03/09)	(2022/03/02)	(2022/03/21)	
1	POTLINE - 1	Height	-	m	40	40	40	40	-
2		Diameter	-	m	6.7	6.7	6.7	6.7	-
3		Area of Cross section	-	m^2	35.27	35.27	35.27	35.27	-
4		Temperature	-	°C	112	115	110	106	-
5		velocity	-	m/s	10.38	11.47	10.86	10.32	USEPA 2
6		Flow	-	Nm_3/Hr	977555.41	1078769.09	1031718.36	987018.40	USEPA 2
7		Absolute Stack pressure	-	mmHg	728.05	732.43	730.74	727.68	USEPA 2
8		PM	50	mg/Nm^3	3.94	3.05	4.23	4.42	USEPA 5
9		SO2	-	mg/Nm^3	226	232	229	266	Flue Gas Analyser (Electro Chemical)
10		Fluoride (Particulate)	-	mg/Nm3	0.172	0.094	0.162	0.124	USEPA 13 B
11		Fluoride (Fluoride)	-	mg/Nm3	0.273	0.198	0.382	0.272	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**

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Report No.: VLL/VLS/21-22/17798/PL 2
Issue Date: 2022-04-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- STACK EMISSION MONITORING AT POTLINE - 2

Analysis starting date :- 2022-02-02

Analysis Completion date :- 2022-04-04

Test Required :- PM, SO2, Fluoride (PM), Fluoride (GAS);

TEST RESULTS

POTLINE - 2					POTLINE - 2 FTP - 1	POTLINE - 2 FTP - 2	Method
S No.	Location	Parameter	Norms	Units	(2022/03/23)	(2022/03/15)	
1	POTLINE - 2	Height	-	m	40	40	-
2		Diameter	-	m	8.2	8.2	-
3		Area of Cross section	-	m^2	52.83	52.83	-
4		Temperature	-	°C	109	110	-
5		velocity	-	m/s	11.86	9.86	USEPA 2
6		Flow	-	Nm^3/Hr	1688166.36	1400659.91	USEPA 2
7		Absolute Stack pressure	-	mmHg	728.52	729.51	USEPA 2
8		PM	50	mg/Nm^3	3.25	3.57	USEPA 5
9		SO2	-	mg/Nm^3	232	252	Flue Gas Analyser (Electro Chemical)
10		Fluoride (Particulate)	-	mg/Nm3	0.093	0.128	USEPA 13 B
11		Fluoride (Fluoride)	-	mg/Nm3	0.173	0.283	USEPA 13 B

Remarks: Instrument Used – Stack Monitoring Kit
Method Adopted: USEPA
***ND – Not Deducted**

ENVIRONMENT LABORATORY VIMTA LABS

Dr. Subba Reddy Mallampati Group Leader - Environment

Annexure – 2

Fugitive Emission Monitoring Report

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ISSUED TO:
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KORBA (C.G.)

Registration No.: VLL/VLS/21/09392/PL- F
Issue Date: 2021-11-03
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- FUGITIVE EMISSION MONITORING (Pot Line - 1&2)

Registration Date :- 2021-10-07
Sampling Date :- 2021-10-07
Analysis starting date :- 2021-10-08
Analysis Completion date :- 2021-10-28

Test Required :- TSPM, Total Fluoride.;

TEST RESULTS

S No.	Parameter	Units	Limits	POT LINE -1		POT LINE -2	
				Pot No. 122	Pot No. 828	Pot No. 1134	Pot No. 1140
				2021-10-07	2021-10-20	2021-10-07	2021-10-20
1	TSPM	ug/m3	600	573.2	569.4	549.2	552.6
2	T Fluoride	ug/m3	1850	598	682	579	603

Remarks: Instrument Used – APM 460 BL Respirable Dust Sampler.

ENVIRONMENT LABORATORY
Vimta VIMTA LABS
REGD. No:- D.L.-33004/99
Sr. No.- 5

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ISSUED TO:
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KORBA (C.G.)

Registration No.: VLL/VLS/21/10611/PL- F
Issue Date: 2021-12-03
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- FUGITIVE EMISSION MONITORING (Pot Line - 1&2)

Registration Date :- 2021-11-05
Sampling Date :- 2021-11-05
Analysis starting date :- 2021-11-06
Analysis Completion date :- 2021-11-25

Test Required :- TSPM, Total Fluoride.;

TEST RESULTS

S No.	Parameter	Units	Limits	POT LINE -1		POT LINE -2	
				Pot No. 122	Pot No. 828	Pot No. 1134	Pot No. 1140
				2021-11-05	2021-11-19	2021-11-05	2021-11-19
1	TSPM	ug/m3	600	547.2	538.4	538.4	568.2
2	T Fluoride	ug/m3	1850	621	598	602	597

Remarks: Instrument Used – APM 460 BL Respirable Dust Sampler.

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ISSUED TO:
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KORBA (C.G.)

Registration No.: VLL/VLS/21/12527/PL- F
Issue Date: 2022-01-04
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- FUGITIVE EMISSION MONITORING (Pot Line - 1&2)

Registration Date :- 2021-12-08
Sampling Date :- 2021-12-08
Analysis starting date :- 2021-12-09
Analysis Completion date :- 2021-12-25

Test Required :- TSPM, Total Fluoride.;

TEST RESULTS

S No.	Parameter	Units	Limits	POT LINE -1		POT LINE -2	
				Pot No. 122	Pot No. 828	Pot No. 1134	Pot No. 1140
				2021-12-08	2021-12-20	2021-12-08	2021-12-20
1	TSPM	ug/m3	600	563.1	572.4	559.4	571.4
2	T Fluoride	ug/m3	1850	731	683	658	639

Remarks: Instrument Used – APM 460 BL Respirable Dust Sampler.

ENVIRONMENT LABORATORY Vimta VIMTA LABS RECD. No.- D.L.-33004/99 VIMTA

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Registration No.: VLL/VLS/21-22/14209/PL- F
Issue Date: 2022-02-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- FUGITIVE EMISSION MONITORING (Pot Line - 1&2)

Registration Date :- 2022-01-04
Sampling Date :- 2022-01-04
Analysis starting date :- 2022-01-05
Analysis Completion date :- 2022-01-30

Test Required :- TSPM, Total Fluoride.;

TEST RESULTS

S No.	Parameter	Units	Limits	POT LINE -1		POT LINE -2	
				Pot No. 122	Pot No. 828	Pot No. 1134	Pot No. 1140
				2022-01-04	2022-01-21	2022-01-04	2022-01-21
1	TSPM	ug/m3	600	539	558	563	549
2	T Fluoride	ug/m3	1850	473	395	402	395

Remarks: Instrument Used – APM 460 BL Respirable Dust Sampler.

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Registration No.: VLL/VLS/21-22/15854/PL- F
Issue Date: 2022-03-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- FUGITIVE EMISSION MONITORING (Pot Line - 1&2)

Registration Date :- 2022-02-09
Sampling Date :- 2022-02-08
Analysis starting date :- 2022-02-09
Analysis Completion date :- 2022-02-28

Test Required :- TSPM, Total Fluoride.;

TEST RESULTS

S No.	Parameter	Units	Limits	POT LINE -1		POT LINE -2	
				Pot No. 122	Pot No. 828	Pot No. 1134	Pot No. 1140
				2022-02-08	2022-02-12	2022-02-08	2022-02-12
1	TSPM	ug/m3	600	548	534	502	565
2	T Fluoride	ug/m3	1850	553	641	428	347

Remarks: Instrument Used – APM 460 BL Respirable Dust Sampler.

ENVIRONMENT LABORATORY Vimta LABS

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KORBA (C.G.)

Registration No.: VLL/VLS/21-22/17798/PL- F
Issue Date: 2022-04-05
Your reference: P.O.No. 8500003497
And Date: 2019-02-16

Sample Particular:- FUGITIVE EMISSION MONITORING (Pot Line - 1&2)

Registration Date :- 2022-03-05
Sampling Date :- 2022-03-04
Analysis starting date :- 2022-03-05
Analysis Completion date :- 2022-03-30

Test Required :- TSPM, Total Fluoride.;

TEST RESULTS

S No.	Parameter	Units	Limits	POT LINE -1		POT LINE -2	
				Pot No. 122	Pot No. 828	Pot No. 1134	Pot No. 1840
				2022-03-04	2022-03-25	2022-03-04	2022-03-25
1	TSPM	ug/m3	600	562	518	496	537
2	T Fluoride	ug/m3	1850	492	568	521	472

Remarks: Instrument Used – APM 460 BL Respirable Dust Sampler.

ENVIRONMENT LABORATORY Vimta VIMTA LABS

Dr. Subba Reddy Mallampati
Group Leader - Environment

Annexure – 3

Forage Fluoride Monitoring Report

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ISSUED TO:
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BALCO
KORBA
Chhattisgarh

Report Number : VLL/VLS/21/09392/VEG
Issue Date : 2021-11-03
Your Ref : 8500003497
P.O.Date : 2019-02-16

Sample Particulars: FLUORIDE IN VEGETATION SAMPLES

Sample Registration Date: 2021-10-12
Analysis starting date : 2021-10-13
Analysis Completion date: 2021-10-25

Samples Details: **Fluoride in Vegetation**

SAMPLES COLLECTED BY VIMTA LABS LTD

LAB REF.: EC

TEST RESULTS

Sr. No.	Parameters	Unit	Direction			
			North	South	East	West
1	Fluoride in Vegetation	ppm	33	39	34	35

ENVIRONMENT LABORATORY
Vimta Labs
REGD. No:- D.L.-33004/99
Sr. No - 5

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KORBA
Chhattisgarh

Report Number : VLL/VLS/21/10611/VEG
Issue Date : 2021-12-03
Your Ref : 8500003497
P.O.Date : 2019-02-16

Sample Particulars: FLUORIDE IN VEGETATION SAMPLES

Sample Registration Date: 2021-11-07
Analysis starting date : 2021-11-08
Analysis Completion date: 2021-11-25

Samples Details: **Fluoride in Vegetation**

SAMPLES COLLECTED BY VIMTA LABS LTD

LAB REF.: EC

TEST RESULTS

Sr. No.	Parameters	Unit	Direction			
			North	South	East	West
1	Fluoride in Vegetation	ppm	32	37	35	33

ENVIRONMENT LABORATORY
Vimta VIMTA LABS
Sr. No - 5

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ISSUED TO:
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Chhattisgarh

Report Number : VLL/VLS/21/12527/VEG
Issue Date : 2022-1-04
Your Ref : 8500003497
P.O.Date : 2019-02-16

Sample Particulars: FLUORIDE IN VEGETATION SAMPLES

Sample Registration Date: 2022-12-05
Analysis starting date : 2022-12-06
Analysis Completion date: 2022-12-29

Samples Details: **Fluoride in Vegetation**

SAMPLES COLLECTED BY VIMTA LABS LTD

LAB REF.: EC

TEST RESULTS

Sr. No.	Parameters	Unit	Direction			
			North	South	East	West
1	Fluoride in Vegetation	ppm	35	39	33	36

ENVIRONMENTAL LABORATORY
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REGD No:- 0 L 3304/99
Sr. No - 5
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ISSUED TO:
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BALCO
KORBA
Chhattisgarh

Report Number : VLL/VLS/21-22/14209/VEG
Issue Date : 2022-02-05
Your Ref : 8500003497
P.O.Date : 2019-02-16

Sample Particulars: FLUORIDE IN VEGETATION SAMPLES

Sample Registration Date: 2022-1-06
Analysis starting date : 2022-1-08
Analysis Completion date: 2022-1-30

Samples Details: **Fluoride in Vegetation**

SAMPLES COLLECTED BY VIMTA LABS LTD

LAB REF.: EC

TEST RESULTS

Sr. No.	Parameters	Unit	Direction			
			North	South	East	West
1	Fluoride in Vegetation	ppm	28	35	32	34

ENVIRONMENT LABORATORY Vimta VIMTA LABS pdGD No.-D.L.-33009/99 Sr. No.-5

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Report Number : VLL/VLS/21-22/15854/VEG
Issue Date : 2022-03-05
Your Ref : 8500003497
P.O.Date : 2019-02-16

Sample Particulars: FLUORIDE IN VEGETATION SAMPLES

Sample Registration Date: 2022-2-08
Analysis starting date : 2022-2-09
Analysis Completion date: 2022-2-28

Samples Details: **Fluoride in Vegetation**

SAMPLES COLLECTED BY VIMTA LABS LTD

LAB REF.: EC

TEST RESULTS

Sr. No.	Parameters	Unit	Direction			
			North	South	East	West
1	Fluoride in Vegetation	ppm	29	35	36	38

ENVIRONMENT LABORATORY VIMTA LABS

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Report Number : VLL/VLS/21-22/17798/VEG
Issue Date : 2022-04-05
Your Ref : 8500003497
P.O.Date : 2019-02-16

Sample Particulars: FLUORIDE IN VEGETATION SAMPLES

Sample Registration Date: 2022-03-11
Analysis starting date : 2022-03-12
Analysis Completion date: 2022-03-31

Samples Details: **Fluoride in Vegetation**

SAMPLES COLLECTED BY VIMTA LABS LTD

LAB REF.: EC

TEST RESULTS

Sr. No.	Parameters	Unit	Direction			
			North	South	East	West
1	Fluoride in Vegetation	ppm	31	38	34	32

ENVIRONMENT LABORATORY
REGD. No.-D.L.-33004/99

Dr. Subba Reddy Mallampati
Group Leader - Environment

Annexure – 4

Groundwater Quality Monitoring Report

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Report Number : **VLL/VLS/21-22/17798/001**
Issued Date : 2022-04-04
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	: 2022-03-08	Sampling Date	: 2022-03-07
Analysis Starting Date	: 2022-03-09	Analysis Completion Date	: 2022-03-31
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
1	pH value	-	6.5-8.5 (NR)	6.78	6.69	6.88	7.33
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	3	2	3	3
6	Total dissolved solids at 180°C	mg/l	500(2000)	595	298	648	576
7	Total Hardness as $CaCO_3$	mg/l	200(600)	269.3	133.8	288.6	219.7
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	250	120	230	215
9	Calcium as Ca	mg/l	75(200)	67.4	33.6	71.5	55.3
10	Magnesium as Mg	mg/l	30(100)	24.5	12.1	26.7	19.8
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.18	0.09	0.26	0.11
13	Chlorides as Cl	mg/l	250(1000)	122.5	66.4	162.3	139.6
14	Sulphate as SO_4	mg/l	200(400)	37.2	18.4	44.2	26.8
15	Fluorides as F	mg/l	1.0(1.5)	0.084	0.075	0.238	0.412
16	Nitrates as NO_3	mg/l	45(NR)	3.4	4.3	5.2	1.9
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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
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REGD. No.: D.L. (T) 04499
Sr. No.: 5

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Report Number : VLL/VLS/21-22/17798/001
Issued Date : 2022-04-04
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2022-03-08	Sampling Date	:	2022-03-07
Analysis Starting Date	:	2022-03-09	Analysis Completion Date	:	2022-03-31
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	0.02	<0.01	0.02	0.01
24	Lead as Pb	mg/l	0.01(NR)	<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
26	Molybdenum as Mo	mg/l	0.07(NR)	<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
28	Iron as Fe	mg/l	0.3(NR)	0.13	0.06	0.18	0.11
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.09	0.05	0.23	0.14
32	Aluminum as Al	mg/l	0.03(0.2)	0.11	0.09	0.07	0.08
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.015	0.023	0.019	0.026
38	Silver as Ag	mg/l	0.1(NR)	<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
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Report Number	:	VLL/VLS/21-22/17798/001
Issued Date	:	2022-04-04
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS	:	GROUND WATER SAMPLES (BALCO PLANT)			
Sample Registration Date	:	2022-03-08	Sampling Date	:	2022-03-07
Analysis Starting Date	:	2022-03-09	Analysis Completion Date	:	2022-03-31
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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

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Issued Date	:	2022-04-04
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-03-08	Sampling Date	:	2022-03-07
Analysis Starting Date	:	2022-03-09	Analysis Completion Date	:	2022-03-31
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

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Issued Date	:	2022-04-04
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2022-03-08	Sampling Date	:	2022-03-07
Analysis Starting Date	:	2022-03-09	Analysis Completion Date	:	2022-03-31
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Dug well*
1	pH value	-	6.5-8.5 (NR)	6.68	6.83	6.94	6.62
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	3	3	2	3
6	Total dissolved solids at 180^{0}C	mg/l	500(2000)	475	436	533	402
7	Total Hardness as $CaCO_3$	mg/l	200(600)	240.5	238.5	225.5	208.9
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	210	198	205	164
9	Calcium as Ca	mg/l	75(200)	49.8	56.4	57.6	47.5
10	Magnesium as Mg	mg/l	30(100)	28.2	23.7	19.8	21.9
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.13	0.09	0.21	0.15
13	Chlorides as Cl	mg/l	250(1000)	92.8	76.2	116.8	82.3
14	Sulphate as SO_4	mg/l	200(400)	19.7	25.4	31.8	26.7
15	Fluorides as F	mg/l	1.0(1.5)	0.254	0.086	0.189	0.071
16	Nitrates as NO_3	mg/l	45(NR)	2.7	4.6	6.8	3.1
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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

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Report Number : **VLL/VLS/21-22/17798/001**
Issued Date : 2022-04-04
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	: 2022-03-08	Sampling Date	: 2022-03-07
Analysis Starting Date	: 2022-03-09	Analysis Completion Date	: 2022-03-31
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	<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
25	Manganese as Mn	mg/l	0.1(0.3)	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
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.05	0.09	0.03	0.07
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.13	0.08	0.21	0.16
32	Aluminum as Al	mg/l	0.03(0.2)	0.06	0.05	0.08	0.07
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.021	0.019	0.032	0.017
38	Silver as Ag	mg/l	0.1(NR)	<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
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Report Number	:	VLL/VLS/21-22/17798/001
Issued Date	:	2022-04-04
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-03-08	Sampling Date	:	2022-03-07
Analysis Starting Date	:	2022-03-09	Analysis Completion Date	:	2022-03-31
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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 Labs Ltd. RECD. No. D.L. 1005/09

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Chhattisgarh

Report Number	:	VLL/VLS/21-22/17798/001
Issued Date	:	2022-04-04
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-03-08	Sampling Date	:	2022-03-07
Analysis Starting Date	:	2022-03-09	Analysis Completion Date	:	2022-03-31
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

ENVIRONMENT LABORATORY Vimta VIMTA LABS LTD Sr.No-6

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Chhattisgarh

Report Number : **VLL/VLS/20-21/15854/001**
Issued Date : 2022-03-05
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2022-02-08	Sampling Date	:	2022-02-07
Analysis Starting Date	:	2022-02-09	Analysis Completion Date	:	2022-02-28
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
1	pH value	-	6.5-8.5 (NR)	7.36	7.12	6.97	7.28
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	2	1	2	2
6	Total dissolved solids at 180^{0}C	mg/l	500(2000)	328	312	464	505
7	Total Hardness as $CaCO_3$	mg/l	200(600)	184.3	146.1	243.5	251.2
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	140	122	215	235
9	Calcium as Ca	mg/l	75(200)	48.6	36.2	44.1	43.6
10	Magnesium as Mg	mg/l	30(100)	16.7	13.5	16.3	22.4
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.13	0.07	0.34	0.15
13	Chlorides as Cl	mg/l	250(1000)	71.2	69.3	253.4	136.2
14	Sulphate as SO_4	mg/l	200(400)	21.1	19.4	37.8	28.4
15	Fluorides as F	mg/l	1.0(1.5)	0.153	0.121	0.231	0.225
16	Nitrates as NO_3	mg/l	45(NR)	2.3	3.4	4.7	2.1
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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

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Chhattisgarh

Report Number : **VLL/VLS/20-21/15854/001**
Issued Date : 2022-03-05
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2022-02-08	Sampling Date	:	2022-02-07
Analysis Starting Date	:	2022-02-09	Analysis Completion Date	:	2022-02-28
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	<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
25	Manganese as Mn	mg/l	0.1(0.3)	<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
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.11	0.09	0.21	0.08
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.08	0.14	0.32	0.23
32	Aluminum as Al	mg/l	0.03(0.2)	0.06	0.07	0.09	0.05
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.023	0.017	0.029	0.036
38	Silver as Ag	mg/l	0.1(NR)	<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
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Report Number	:	**VLL/VLS/20-21/15854/001**
Issued Date	:	2022-03-05
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-02-08	Sampling Date	:	2022-02-07
Analysis Starting Date	:	2022-02-09	Analysis Completion Date	:	2022-02-28
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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

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Report Number	:	VLL/VLS/20-21/15854/001
Issued Date	:	2022-03-05
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-02-08	Sampling Date	:	2022-02-07
Analysis Starting Date	:	2022-02-09	Analysis Completion Date	:	2022-02-28
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

ENVIRONMENT LABORATORY VIMTA LABS VIMTA

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Report Number	:	VLL/VLS/20-21/15854/001
Issued Date	:	2022-03-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2022-02-08	Sampling Date	:	2022-02-07
Analysis Starting Date	:	2022-02-09	Analysis Completion Date	:	2022-02-28
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Dug well*
1	pH value	-	6.5-8.5 (NR)	6.89	7.28	7.41	6.94
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	3	2	3	2
6	Total dissolved solids at 180^{0}C	mg/l	500(2000)	549	310	484	372
7	Total Hardness as $CaCO_3$	mg/l	200(600)	303.0	186.4	276.3	209.5
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	226	157	220	154
9	Calcium as Ca	mg/l	75(200)	72.3	45.2	68.7	51.3
10	Magnesium as Mg	mg/l	30(100)	29.7	17.8	25.4	19.7
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.11	0.14	0.26	0.09
13	Chlorides as Cl	mg/l	250(1000)	123.6	45.7	189.8	74.5
14	Sulphate as SO_4	mg/l	200(400)	23.6	18.4	35.2	24.7
15	Fluorides as F	mg/l	1.0(1.5)	0.242	0.155	0.424	0.242
16	Nitrates as NO_3	mg/l	45(NR)	3.9	5.1	7.2	2.5
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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

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Report Number : **VLL/VLS/20-21/15854/001**
Issued Date : 2022-03-03
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-02-08	Sampling Date	:	2022-02-07
Analysis Starting Date	:	2022-02-09	Analysis Completion Date	:	2022-02-28
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	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
25	Manganese as Mn	mg/l	0.1(0.3)	0.02	<0.01	0.03	<0.01
26	Molybdenum as Mo	mg/l	0.07(NR)	<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
28	Iron as Fe	mg/l	0.3(NR)	0.08	0.06	0.14	0.09
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.21	0.09	0.34	0.13
32	Aluminum as Al	mg/l	0.03(0.2)	0.08	0.07	0.12	0.09
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.032	0.024	0.057	0.029
38	Silver as Ag	mg/l	0.1(NR)	<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

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Report Number	:	**VLL/VLS/20-21/15854/001**
Issued Date	:	2022-03-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-02-08	Sampling Date	:	2022-02-07
Analysis Starting Date	:	2022-02-09	Analysis Completion Date	:	2022-02-28
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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 LABS VIMTA

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Report Number	:	VLL/VLS/20-21/15854/001
Issued Date	:	2022-03-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-02-08	Sampling Date	:	2022-02-07
Analysis Starting Date	:	2022-02-09	Analysis Completion Date	:	2022-02-28
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

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Report Number	:	**VLL/VLS/21-22/14209/001**
Issued Date	:	2022-02-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-01-11	Sampling Date	:	2022-01-10
Analysis Starting Date	:	2022-01-12	Analysis Completion Date	:	2022-01-31
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
1	pH value	-	6.5-8.5 (NR)	7.21	6.97	6.89	7.15
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	3	2	3	3
6	Total dissolved solids at 180^{0}C	mg/l	500(2000)	316	328	532	513
7	Total Hardness as $CaCO_3$	mg/l	200(600)	190.3	168.4	278.5	217.1
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	130	105	234	220
9	Calcium as Ca	mg/l	75(200)	51.6	46.8	62.5	53.1
10	Magnesium as Mg	mg/l	30(100)	14.9	12.5	29.7	20.5
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.08	0.05	0.21	0.09
13	Chlorides as Cl	mg/l	250(1000)	65.3	87.5	351.4	105.2
14	Sulphate as SO_4	mg/l	200(400)	19.6	27.5	52.4	21.5
15	Fluorides as F	mg/l	1.0(1.5)	0.127	0.102	0.282	0.259
16	Nitrates as NO_3	mg/l	45(NR)	1.6	2.7	5.4	2.6
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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 LABS REGD. No. D.L.-3300499 Sr. No - 5

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Report Number : **VLL/VLS/21-22/14209/001**
Issued Date : 2022-02-02
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-01-11	Sampling Date	:	2022-01-10
Analysis Starting Date	:	2022-01-12	Analysis Completion Date	:	2022-01-31
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	<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
25	Manganese as Mn	mg/l	0.1(0.3)	<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
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.09	0.08	0.13	0.11
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.06	0.09	0.27	0.12
32	Aluminum as Al	mg/l	0.03(0.2)	0.08	0.05	0.11	0.07
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.015	0.023	0.036	0.048
38	Silver as Ag	mg/l	0.1(NR)	<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

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Report Number	:	VLL/VLS/21-22/14209/001
Issued Date	:	2022-02-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-01-11	Sampling Date	:	2022-01-10
Analysis Starting Date	:	2022-01-12	Analysis Completion Date	:	2022-01-31
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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

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Report Number	:	VLL/VLS/21-22/14209/001
Issued Date	:	2022-02-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-01-11	Sampling Date	:	2022-01-10
Analysis Starting Date	:	2022-01-12	Analysis Completion Date	:	2022-01-31
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

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Report Number	:	VLL/VLS/21-22/14209/001
Issued Date	:	2022-02-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2022-01-11	Sampling Date	:	2022-01-10
Analysis Starting Date	:	2022-01-12	Analysis Completion Date	:	2022-01-31
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Dug well*
1	pH value	-	6.5-8.5 (NR)	6.92	7.34	7.26	6.78
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	2	2	3	2
6	Total dissolved solids at 180^{0}C	mg/l	500(2000)	415	338	527	286
7	Total Hardness as $CaCO_3$	mg/l	200(600)	339.1	203.6	286.8	174.9
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	251	162	210	113
9	Calcium as Ca	mg/l	75(200)	82.3	56.6	76.7	43.3
10	Magnesium as Mg	mg/l	30(100)	32.4	15.1	23.1	16.2
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.18	0.06	0.08	0.24
13	Chlorides as Cl	mg/l	250(1000)	139.6	53.2	271.8	62.6
14	Sulphate as SO_4	mg/l	200(400)	37.1	22.7	42.4	18.3
15	Fluorides as F	mg/l	1.0(1.5)	0.352	0.241	0.294	0.136
16	Nitrates as NO_3	mg/l	45(NR)	3.7	4.8	6.2	3.4
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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

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Report Number : **VLL/VLS/21-22/14209/001**
Issued Date : 2022-02-02
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-01-11	Sampling Date	:	2022-01-10
Analysis Starting Date	:	2022-01-12	Analysis Completion Date	:	2022-01-31
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	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
25	Manganese as Mn	mg/l	0.1(0.3)	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
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.09	0.07	0.11	0.08
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.19	0.07	0.13	0.09
32	Aluminum as Al	mg/l	0.03(0.2)	0.06	0.05	0.07	0.04
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.026	0.018	0.041	0.032
38	Silver as Ag	mg/l	0.1(NR)	<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
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Report Number	:	**VLL/VLS/21-22/14209/001**
Issued Date	:	2022-02-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-01-11	Sampling Date	:	2022-01-10
Analysis Starting Date	:	2022-01-12	Analysis Completion Date	:	2022-01-31
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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
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Report Number	:	**VLL/VLS/21-22/14209/001**
Issued Date	:	2022-02-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2022-01-11	Sampling Date	:	2022-01-10
Analysis Starting Date	:	2022-01-12	Analysis Completion Date	:	2022-01-31
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

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Report Number	:	VLL/VLS/21/12527/001
Issued Date	:	2022-01-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2021-12-07	Sampling Date	:	2021-12-06
Analysis Starting Date	:	2021-12-08	Analysis Completion Date	:	2021-12-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
1	pH value	-	6.5-8.5 (NR)	6.92	6.68	6.75	7.01
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	2	2	3	3
6	Total dissolved solids at 180^{0}C	mg/l	500(2000)	310	346	545	530
7	Total Hardness as $CaCO_3$	mg/l	200(600)	189.7	181.5	260.0	210.4
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	135	110	240	225
9	Calcium as Ca	mg/l	75(200)	48.7	53.4	58.9	54.2
10	Magnesium as Mg	mg/l	30(100)	16.5	11.7	27.4	18.2
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.05	0.07	0.19	0.12
13	Chlorides as Cl	mg/l	250(1000)	56.7	94.6	187.4	113.8
14	Sulphate as SO_4	mg/l	200(400)	20.3	22.3	49.5	18.0
15	Fluorides as F	mg/l	1.0(1.5)	0.102	0.087	0.387	0.278
16	Nitrates as NO_3	mg/l	45(NR)	1.8	2.3	6.7	3.5
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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

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Report Number	:	VLL/VLS/21/12527/001
Issued Date	:	2022-01-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-12-07	Sampling Date	:	2021-12-06
Analysis Starting Date	:	2021-12-08	Analysis Completion Date	:	2021-12-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	<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
25	Manganese as Mn	mg/l	0.1(0.3)	<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
27	Nickel as Ni	mg/l	0.02(NR)	<0.01	<0.01	<0.01	<0.01
28	Iron as Fe	mg/l	0.3(NR)	0.06	0.05	0.11	0.09
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.09	0.12	0.32	0.19
32	Aluminum as Al	mg/l	0.03(0.2)	0.05	0.07	0.09	0.04
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.027	0.018	0.046	0.057
38	Silver as Ag	mg/l	0.1(NR)	<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

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Report Number	:	VLL/VLS/21/12527/001
Issued Date	:	2022-01-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS	:	GROUND WATER SAMPLES (BALCO PLANT)			
Sample Registration Date	:	2021-12-07	Sampling Date	:	2021-12-06
Analysis Starting Date	:	2021-12-08	Analysis Completion Date	:	2021-12-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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

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Report Number	:	**VLL/VLS/21/12527/001**
Issued Date	:	2022-01-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-12-07	Sampling Date	:	2021-12-06
Analysis Starting Date	:	2021-12-08	Analysis Completion Date	:	2021-12-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

ENVIRONMENT LABORATORY
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Report Number	:	**VLL/VLS/21/12527/001**
Issued Date	:	2022-01-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2021-12-07	Sampling Date	:	2021-12-06
Analysis Starting Date	:	2021-12-08	Analysis Completion Date	:	2021-12-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Dug well*
1	pH value	-	6.5-8.5 (NR)	7.21	6.79	7.11	6.92
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	3	2	2	3
6	Total dissolved solids at 180°C	mg/l	500(2000)	310	365	497	298
7	Total Hardness as $CaCO_3$	mg/l	200(600)	314.0	230.0	324.0	180.4
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	260	165	242	106
9	Calcium as Ca	mg/l	75(200)	76.8	66.4	87.2	43.5
10	Magnesium as Mg	mg/l	30(100)	29.6	15.6	25.8	17.4
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.21	0.09	0.15	0.11
13	Chlorides as Cl	mg/l	250(1000)	119.2	63.8	191.8	72.1
14	Sulphate as SO_4	mg/l	200(400)	35.5	24.0	58.1	26.1
15	Fluorides as F	mg/l	1.0(1.5)	0.372	0.23	0.268	0.142
16	Nitrates as NO_3	mg/l	45(NR)	4.9	5.3	7.8	2.1
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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
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Chhattisgarh

Report Number : VLL/VLS/21/12527/001
Issued Date : 2022-01-03
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2021-12-07	Sampling Date	:	2021-12-06
Analysis Starting Date	:	2021-12-08	Analysis Completion Date	:	2021-12-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	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
25	Manganese as Mn	mg/l	0.1(0.3)	0.02	0.01	0.03	<0.01
26	Molybdenum as Mo	mg/l	0.07(NR)	<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
28	Iron as Fe	mg/l	0.3(NR)	0.07	0.03	0.08	0.05
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.26	0.09	0.18	0.06
32	Aluminum as Al	mg/l	0.03(0.2)	0.08	0.04	0.09	0.06
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.038	0.021	0.031	0.029
38	Silver as Ag	mg/l	0.1(NR)	<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
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ISSUED TO:

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

Report Number	:	**VLL/VLS/21/12527/001**
Issued Date	:	2022-01-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-12-07	Sampling Date	:	2021-12-06
Analysis Starting Date	:	2021-12-08	Analysis Completion Date	:	2021-12-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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.: G.L.-33004/99
Sl. No.-5
VIMTA

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Group Leader - Environment

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Chhattisgarh

Report Number	:	**VLL/VLS/21/12527/001**
Issued Date	:	2022-01-03
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-12-07	Sampling Date	:	2021-12-06
Analysis Starting Date	:	2021-12-08	Analysis Completion Date	:	2021-12-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

ENVIRONMENT LABORATORY
Vimta VIMTA LABS
REGD. No.- D.L.-33004/99
Sr. No - 5
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BALCO
KORBA
Chhattisgarh

Report Number	:	**VLL/VLS/21/10611/001**
Issued Date	:	2021-12-01
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2021-11-05	Sampling Date	:	2021-11-04
Analysis Starting Date	:	2021-11-06	Analysis Completion Date	:	2021-11-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
1	pH value	-	6.5-8.5 (NR)	6.90	6.72	7.61	7.22
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	1	1	2	2
6	Total dissolved solids at 180^0C	mg/l	500(2000)	278	291	687	472
7	Total Hardness as $CaCO_3$	mg/l	200(600)	142.0	136.0	198.45	196.0
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	66	76	258	204
9	Calcium as Ca	mg/l	75(200)	27.2	22.4	52.4	50.4
10	Magnesium as Mg	mg/l	30(100)	18.0	19.4	16.4	17.0
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.08	0.09	0.23	0.14
13	Chlorides as Cl	mg/l	250(1000)	97.5	95.8	124.6	97.2
14	Sulphate as SO_4	mg/l	200(400)	15.8	19.1	59.2	14.2
15	Fluorides as F	mg/l	1.0(1.5)	0.098	0.052	0.214	0.319
16	Nitrates as NO_3	mg/l	45(NR)	3.4	2.6	4.3	1.8
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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
RECD. No:- D.L. 2004/09
Sr. No - 5

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BALCO
KORBA
Chhattisgarh

Report Number : **VLL/VLS/21/10611/001**
Issued Date : 2021-12-01
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-11-05	Sampling Date	:	2021-11-04
Analysis Starting Date	:	2021-11-06	Analysis Completion Date	:	2021-11-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	<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
25	Manganese as Mn	mg/l	0.1(0.3)	<0.01	<0.01	0.03	0.02
26	Molybdenum as Mo	mg/l	0.07(NR)	<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
28	Iron as Fe	mg/l	0.3(NR)	0.08	0.07	0.13	0.11
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.05	0.08	0.24	0.17
32	Aluminum as Al	mg/l	0.03(0.2)	0.08	0.09	0.12	0.07
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.034	0.039	0.053	0.046
38	Silver as Ag	mg/l	0.1(NR)	<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
Sr. No - 5

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Chhattisgarh

Report Number	:	VLL/VLS/21/10611/001
Issued Date	:	2021-12-01
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-11-05	Sampling Date	:	2021-11-04
Analysis Starting Date	:	2021-11-06	Analysis Completion Date	:	2021-11-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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 Sr. No - 5

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Your Ref	:	8500003497
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SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-11-05	Sampling Date	:	2021-11-04
Analysis Starting Date	:	2021-11-06	Analysis Completion Date	:	2021-11-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

ENVIRONMENT LABORATORY Vimta VIMTA LABS VIMTA

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SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2021-11-05	Sampling Date	:	2021-11-04
Analysis Starting Date	:	2021-11-06	Analysis Completion Date	:	2021-11-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Dug well*
1	pH value	-	6.5-8.5 (NR)	6.92	6.98	6.94	7.26
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	2	3	2	3
6	Total dissolved solids at 180°C	mg/l	500(2000)	598	381	638	430
7	Total Hardness as $CaCO_3$	mg/l	200(600)	280.0	212.0	219.41	262.0
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	260	104	214	110
9	Calcium as Ca	mg/l	75(200)	52.8	37.4	58.3	68.8
10	Magnesium as Mg	mg/l	30(100)	36.0	28.8	17.9	21.9
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.18	0.23	0.17	0.14
13	Chlorides as Cl	mg/l	250(1000)	217.3	120.5	161.7	144.3
14	Sulphate as SO_4	mg/l	200(400)	41.6	21.9	47.0	16.1
15	Fluorides as F	mg/l	1.0(1.5)	0.154	0.135	0.187	0.184
16	Nitrates as NO_3	mg/l	45(NR)	5.6	4.1	6.7	3.4
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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
RECD. No.: D.L.-[illegible]/09
Sr. No.: [illegible]

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Report Number : **VLL/VLS/21/10611/001**
Issued Date : 2021-12-01
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-11-05	Sampling Date	:	2021-11-04
Analysis Starting Date	:	2021-11-06	Analysis Completion Date	:	2021-11-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	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
25	Manganese as Mn	mg/l	0.1(0.3)	0.01	0.02	0.04	<0.01
26	Molybdenum as Mo	mg/l	0.07(NR)	<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
28	Iron as Fe	mg/l	0.3(NR)	0.09	0.05	0.017	0.07
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.12	0.16	0.24	0.11
32	Aluminum as Al	mg/l	0.03(0.2)	0.06	0.08	0.11	0.07
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.023	0.035	0.043	0.018
38	Silver as Ag	mg/l	0.1(NR)	<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 Sr. No - 6

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KORBA
Chhattisgarh

Report Number	:	VLL/VLS/21/10611/001
Issued Date	:	2021-12-01
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-11-05	Sampling Date	:	2021-11-04
Analysis Starting Date	:	2021-11-06	Analysis Completion Date	:	2021-11-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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 Labs RECD. No: DL-33000499 Sr. No - 5

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Report Number	:	**VLL/VLS/21/10611/001**
Issued Date	:	2021-12-01
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-11-05	Sampling Date	:	2021-11-04
Analysis Starting Date	:	2021-11-06	Analysis Completion Date	:	2021-11-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

ENVIRONMENT LABORATORY Vimta VIMTA LABS Sr. No - 5

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Report Number	:	VLL/VLS/21/09392/001
Issued Date	:	2021-11-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-10-11	Sampling Date	:	2021-10-09
Analysis Starting Date	:	2021-10-12	Analysis Completion Date	:	2021-10-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Dug well*
1	pH value	-	6.5-8.5 (NR)	7.3	6.8	7.1	6.72
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	4	3	2	2
6	Total dissolved solids at 180°C	mg/l	500(2000)	478	538	629	547
7	Total Hardness as $CaCO_3$	mg/l	200(600)	310.5	145	339.9	287.0
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	282	220	310	255
9	Calcium as Ca	mg/l	75(200)	62.3	52.9	73.1	74.3
10	Magnesium as Mg	mg/l	30(100)	37.6	27.4	38.2	24.6
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.09	0.21	0.24	0.17
13	Chlorides as Cl	mg/l	250(1000)	187.5	293.2	208.6	91.5
14	Sulphate as SO_4	mg/l	200(400)	24.0	37.2	52.6	25.8
15	Fluorides as F	mg/l	1.0(1.5)	0.243	0.036	0.483	0.130
16	Nitrates as NO_3	mg/l	45(NR)	4.7	3.8	5.3	2.90
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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

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KORBA
Chhattisgarh

Report Number : **VLL/VLS/21/09392/001**
Issued Date : 2021-11-02
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2021-10-11	Sampling Date	:	2021-10-09
Analysis Starting Date	:	2021-10-12	Analysis Completion Date	:	2021-10-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	<0.01	0.02	0.01	<0.01
24	Lead as Pb	mg/l	0.01(NR)	<0.01	<0.01	<0.01	<0.01
25	Manganese as Mn	mg/l	0.1(0.3)	0.03	0.01	0.03	0.02
26	Molybdenum as Mo	mg/l	0.07(NR)	<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
28	Iron as Fe	mg/l	0.3(NR)	0.13	0.09	0.17	0.21
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.27	0.18	0.32	0.14
32	Aluminum as Al	mg/l	0.03(0.2)	0.08	0.04	0.13	0.09
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.036	0.052	0.047	0.021
38	Silver as Ag	mg/l	0.1(NR)	<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
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Report Number	:	VLL/VLS/21/09392/001
Issued Date	:	2021-11-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-10-11	Sampling Date	:	2021-10-09
Analysis Starting Date	:	2021-10-12	Analysis Completion Date	:	2021-10-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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
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Issued Date	:	2021-11-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-10-11	Sampling Date	:	2021-10-09
Analysis Starting Date	:	2021-10-12	Analysis Completion Date	:	2021-10-30
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	*Parsabhata village Bore Well*	*Parsabhata village Dug well*	*Karma Talkies Bore well*	*Bhadrapada village Bore well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

ENVIRONMENT LABORATORY
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Report Number	:	VLL/VLS/21/09392/001
Issued Date	:	2021-11-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : GROUND WATER SAMPLES (BALCO PLANT)

Sample Registration Date	:	2021-10-11	Sampling Date	:	2021-10-09
Analysis Starting Date	:	2021-10-12	Analysis Completion Date	:	2021-10-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
1	pH value	-	6.5-8.5 (NR)	6.8	6.9	7.1	7.5
2	Color	Hazen	5(15)	Colorless	Colorless	Colorless	Colorless
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	1(5)	2	2	2	2
6	Total dissolved solids at 180^{0}C	mg/l	500(2000)	548	301	436	568
7	Total Hardness as $CaCO_3$	mg/l	200(600)	276.0	147.8	252.0	260.3
8	Total Alkalinity as $CaCO_3$	mg/l	200(600)	201	110	174	260
9	Calcium as Ca	mg/l	75(200)	53.6	34.3	56.8	57.2
10	Magnesium as Mg	mg/l	30(100)	34.5	15.07	26.73	28.5
11	Free Residual chlorine	mg/l	0.2(1.0)	<0.2	<0.2	<0.2	<0.2
12	Boron	mg/l	0.5(1.0)	0.18	0.09	0.23	0.11
13	Chlorides as Cl	mg/l	250(1000)	131.5	73.8	92.3	105.8
14	Sulphate as SO_4	mg/l	200(400)	32.2	16.4	29.4	21.0
15	Fluorides as F	mg/l	1.0(1.5)	0.016	0.02	0.316	0.472
16	Nitrates as NO_3	mg/l	45(NR)	2.3	1.7	1.9	2.5
17	Phenolic Compounds as C_6H_5OH	mg/l	0.001(0.002)	<0.001	<0.001	<0.001	<0.001
18	Cyanides	mg/l	0.05(NR)	<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.- D.L.-33004/99
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Issued Date : 2021-11-02
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-10-11	Sampling Date	:	2021-10-09
Analysis Starting Date	:	2021-10-12	Analysis Completion Date	:	2021-10-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
19	Anionic detergents as MBAS	mg/l	0.2(1.0)	<0.02	<0.02	<0.02	<0.02
20	Mineral oil	mg/l	0.5(NR)	Absent	Absent	Absent	Absent
21	Cadmium as Cd	mg/l	0.003(NR)	<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
23	Copper as Cu	mg/l	0.05(1.5)	0.02	0.01	<0.01	0.02
24	Lead as Pb	mg/l	0.01(NR)	<0.01	<0.01	<0.01	<0.01
25	Manganese as Mn	mg/l	0.1(0.3)	0.03	0.02	0.01	0.02
26	Molybdenum as Mo	mg/l	0.07(NR)	<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
28	Iron as Fe	mg/l	0.3(NR)	0.09	0.06	0.11	0.08
29	Total Chromium as Cr	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
30	Selenium as Se	mg/l	0.05(NR)	<0.01	<0.01	<0.01	<0.01
31	Zinc as Zn	mg/l	5.0(15)	0.23	0.17	0.08	0.19
32	Aluminum as Al	mg/l	0.03(0.2)	0.09	0.04	0.08	0.07
33	Mercury as Hg	mg/l	0.001(NR)	<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
35	Chloramines as Cl2	mg/l	4.0(NR)	<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
37	Barium as Ba	mg/l	0.7(NR)	0.028	0.047	0.021	0.036
38	Silver as Ag	mg/l	0.1(NR)	<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.: 01.0...
Sr. No - 5

Dr. Subba Reddy Mallampati
Group Leader - Environment

Vimta Labs Limited
Registered Office
142, IDA Phase II, Cherlapally
Hyderabad-500 051,Telangana, India
T : +91 40 2726 4141
F : +91 40 2726 3657

Vimta
Driven by Quality. Inspired by Science.

ISSUED TO:

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

Report Number : **VLL/VLS/21/09392/001**
Issued Date : 2021-11-02
Your Ref : 8500003497
P.O. Date : 2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-10-11	Sampling Date	:	2021-10-09
Analysis Starting Date	:	2021-10-12	Analysis Completion Date	:	2021-10-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
39	Polychlorinated biphenyls	mg/l	0.0005(NR)	Absent	Absent	Absent	Absent
40	Polynuclear aromatic hydrocarbon as PAH	mg/l	0.0001(NR)	<0.0001	<0.0001	<0.0001	<0.0001
41	Bromoform	mg/l	0.1(NR)	<0.0001	<0.0001	<0.0001	<0.0001
42	Dibromochloromethane	mg/l	0.1(NR)	<0.01	<0.01	<0.01	<0.01
43	Bromodichloromethane	mg/l	0.06(NR)	<0.01	<0.01	<0.01	<0.01
44	Chloroform	mg/l	0.2(NR)	<0.001	<0.001	<0.001	<0.001
(A)	**Pesticides**						
45	Alachlor	µg/l	20	<0.01	<0.01	<0.01	<0.01
46	Atrazine	µg/l	2	<0.01	<0.01	<0.01	<0.01
47	Aldrin	µg/l	0.03	<0.01	<0.01	<0.01	<0.01
48	Alpha HCH	µg/l	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
50	Butachlor	µg/l	125	<0.01	<0.01	<0.01	<0.01
51	Chlorpyriphos	µg/l	30	<0.01	<0.01	<0.01	<0.01
52	Delta HCH	µg/l	0.04	<0.01	<0.01	<0.01	<0.01
53	2,4-Dichlorophenoxyacetic acid	µg/l	30	<0.01	<0.01	<0.01	<0.01
54	DDT	µg/l	1	<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
56	Ethion	µg/l	3	<0.01	<0.01	<0.01	<0.01
57	Gamma HCH	µg/l	2	<0.01	<0.01	<0.01	<0.01
58	Isoproturon	µg/l	9	<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.:- D.L. 000495 VIMTA

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Group Leader - Environment

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ISSUED TO:

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

Report Number	:	**VLL/VLS/21/09392/001**
Issued Date	:	2021-11-02
Your Ref	:	8500003497
P.O. Date	:	2019-02-16

SAMPLE PARTICULARS : **GROUND WATER SAMPLES (BALCO PLANT)**

Sample Registration Date	:	2021-10-11	Sampling Date	:	2021-10-09
Analysis Starting Date	:	2021-10-12	Analysis Completion Date	:	2021-10-30
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	*Rogabahari village Bore Well*	*Rogabahari village Dug well*	*Bailgiri village Bore well*	*Bailgiri village Dug well*
59	Malathion	µg/l	190	BDL	BDL	BDL	BDL
60	Methyl parathion	µg/l	0.3	BDL	BDL	BDL	BDL
61	Monocrotophos	µg/l	1	BDL	BDL	BDL	BDL
62	Phorate	µg/l	2	BDL	BDL	BDL	BDL
63	E.coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent
64	Total Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Absent
(B)	**Radioactive**						
65	Alpha emitters	Bq/l	0.1(NR)	BDL	BDL	BDL	BDL
66	Beta emitters	Bq/l	1.0(NR)	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

ENVIRONMENT LABORATORY
Vimta VIMTA LABS
REGD No.: D.L. 330/98
Sr. No - 5

Dr. Subba Reddy Mallampati
Group Leader – Environment

Annexure – 5

3rd Party Plantation Verification Report

REPORT ON

"MONITORING AND EVALUATION OF PLANTATION"

AT

Bharat Aluminium Company Limited
BALCO Nagar, Dist.: Korba (C.G.)

March–2021

"NAV AASTHA JAN VIKAS SEVA SAMITI"

8/5, "JASMATI BHAWAN", NEAR OLD KATTHA FACTORY,
GODHANPUR, AMBIKAPUR – 497001
CONTACT–#99261-54460#94255-80401
WEBSITE – www.navaastha.in Email –najvss@gmail.com

WHO WE ARE?

NAV AASTHA JAN VIKAS SEVA SAMITI is a registered NGO under societies registration act. 1973 of Indian constitution, registered on 07thApril 2005 at Raipur (C.G.).The working area of the organization is whole Chhattisgarh. Our main focus is towards the Environment, Forest and Biodiversity conservation, youth development and women and child empowerment in the state.

We have been working continuously in betterment of the people of Chhattisgarh *(chhattisgarhiya)* in educational, Social and many more sectors by the help of schemes of govt. The organization works under many schemes of the respectable govt. like – **Green India Mission** (GIM), **Bio-diversity Program, Integrated Watershed Management Program** (IWMP), **SGSY**, **SHG** forming, **JFMC capacity building** and many more. We are also engaged in **Monitoring and Evaluation** of plantations of government entities as well as private entities.

"New challenges new innovations……"

CENTRAL POLLUTION CONTROL BOARD

The **Central Pollution Control Board (CPCB)**, statutory organization, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974. Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

It serves as a field formation and also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986. Principal Functions of the CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, (i) to promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution, and (ii) to improve the quality of air and to prevent, control or abate air pollution in the country.

Air Quality Monitoring is an important part of the air quality management. The **National Air Monitoring Programme** (NAMP) has been established with objectives to determine the present air quality status and trends and to control and regulate pollution from industries and other source to meet the air quality standards. It also provides background air quality data needed for industrial sitting and towns planning.

Besides this, CPCB has an automatic monitoring station at ITO Intersection in New Delhi. At this station Resizable Suspended Particulate Matter (RSPM), Carbon Monoxide (CO), Ozone(O3), Sulphur Dioxide(SO2), Nitrogen Dioxide(NO2) and Suspended Particulate Matter (SPM) are being monitored regularly. This information on Air Quality at ITO is updated every week.

Plantation Details: M/s Bharat Aluminium Co. Ltd (BALCO) Korba(CG)

Year	BALCO PLANT & TOWNSHIP		BCPP		Total saplings including BALCO & BCPP	No of saplings Survived	Percentage Survived Percentage %	Location	Species
	No of Sapling planted BALCO	Area in Acre	No of sapling planted BCPP	BCPP Area in Acre					
2002-03	55000	54	10000	10	65000	51745	79.61	Plant boundary wall plantation sites, inside township, BCPP township, plant and ash dyke area and roadside of plant and township.	Sagwan, Karanj Sarai, Nilgiri, subabul, Gulmohar, Mango and Fruit bearing saplings
2003-04	30000	29	10000	10	40000	33252	83.13		
2004-05	11000	10	21000	21	32000	25335	79.17		
2005-06	57000	56	10000	10	67000	53278	79.52		
2006-07	130000	128	5000	5	135000	106782	79.10		
2007-08	35000	32	5000	5	40000	33600	84.00		
2008-09	13000	12	1000	1	14000	11276	80.54	BCPP plant and township plantation area	Sagwan, Karanj Sarai, Nilgiri, Subabul, Gulmohar, Mango and Fruit bearing saplings

2009-10	53500	52.5	1500	1	55000	40100	72.91	Township and Hariyar Chhattisgarh plantation programme (Roadside plantation in Devpahri road)	Sagwan, Karanj Sarai, Nilgiri, subabul, Gulmohar, Mango and fruit bearing saplings
2010-11	54850	54	150	0	55000	39870	72.49	Hariyar Chhattisgarh plantation program, BCPP	Sagwan, Karanj, Sarai, Nilgiri, subabul, Gulmohar, Mango and fruit bearing saplings
2011-12	20000	18.5	0	0	20000	16875	84.38	Near Stadium, Joggers park	Ashoka, Sagwan, Karanj, Gulmohar
2012-13	5600	5	0	0	5600	4826	86.18	Near Kali Mandir	Karanj, Gulmohar
2013-14	4150	4	650	0.65	4800	4025	83.25	Inside Plant, BCPP Ash Dykes, DPS School	Karanj, Neem Gulmohar,Guava
2014-15	35700	34	0		35700	30638	85.82	Lalghat plantation area, Inside Roads	Karanj, Sagwan, mix Fruit plants
2015-16	30000	28	0		30000	25434	84.78	Near township office, ash dykes, cooling tower inside / outside, ETP, boundary wall 1200 MW, Behind alumina plant	Karanj, Sagwan, mix fruits bearing plants
2016-17	30000	28	0		30000	25500	85.00	Balco Plant and around township	Karanj, Satwan, Gulmohar, Guvava, Jamun, Sehtut, Sagwan

2017-18	5000	4	0		5000	4100	82.00	In and around plant and township	Karanj, Gulmohar, Guvava, Jamun, Sehtut, Sagwan, Mango, Jamun
2018-19	5000	4	0		5000	4000	80.00	In and around plant and township	Karanj, Satwan, Gulmohar, Guvava, Jamun, Sehtut, Sagwan, Mango, Jamun, Black Sirus, Neem
2019-20	15000	13	0		15000	12900	86.00	Near ash dyke, township and plant premises	Karanj, Satwan, Mango, Gulmohar, Bamboo, Amla, Neem
2020-21	10000	9	0		10000	8420	84.20	Ash dyke 3 Band at STP area	Karanj, Satwan, Mango, Gulmohar, Bamboo, Amla, Neem
Total*	**599800**	**575**	**64300**	**65**	**664100**	**531956**	**80.10**		

***Above details is for overall plantation carried out at Balco nagar Korba location which include statutory compliance for plantation for individual units of M/s BALCO Korba.**

Plantation Details

S.No	Industry/ Mines Name	Total area of industry/Mines in Acres	Actual plantation carried out by industry/mines(in acres)	Remarks
1	Integrated Aluminium and Power complex	948	575	As per EC/CTE/CTO condition the targeted plantation has been completed in all units of BALCO Korba.
2	Township	650		
3	Ash pond	375		
Total Land		1973		
4	Balco 270 MW Power plant	196 (Including Ash Dykes)	65	

CONCLUSION

The Survival percentage of plantation done by "**Bharat Aluminium Company Limited, BALCO Nagar, Dist.: Korba (C.G.)**" is about 80.10*%w*hich is **Outstanding** performance by the company.

It is observe that there is luxuriant growth of the plants with large canopy area. All the plantation work of the company is satisfactory and specifically the maintenance done at the site is praiseworthy. We hope this will continue in future for developing greenery all around plant and township.

The official staff of the company was so co-operative, enthusiastic and helpful towards the work.

GRADING OF PROJECT ON A SCALE OF 1TO10

	Outstanding (8-10)	Very Good (5-8)	Good (3-5)	Poor (<3)
Overall Grading of the Project	8.1			

Note: As informed by BALCO that they are initiating additional plantation of around 1,00,000 saplings in the area of approx. 88 Acres (Ash dykes, Open area, etc.) during FY 2021-22.

ON SITE PHOTOGRAPHS


Shot on OnePlus
By Vijay Kumar Gupta

Annexure – 6

Green Belt Development Report

GREEN BELT DEVELOPMENT

NAME OF THE SPECIES PLANTED

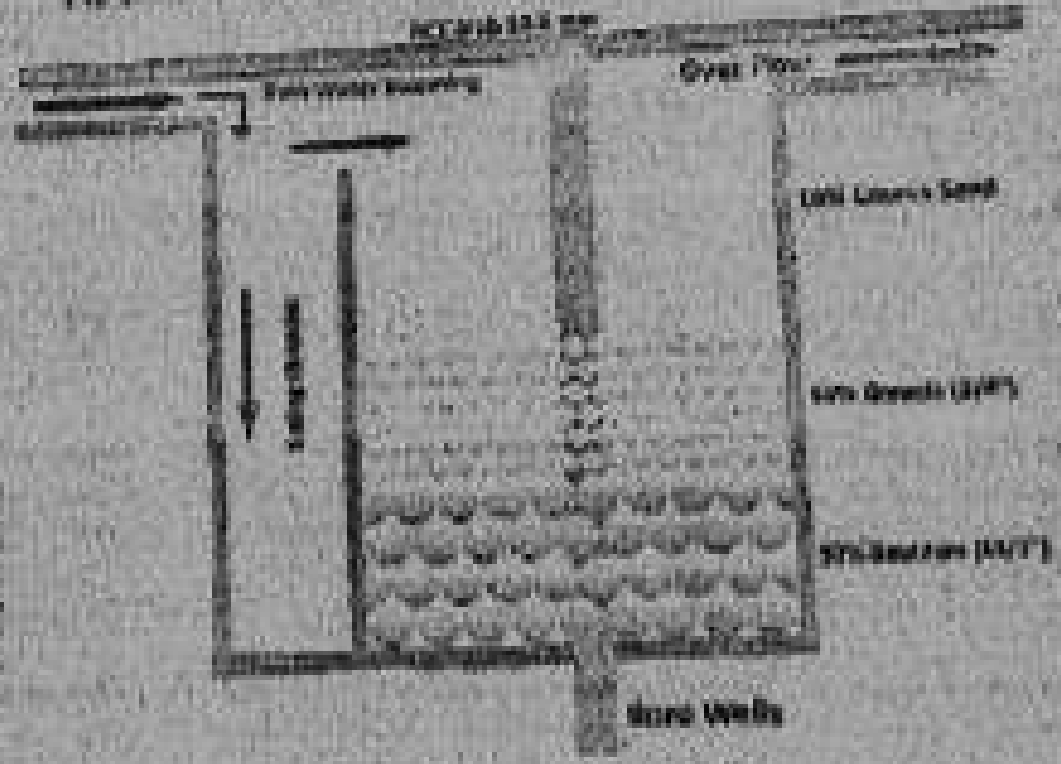
Dalbergia latifolia (**sheeshm**), Mangifera Indica (**Mango**), Jamarindus Indica, Dehonix Regia(**Gulmohar**), Madhuca Indica (**Mahuwa**), Emblica Officinalis (**Amala**), Syzygium Cumini (**Jamun**), Azadirachta Indica (**Neem**), Grevillea Rebusta (**Silver oak**) Karanj, (**Amaltash**), Ficus Religiosa (**Pipal**), Leucaena Leucoophala (**Subabul**) etc.

YEAR	BALCO		PROJECT		BCPP		MINES		Total	
	No of sapling	*Area in Acres*	*No of sapling*	*Area in Acres*	*No of sapling*	*Area in Acres*	*No of sapling*	*Area in Acres*	*No of sapling*	*Area in Acres*
2002-03	35000	34	*20000*	*19.6*	10000	10	21000	21	*86000*	*85*
2003-04	30000	29			10000	10	45000	44	*85000*	*83*
2004-05	11000	11			21000	21	30000	29	*62000*	*61*
2005-06	37000	36	20000	19.6	10000	10	50000	49	*117000*	*115*
2006-07	100000	98	30000	29.4	5000	5	150000	147	*285000*	*279*
2007-08	20000	20	15,000	14.7	5000	5	110000	108	*150000*	*148*
2008-09	10000	10	3,000	2.94	1000	1	160000	157	*174000*	*171*
2009-10	50000	49	3500	3.43	1500	1	150000	147	*205000*	*200*
2010-11	50000	49	4850	4.753	150	0	305000	299	*360000*	*353*
2011-12	20000	20	-	-	-	-	201000	198	*221000*	*218*
2012-13	5600	*6*	-	-	-	-	305000	*301*	*310600*	*307*
2013-14	3000	*3*	1150	1.15	650	0.65	175000	*144*	*179800*	*149*
2014-15	600	0.6	35100	35	0	0	148000	147	183700	182.6
2015-16	4000	4	26000	26	0	0	72500	72	102500	102
2016-17	30000	30	-	-	-	-	57000	57	87000	87
2017-18	5000	5	-	-	-	-	87500	88	92500	92.5
2018-19	5000	5	-	-	-	-	83000	83	88000	83
2019-20	15000	15	-	-	-	-	114500	115	129500	-
2020-21	10000	10	-	-	-	-	70000	70	80000	-
2021-22	15000	10	-	-	-	-	17000	10	31700	-

Annexure – 7

Rainwater Harvesting System Report

RAIN WATER HARVESTING SYSTEM



PROJECT PARTICULARS

S.No.	ITEMS	
1	Rain Water Collection roofs from No. of Roofs	02
2	Total area of Roofs	395.74 Sqm.
3	Rain water Generation / Year	474.89 Cum.
4	Rain Water Recharge / Year	332.42 Cum.
5	Size of Rainwater Tank Size of Building Tank	L x W x D / 360 x 180 x 3.00 M 3M x 3M x 3.5M
6	Total Volume of Rainwater Tank	33.5 Cum.
7	Rain water Pipe Line Borewells Dia	6"
8	Drain Line (01, 02)	01
9	PVC Pipe Line 1, 2, 3, 4, 5, 6 nos	6"

Annexure – 8

Last Half Yearly EC Compliance Report

vedanta
transforming elements

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

No. BALCO/ENV/A-02(A)/2021/280 30.11.2021

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 Report (April-2021 to September-2021) of the Smelter 5.5 LTPA &300 MW PP.

Respected Sir/Madam,

As per the Environmental Clearance (No. J- 11011/123/2007.IA-II (I) dated 16th September 2008) received for the expansion of Smelter & Power Plant, M/s Bharat Aluminium Company Limited (BALCO), Korba has set up its smelter plant, phase-1, (3.25 LTPA). Please find enclosed herewith the compliance report along with the necessary supporting documents.

We hope that the above is in line with provisions stipulated in the Environmental Clearance. In case any further information is required, please contact the undersigned.

Thanking you,

Yours truly,
On Behalf of Bharat Aluminium Company Limited,

RK Singh
COO – METAL
BALCO

Encl: a/a
Copy to:
1. Regional Officer, CECB, KORBA
2. The APCCF, MoEFCC Civil Lines Nagpur

Expansion of Aluminium Smelter Plant by 3.5 to 9.0 LTPA and Power Plant 300 MW
BALCO, KORBA (C.G.)
No. J-11011/123/2007-IA-II (I) MoEF – 16 September 2008
Duration: April 2021 to September- 2021

A – SPECIFIC CONDITION

S. No.	Conditions	Compliance status
i	The gaseous emissions (PM, SO_2, NOx, PAH, HC, VOCs, and Fluoride) from various process units shall conform to the standard prescribed from time to time. The CECB may specify more stringent standards for the relevant parameters keeping in view the nature of the industry, its size and location. At no time the emission level should go beyond the prescribed standards, In the event of failure of any pollution control system adopted by the unit, the respective unit should not be restarted until the control; measures are rectified to achieve the desired efficiency. The particulate emissions from the bake oven plant shall not exceed 50 mg/Nm3.	Pollution Control devices like bag filters, dry scrubbers and FTP have been installed to ensure that emissions are well within the permissible limits, including the particulate emissions from bake oven plant. CEMS has been installed in the consented stacks of all units and the CEMS has been connected with CPCB/CECB servers for real-time continuous data monitoring. The monthly stack monitoring reports are submitted to CECB every month. Copy of monthly stack monitoring reports are attached as **Annexure - I**
ii	Electrostatic precipitator (ESP) shall be provided to Captive Power Plant (CPP) to control emissions below 50 mgINm3. The company shall provide bag-filters, dry scrubbing system and dust suppression system to control all the emissions including fluoride emissions from all melting and casting units. Tar, dust and fluoride in the fumes shall be controlled in baking furnace by providing dry scrubber. The emissions shall conform to the standards prescribed by the Ministry/CPCB/SPCB whichever is more stringent.	300 MW power plant has not been setup as per EC approval hence the condition "Electrostatic precipitator (ESP) shall be provided to Captive Power Plant (CPP) to control emissions below 50 mgINm3" is not applicable. The company has installed bag-filters, dry scrubbing system and dust suppression system to control the emissions including fluoride emissions from all units. Tar, dust and fluoride in the fumes are controlled in baking furnace by the dry scrubber. CEMS has been installed in the consented stacks of all units and the CEMS has been connected with CPCB/CECB servers for real-time continuous data monitoring. The monthly stack monitoring reports are submitted to CECB every month. Copy of monthly stack monitoring reports are attached as **Annexure - I**
iii	The poly-aromatic hydrocarbons (PAH) from the carbon plant (anode bake oven) shall not exceed 2 mg/Nm3. The data on PAH shall be	Poly-aromatic hydrocarbons (PAH) from Bake oven plant are regularly monitored and reported to CECB every month.

	monitored quarterly and report submitted regularly to the Ministry/Regional Office at Bhopal and CECB.	Copy of monthly stack monitoring reports are attached as **Annexure - I**
iv	Particulate fluoride emissions shall not be more than 0.65 mg/Nm3 and fugitive particulate fluoride emissions from pot room shall not be more than 1.85 mg/Nm3.	State of Art Technology (PFPB) has been installed in the smelters, system for covering the pots with properly designed hoods and fume treatment plant are in place to ensure particulate fluoride emission and fugitive fluoride emissions are within the stipulated norms. Copy of monthly fugitive emission monitoring reports are attached as **Annexure - II**
v	Fluoride consumption shall be less than 10 kg/ton of Aluminium produced as specified in the CREP guidelines.	Our smelter is based on GAMI technology and is designed for an AlF3 consumption of 20 kg/MT of Aluminium produced. The present Fluoride consumption is 12.4 kg/ MT of Aluminium produced. We are making all efforts to bring down fluoride consumption by process optimization.
vi	In-plant control measures like fume extraction and dust extraction system for controlling fugitive emissions from all the material handling/transfer points shall be provided to control dust emissions. Fugitive fluoride emissions from the pot room and in the forage around the smelter complex shall be monitored and data submitted regularly to the Ministry's Regional Office at Bhopal and CECB. Further dry scrubbing system to control the emissions from the pot lines shall be provided.	State of Art Technology (PFPB) has been installed in the smelters, system for covering the pots with properly designed hoods, fume treatment plant based on dry scrubbing and bag filter technology and dust suppression and dust extraction systems are in place to check fugitive emissions. Fluoride emissions from pot room and forage fluoride around the smelter complex are monitored regularly. Copy of fugitive emission reports attached as **Annexure – II** and copy of forage fluoride monitoring reports attached as **Annexure – III**
vii	Total water requirement for the expansion from Hasdeo River shall not exceed 1253 m3/hr and prior permission for the existing and proposed expansion shall be obtained from the concerned department before commissioning of the plant. All the effluent including from cooling tower and de-mineralization plant shall be treated in the effluent treatment plant and treated effluent shall be recycled / reutilized in the process in the smelter and CPP and also for fire protection, dust suppression, green belt development etc. Domestic effluent shall be treated in Sewage Treatment Plant (STP) and treated domestic wastewater will be used for green belt development.	Total water requirement for the expansion from Hasdeo River is not exceeding 1253 m3/hr. Effluent Treatment Plant with RO system is in place and treated effluent from ETP is being used in the process and horticulture purposes. For treatment of Sewerage waste Common Sewage Treatment plant has been installed and treated water is being used for green belt development.
viii	No effluent shall be discharged outside the premises during the non-monsoon period and during the monsoon period water shall be	No effluent is being discharged as the plant is designed for zero discharge and treated water is being used in Process and Horticulture.

	discharged only after proper treatment and meeting the norms of the CECB/CPCB.	
ix	Regular ground water monitoring shall be carried out by installing Peizometers all around the secured landfill site in consultation with the Chhattisgarh Environment Conservation Board, Central Ground Water Authority and State Ground Water Board and data submitted to the Ministry's Regional Office and CECB.	Piezometers have been installed all around the secured landfill site and ground water monitoring is being carried out every month. The monthly monitoring reports are submitted to CECB every month. Copy of ground water quality monitoring reports are attached as **Annexure – IV**
x	Anode butts generated from the pots shall be cleaned and recycled to the Anode Plant. The spent pot lining generated from the smelter shall be properly treated in spent pot lining treatment plant to remove fluoride and cyanide and disposed off to the Cement/Steel plants and as minimum as possible to secured landfill. The location and design of the landfill site shall be approved by the CECB as per Hazardous Wastes' (Management and Handling) Rules 1989 and amended in 2003. Leachate collection facilities shall be provided to the secured landfill facility (SLF). The dross shall be recycled in the cast house. STP sludge shall be utilized as manure for green belt development. All the used oil and batteries shall be sold to the authorized recyclers/ re-processors.	Anode butts generated from the smelter operations are recycled at Green Anode Plant within the plant premise. For utilizing the spent pot lining generated from the smelter, we have entered into agreement with CECB approved agencies for detoxification and further using it for manufacturing of cement/steel as per CPCB guidelines and SPL is provided to these authorized recyclers. Additionally SLF has been provided as per CPCB guidelines for disposal of Spent Pot linings and other HW after getting the location and design of the landfill site approved by the CECB as per Hazardous Wastes' (Management and Handling) Rules 1989 and amended in 2003. Dross generated is disposed to authorized recyclers with valid consent and authorization as per the guidelines of CECB. Used oil and batteries are being sold to the authorized recyclers/ re-processors.
xi	Integrated Ash Management Plan shall be prepared for the utilization of fly ash as per Fly Ash Notification, 1999 as amended in 2003 and implemented. A copy of the plan shall be submitted to the Ministry's Regional Office. Fly ash shall be collected pneumatically in silos and used by cement and brick manufacturers for further utilization. Bottom Ash shall be disposed off in ash pond using high concentrated slurry disposal method.	300 MW Power Plant has not been set up and this clause is not applicable.
xii	Green belt of adequate width and density around the project site shall be developed in 33 % area in consultation with the DFO as per	Extensive tree plantation is being carried out every year in all open spaces available in and around the plant premises.

	the CPCB guidelines having density of 2,000 trees/ha.	Around 14700 saplings were planted in the year 2021-22. However, for Smelter 3.25 LTPA a greenbelt has already been developed in 55 acres of land. The plantation has been verified by CECB approved 3rd party and verified plantation report has been submitted to CECB office. Copy of 3rd party verification report attached as **Annexure – V** and copy of greenbelt details attached as **Annexure – VI**
xiii	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Regular PME of employees is being conducted and records are maintained as per the Factories Act.
xiv	The company shall develop rainwater structures to harvest the run off water for recharge of ground water in consultation with the Central Ground Water authority/ State Ground Water Board.	Roof Top Rain Water Harvesting System has been constructed in consultation with CGWB. Photographs of the same are attached as **Annexure - VII**
xv	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium sector shall be strictly implemented.	CREP Recommendations are being followed. However, our smelter is based on GAMI Technology and is designed for an AlF3 consumption of 20kg/MT of Aluminium Produced. The present fluoride consumption is 12.4 kg/MT of Aluminium produced. We are making all efforts to bring down fluoride consumption by process optimization.
xvi	All the environmental conditions stipulated by the Ministry vide letter no. J-11011/34/2003-1A II (I) dated 5th November, 2003 for the Alumina Refinery and Aluminium Smelter Plant shall be complied and regular compliance report submitted to the Ministry's Regional Office at Bhopal.	Compliance status for the environmental conditions stipulated by the Ministry vide letter no. J-11011/34/2003-1A II (I) dated 5th November, 2003 for the Alumina Refinery and Aluminium Smelter Plant is submitted regularly to Ministry's Regional Office at Bhopal/Nagpur. Last report was submitted vide our letter no. BALCO/ENV/A-02(A)/2021/115, dated May 29, 2021. Copy of last submitted report attached as **Annexure – VIII**
xvii	The company shall comply with all the commitment made during public hearing/public consultation held on 16th November 2007. The company shall prepare the action plan for implementation of the commitments and same shall be submitted to the Ministry and its Regional Office at Bhopal and Chhattisgarh Environmental Conservation Board Raipur.	Being complied with.
xviii	Prior permission from the State Forest Department shall be obtained due to likely impact of transport of raw material and end product and gaseous emissions from the smelter on the surrounding reserve forests	BALCO, Korba has required transport infrastructure with Rail & Road connection in place. For prior permission from the State Forest Department a letter has been sent to the principal Chief Conservator of Forest on 18 Nov. 2015 Vide letter No. Balco /

	and wildlife. Recommendations regarding mitigative measures suggested by the State Forest department and Chief Wildlife Warden, Govt. of Chhattisgarh shall be strictly followed.	Sm3.25LTPA / Env / 01(A) / 2015 / 380 and being followed regularly. Copy of letter attached as **Annexure – IX**
xix	Ministry of Environment and Forests shall regularly be informed about the source and quantity of Alumina procured from captive/indigenous/imported sources.	During the period from April 2021 to September 2021, 41,088 MT of Alumina was sourced from our sister concern at Lanjigarh Orissa, and 2,65,924 MT of Alumina was imported for Aluminum Smelter 3.25 LTPA.
xx	Alumina shall be obtained only from those refineries, which have been accorded environmental clearance by the Ministry of Environment and Forests.	Complied with.

B. General Condition

i	The Project authorities must strictly adhere to the stipulation made by the Chhattisgarh Environment Conservation Board and the State Government.	Complied with
ii	No expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Complied with.
iii	Adequate ambient air quality-monitoring stations should be established in the downward direction as well as where maximum ground level concentration of SPM, SO2 and Nox are anticipated in consultation with the State Pollution Control Board. Data on ambient air quality, fugitive emission and stack emissions should be regularly submitted to this ministry including its Regional Office at Bhopal and the State Pollution Control Board/Central Pollution Control Board once in six months.	AAQ stations have been set up both in upwind and downwind directions at locations approved by State Pollution Control Board. Copy of monthly stack emission monitoring reports attached as **Annexure – I** Copy of monthly fugitive emission monitoring reports attached as **Annexure –II** Copy of monthly ambient air quality monitoring reports attached as **Annexure – X**
iv	Industrial waste water 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 form time to time. The treated wastewater should be recycled in the plant as well as utilization for plantation purposes.	Effluent Treatment Plant with RO system is in place and treated effluent from ETP is being used in the process and horticulture purposes. Plant is designed for zero discharge.
v	The project authorities shall with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management and Handling) Rules 2003. Authorization from the CECB must	Complied with. Renewal of Authorization in accordance with Hazardous and other Waste (Management, and Transboundary Movement) Rules 2016 has already been received from CECB on 22 October 2021 vide letter no 5255/HSMD/HO/CECB/2021; for generation,

	be obtained for collection, storage, treatment and disposal of hazardous wastes.	collection, storage, transport, reuse, recycling and disposal of hazardous wastes and the same is valid up to 23 October, 2026. Copy of Authorization and its amendments attached as **Annexure - XI**
vi	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measured including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under Rules, 1989 viz.75 dBA (day time) and 70 dBA (Night time)	Equipments are designed to ensure that noise level at plant boundary area within the stipulated level of 85 dB Copy of noise monitoring reports attached as **Annexure – XII**
vii	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP/risk analysis and DMP report.	Complied with.
viii	As proposed in EIA/EMP Rs. 216.50 Crores earmarked toward the capital cost and recurring the expenditure/annum for environmental protection measures shall be used judiciously to implement the condition stipulated by the ministry of Environment And Forests as well as the state Government. The funds so provided shall not be diverted for any other purposes.	Complied with.
ix	The Regional Office of this Ministry at Bhopal/Central pollution Control Board/CECB will monitor stipulated conditions. A six monthly compliance report and the monitored data along with Statistical interpretation should be submitted to them regularly.	Complied with. EC Compliance was last submitted vide letter no BALCO/ENV/A-02(A)/2021/115, dated 29 May, 2021. Copy of last submitted report attached as **Annexure – VIII**
x	The project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in. This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office.	Complied with. Copy of newspaper advertisements attached as **Annexure – XIII**

xi	The project authorities should inform the regional office as well as the Ministry. The date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Date of commencing the land development work: 10.06.2009 and status updated in Half yearly compliance reports.
6.0	The Ministry may; revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted
7.0	The Ministry reserves the right to stipulated additional conditions if found necessary. The Company in at time bound manner will implement these conditions	Noted.
8.0	Any appeal against this environment clearance shall lie with the national environment appellate authority, if preferred within a period of 30 days as prescribed under section 11 of the National Environment Appellate Act, 1997.	Noted.
9.0	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, Hazardous Wastes (Management and Handling) Rules, 1989/2003 and the Public Liability insurance Act, 1991 along with their amendments and rules.	Noted.

Annexure – 9

Ambient Air Quality Monitoring Report

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ISSUED TO:
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Report Number :- VLL/VLS/21/09392/003
Issue Date :- 2021/11/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars AMBIENT AIR QUALITY MONITORING AT GAP & BAKE OVEN ROAD (BALCO)

Analysis starting date :- 2021-10-05 **Analysis Completion date :- 2021-11-02**

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 : GAP & BAKE OVEN RAOD							
Sampling Date			2021-10-04	2021-10-06	2021-10-13	2021-10-15	2021-10-19	2021-10-21	2021-10-25	2021-10-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	25.4	22.2	34.6	27.4	22.1	31.6	25.4	23.1
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	13.9	6.9	11.4	17.7	14.3	13.1	6.8	11.3
Particulate Matter (PM10)	$\mu g/m^3$	100	57.2	58.8	54.3	59.7	62.6	57.4	60.3	59.1
Particulate Matter (PM2.5)	$\mu g/m^3$	60	27.2	25.6	17.7	22.7	26.1	13.5	20.8	18.6
Ammonia (NH_3)	$\mu g/m^3$	400	8.3	5.8	10.2	4.7	5.4	2.9	4.7	5.1
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.9	2.4	2.1	3.6	3.4	2.8	3.9	2.5
Lead as Pb	$\mu g/m^3$	1	0.021	0.025	0.016	0.035	0.017	0.029	0.034	0.019
Carbon Monoxide	$\mu g/m^3$	2000	362	387	479	528	569	433	387	546
Ozone	$\mu g/m^3$	100	7.7	5.0	4.8	4.4	11.3	3.3	6.2	4.2

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Report Number :- VLL/VLS/21/09392/002
Issue Date :- 2021/11/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — AMBIENT AIR QUALITY MONITORING AT NEW ETP (BALCO)

Analysis starting date :- 2021-10-05 — **Analysis Completion date :- 2021-11-02**

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 : NEW ETP							
Sampling Date			2021-10-04	2021-10-06	2021-10-13	2021-10-15	2021-10-19	2021-10-21	2021-10-25	2021-10-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	20.0	16.5	53.1	18.5	9.0	17.5	23.7	13.4
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	7.7	5.6	5.3	5.8	5.7	6.4	10.1	5.5
Particulate Matter (PM10)	$\mu g/m^3$	100	52.7	54.6	56.1	55.7	51.6	52.3	60.1	54.0
Particulate Matter (PM2.5)	$\mu g/m^3$	60	23.4	15.6	20.3	30.9	16.3	19.8	22.1	18.4
Ammonia (NH_3)	$\mu g/m^3$	400	4.2	8.0	6.7	3.4	3.1	2.8	2.8	4.0
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.8	4.1	2.3	2.9	3.6	2.7	4.2	3.6
Lead as Pb	$\mu g/m^3$	1	0.041	0.029	0.015	0.017	0.032	0.028	0.033	0.037
Carbon Monoxide	$\mu g/m^3$	2000	527	493	552	341	407	287	463	318
Ozone	$\mu g/m^3$	100	4.1	5.8	4.2	3.7	7.2	4.9	4.8	3.0

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Report Number :- VLL/VLS/21/09392/009
Issue Date :- 2021/11/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — AMBIENT AIR QUALITY MONITORING AT BALCO HOSPITAL (BALCO)

Analysis starting date :- 2021-10-05

Analysis Completion date :- 2021-11-02

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 : Balco Hospital							
Sampling Date			2021-10-04	2021-10-06	2021-10-13	2021-10-15	2021-10-19	2021-10-21	2021-10-25	2021-10-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	16.7	49.6	14.3	14.0	12.7	15.9	12.5	12.0
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	7.2	5.8	5.9	7.2	7.9	5.1	6.2	5.3
Particulate Matter (PM10)	$\mu g/m^3$	100	42.7	56.2	50.6	59.6	49.3	45.9	58.1	51.3
Particulate Matter (PM2.5)	$\mu g/m^3$	60	10.8	13.7	11.5	16.3	12.6	11.8	20.1	12.9
Ammonia (NH_3)	$\mu g/m^3$	400	4.8	2.0	4.8	3.1	3.3	2.3	1.9	5.6
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.3	2.7	3.4	1.6	2.8	3.1	2.6	3.7
Lead as Pb	$\mu g/m^3$	1	0.029	0.012	0.019	0.016	0.021	0.028	0.013	0.026
Carbon Monoxide	$\mu g/m^3$	2000	396	347	548	297	345	461	229	375
Ozone	$\mu g/m^3$	100	3.9	4.7	5.7	6.6	4.4	4.2	5.2	4.2

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Report Number :- VLL/VLS/21/09392/008
Issue Date :- 2021/11/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — AMBIENT AIR QUALITY MONITORING AT GET HOSTEL (BALCO)

Analysis starting date :- 2021-10-05

Analysis Completion date :- 2021-11-02

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 : GET Hostel							
Sampling Date			2021-10-04	2021-10-06	2021-10-13	2021-10-15	2021-10-19	2021-10-21	2021-10-25	2021-10-27
Sulphur Dioxide (SO_2)	µg/m³	80	18.4	14.1	16.6	18.3	11.9	13.2	16.4	8.9
Nitrogen Dioxide (NO_x)	µg/m³	80	5.9	7.8	5.6	7.8	5.6	7.6	4.4	10.2
Particulate Matter (PM10)	µg/m³	100	53.2	46.1	57.3	48.0	52.8	54.9	55.9	48.5
Particulate Matter (PM2.5)	µg/m³	60	13.9	10.8	17.1	14.1	15.3	11.9	16.2	12.4
Ammonia (NH_3)	µg/m³	400	3.7	3.0	4.4	2.4	3.5	1.8	2.9	4.9
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	1.6	1.2	2.5	2.9	1.3	2.1	1.7	2.8
Lead as Pb	µg/m³	1	0.028	0.031	0.026	0.017	0.014	0.032	0.025	0.024
Carbon Monoxide	µg/m³	2000	263	352	398	314	288	426	359	367
Ozone	µg/m³	100	4.6	4.4	3.7	4.3	3.4	3.0	4.7	3.3

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Report Number :- VLL/VLS/21/09392/006
Issue Date :- 2021/11/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — AMBIENT AIR QUALITY MONITORING AT COAL GATE (BALCO)

Analysis starting date :- 2021-10-05

Analysis Completion date :- 2021-11-02

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 : Coal Gate							
Sampling Date			2021-10-04	2021-10-06	2021-10-13	2021-10-15	2021-10-19	2021-10-21	2021-10-25	2021-10-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	21.9	19.1	25.1	15.8	29.2	16.3	24.8	12.9
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	9.8	8.1	18.4	5.1	9.8	6.5	11.7	13.1
Particulate Matter (PM10)	$\mu g/m^3$	100	54.7	63.2	55.4	50.7	58.1	61.3	56.4	58.6
Particulate Matter (PM2.5)	$\mu g/m^3$	60	17.9	20.1	18.5	13.0	16.8	20.6	19.3	12.4
Ammonia (NH_3)	$\mu g/m^3$	400	7.3	7.2	6.7	5.4	5.3	6.4	4.5	4.5
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.9	4.3	3.9	3.1	2.8	1.5	2.6	3.1
Lead as Pb	$\mu g/m^3$	1	0.017	0.031	0.016	0.028	0.023	0.014	0.033	0.029
Carbon Monoxide	$\mu g/m^3$	2000	361	257	496	638	504	313	468	429
Ozone	$\mu g/m^3$	100	8.8	5.3	7.0	5.5	4.3	9.3	3.6	4.8

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ISSUED TO:
M/s. Bharat Aluminium Company Limited, KORBA (C.G.)

Report Number :- VLL/VLS/21/10611/008
Issue Date :- 2021/12/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars AMBIENT AIR QUALITY MONITORING AT GET HOSTEL (BALCO)

Analysis starting date :- 2021-11-01

Analysis Completion date :- 2021-12-02

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 : GET Hostel							
Sampling Date			2021-11-01	2021-11-03	2021-11-10	2021-11-12	2021-11-16	2021-11-18	2021-11-22	2021-11-24
Sulphur Dioxide (SO_2)	µg/m³	80	13.5	21.0	21.2	19.0	15.7	17.3	12.5	11.5
Nitrogen Dioxide (NO_x)	µg/m³	80	6.9	7.0	8.5	6.4	5.1	7.3	5.5	5.0
Particulate Matter (PM10)	µg/m³	100	51.1	48.0	56.4	40.1	51.7	58.1	47.2	50.9
Particulate Matter (PM2.5)	µg/m³	60	18.3	13.7	20.1	11.3	15.2	21.3	14.6	17.6
Ammonia (NH_3)	µg/m³	400	2.8	3.7	3.2	3.5	2.3	2.9	2.1	2.5
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	3.2	1.6	2.8	2.6	3.4	2.3	2.4	1.3
Lead as Pb	µg/m³	1	0.015	0.008	0.031	0.003	0.028	0.017	0.036	0.019
Carbon Monoxide	µg/m³	2000	362	154	289	246	411	327	298	343
Ozone	µg/m³	100	5.3	5.1	3.9	3.3	4.5	5.7	3.3	3.6

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ISSUED TO:
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Report Number :- VLL/VLS/21/10611/009
Issue Date :- 2021/12/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars AMBIENT AIR QUALITY MONITORING AT BALCO HOSPITAL (BALCO)

Analysis starting date :- 2021-11-01

Analysis Completion date :- 2021-12-02

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 : Balco Hospital							
Sampling Date			2021-11-01	2021-11-03	2021-11-10	2021-11-12	2021-11-16	2021-11-18	2021-11-22	2021-11-24
Sulphur Dioxide (SO_2)	µg/m³	80	12.9	20.5	14.3	19.8	23.3	24.1	17.7	15.9
Nitrogen Dioxide (NO_x)	µg/m³	80	7.8	9.2	10.5	10.8	6.4	11.2	7.7	6.3
Particulate Matter (PM10)	µg/m³	100	54.5	43.2	50.6	47.1	59.3	62.2	47.8	60.9
Particulate Matter (PM2.5)	µg/m³	60	22.6	15.2	19.4	18.6	22.3	25.2	10.2	17.1
Ammonia (NH_3)	µg/m³	400	2.4	4.0	3.5	2.6	2.9	3.7	2.7	3.2
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	3.6	2.5	2.7	2.1	2.9	1.6	2.4	2.8
Lead as Pb	µg/m³	1	0.031	0.035	0.029	0.022	0.014	0.037	0.021	0.027
Carbon Monoxide	µg/m³	2000	252	316	338	542	320	308	297	369
Ozone	µg/m³	100	3.7	6.2	4.7	3.2	6.4	4.7	5.1	4.1

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

Report Number :- VLL/VLS/21/10611/002
Issue Date :- 2021/12/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — AMBIENT AIR QUALITY MONITORING AT NEW ETP (BALCO)

Analysis starting date :- 2021-11-01

Analysis Completion date :- 2021-12-02

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 : NEW ETP							
Sampling Date			2021-11-01	2021-11-03	2021-11-10	2021-11-12	2021-11-16	2021-11-18	2021-11-22	2021-11-24
Sulphur Dioxide (SO_2)	µg/m³	80	21.4	23.8	24.7	30.1	19.3	28.6	20.4	15.3
Nitrogen Dioxide (NO_x)	µg/m³	80	12.9	14.6	10.7	11.9	6.7	11.9	8.8	6.3
Particulate Matter (PM10)	µg/m³	100	58.4	54.3	66.8	54.6	62.2	64.1	58.3	59.7
Particulate Matter (PM2.5)	µg/m³	60	19.2	21.6	25.4	23.9	20.9	21.0	16.2	17.4
Ammonia (NH_3)	µg/m³	400	2.8	4.1	3.6	3.1	3.5	4.8	3.9	3.0
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	3.2	1.9	2.5	2.3	2.9	3.7	2.6	3.4
Lead as Pb	µg/m³	1	0.034	0.025	0.022	0.037	0.042	0.029	0.022	0.035
Carbon Monoxide	µg/m³	2000	429	518	325	271	364	227	413	379
Ozone	µg/m³	100	5.6	9.7	5.3	3.2	5.4	6.1	5.8	4.2

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ISSUED TO:
M/s. Bharat Aluminium Company Limited, KORBA (C.G.)

Report Number :- VLL/VLS/21/10611/003
Issue Date :- 2021/12/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars: **AMBIENT AIR QUALITY MONITORING AT GAP & BAKE OVEN ROAD (BALCO)**

Analysis starting date :- 2021-11-01

Analysis Completion date :- 2021-12-02

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 : GAP & BAKE OVEN RAOD							
Sampling Date			2021-11-01	2021-11-03	2021-11-10	2021-11-12	2021-11-16	2021-11-18	2021-11-22	2021-11-24
Sulphur Dioxide (SO_2)	µg/m³	80	20.8	28.6	37.5	23.1	28.5	19.1	26.2	18.3
Nitrogen Dioxide (NO_x)	µg/m³	80	13.3	15.2	14.1	12.5	8.9	13.7	14.4	8.0
Particulate Matter (PM10)	µg/m³	100	60.8	64.5	59.1	53.9	62.8	65.6	70.5	61.3
Particulate Matter (PM2.5)	µg/m³	60	23.0	29.2	25.7	29.4	22.1	21.6	30.4	24.9
Ammonia (NH_3)	µg/m³	400	3.5	7.6	3.1	4.3	3.9	8.2	7.9	6.7
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	4.2	3.6	5.1	2.7	1.9	3.2	2.8	3.6
Lead as Pb	µg/m³	1	0.035	0.028	0.021	0.043	0.029	0.033	0.027	0.039
Carbon Monoxide	µg/m³	2000	425	136	374	548	392	426	374	291
Ozone	µg/m³	100	8.9	11.7	5.3	7.9	11.1	13.9	7.0	9.7

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Report Number :- VLL/VLS/21/10611/006
Issue Date :- 2021/12/03
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars AMBIENT AIR QUALITY MONITORING AT COAL GATE (BALCO)

Analysis starting date :- 2021-11-01

Analysis Completion date :- 2021-12-02

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 : Coal Gate							
Sampling Date			2021-11-01	2021-11-03	2021-11-10	2021-11-12	2021-11-16	2021-11-18	2021-11-22	2021-11-24
Sulphur Dioxide (SO_2)	µg/m³	80	23.3	33.9	29.0	32.8	29.3	30.5	18.9	14.9
Nitrogen Dioxide (NO_x)	µg/m³	80	26.6	20.8	13.7	11.3	11.2	13.8	13.6	5.2
Particulate Matter (PM10)	µg/m³	100	57.3	61.8	70.2	63.3	58.0	67.2	54.1	64.8
Particulate Matter (PM2.5)	µg/m³	60	21.9	25.9	30.8	24.2	18.6	23.3	19.2	20.5
Ammonia (NH_3)	µg/m³	400	6.4	5.0	4.3	2.6	3.3	4.8	4.7	3.0
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	2.5	3.4	3.8	4.6	2.4	3.3	2.7	4.1
Lead as Pb	µg/m³	1	0.028	0.038	0.041	0.014	0.029	0.023	0.034	0.023
Carbon Monoxide	µg/m³	2000	374	416	382	432	363	408	344	462
Ozone	µg/m³	100	9.5	8.9	8.4	6.7	9.4	8.6	4.5	4.0

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ISSUED TO:
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KORBA (C.G.)

Report Number :- VLL/VLS/21/12527/006
Issue Date :- 2022/01/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars

AMBIENT AIR QUALITY MONITORING AT COAL GATE (BALCO)

Analysis starting date :- 2021-12-01

Analysis Completion date :- 2022-01-04

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 : Coal Gate								
Sampling Date			2021-12-01	2021-12-03	2021-12-09	2021-12-11	2021-12-15	2021-12-17	2021-12-21	2021-12-23	2021-12-27
Sulphur Dioxide (SO_2)	µg/m³	80	69.8	30.3	19.4	19.4	72.4	60.1	33.0	33.0	37.4
Nitrogen Dioxide (NO_x)	µg/m³	80	12.0	11.6	8.0	10.9	8.3	9.3	6.8	9.4	7.7
Particulate Matter (PM10)	µg/m³	100	63.9	70.2	68.1	59.4	56.3	63.1	65.7	74.1	61.9
Particulate Matter (PM2.5)	µg/m³	60	18.9	24.1	21.0	16.8	14.2	17.3	20.9	22.6	16.7
Ammonia (NH_3)	µg/m³	400	3.2	5.5	4.7	6.3	8.3	3.6	4.0	5.9	4.1
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
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	1.9	2.6	3.4	2.8	4.2	3.7	2.1	4.9	3.6
Lead as Pb	µg/m³	1	0.023	0.028	0.35	0.022	0.014	0.029	0.039	0.022	0.037
Carbon Monoxide	µg/m³	2000	562	487	341	293	367	476	521	397	453
Ozone	µg/m³	100	6.0	6.9	4.7	6.5	5.2	4.3	4.1	3.4	6.1

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Report Number :- VLL/VLS/21/12527/003
Issue Date :- 2022/01/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars: AMBIENT AIR QUALITY MONITORING AT GAP & BAKE OVEN ROAD (BALCO)

Analysis starting date :- 2021-12-01

Analysis Completion date :- 2022-01-04

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 : GAP & BAKE OVEN RAOD								
Sampling Date			2021-12-01	2021-12-03	2021-12-09	2021-12-11	2021-12-15	2021-12-17	2021-12-21	2021-12-23	2021-12-27
Sulphur Dioxide (SO_2)	µg/m³	80	39.2	25.5	27.3	36.4	30.2	27.9	35.6	28.2	31.5
Nitrogen Dioxide (NO_x)	µg/m³	80	13.3	16.6	17.5	13.2	17.1	7.7	19.7	14.8	18.3
Particulate Matter (PM10)	µg/m³	100	64.9	52.6	71.5	60.8	59.4	62.1	69.6	64.3	63.1
Particulate Matter (PM2.5)	µg/m³	60	22.8	20.1	29.4	21.4	16.9	21.7	25.9	31.3	17.2
Ammonia (NH_3)	µg/m³	400	2.2	4.5	5.7	8.5	5.6	3.8	3.7	6.0	4.3
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
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	4.3	2.8	3.5	3.7	4.6	2.1	2.8	3.9	3.4
Lead as Pb	µg/m³	1	0.029	0.021	0.017	0.008	0.035	0.028	0.037	0.018	0.025
Carbon Monoxide	µg/m³	2000	528	346	663	571	289	473	513	392	547
Ozone	µg/m³	100	6.8	6.8	5.7	8.0	7.0	4.6	5.9	7.4	6.0

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

Report Number :- VLL/VLS/21/12527/008
Issue Date :- 2022/01/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars

AMBIENT AIR QUALITY MONITORING AT GET HOSTEL (BALCO)

Analysis starting date :- 2021-12-01

Analysis Completion date :- 2022-01-04

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 : GET Hostel								
Sampling Date			2021-12-01	2021-12-03	2021-12-09	2021-12-11	2021-12-15	2021-12-17	2021-12-21	2021-12-23	2021-12-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	17.7	13.6	15.1	13.9	41.6	45.6	14.3	17.4	15.0
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	5.4	6.9	5.5	7.1	11.3	10.4	8.3	6.6	9.2
Particulate Matter (PM10)	$\mu g/m^3$	100	59.1	46.5	51.2	53.0	63.5	59.8	47.6	64.4	53.5
Particulate Matter (PM2.5)	$\mu g/m^3$	60	16.4	14.0	13.7	12.9	19.6	17.2	10.8	16.6	11.8
Ammonia (NH_3)	$\mu g/m^3$	400	1.8	2.7	4.0	4.3	4.1	3.1	3.1	4.1	4.8
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	<0.01
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	<0.01
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.6	1.5	1.7	4.2	3.5	2.9	3.2	1.5	2.2
Lead as Pb	$\mu g/m^3$	1	0.026	0.034	0.028	0.021	0.026	0.019	0.033	0.024	0.015
Carbon Monoxide	$\mu g/m^3$	2000	294	564	472	338	213	398	468	356	219
Ozone	$\mu g/m^3$	100	3.9	4.1	3.8	4.3	4.9	5.5	3.7	5.0	6.5

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ISSUED TO:
M/s. Bharat Aluminium Company Limited,
KORBA (C.G.)

Report Number :- VLL/VLS/21/12527/009
Issue Date :- 2022/01/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars

AMBIENT AIR QUALITY MONITORING AT BALCO HOSPITAL (BALCO)

Analysis starting date :- 2021-12-01

Analysis Completion date :- 2022-01-04

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 : Balco Hospital								
Sampling Date			2021-12-01	2021-12-03	2021-12-09	2021-12-11	2021-12-15	2021-12-17	2021-12-21	2021-12-23	2021-12-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	19.6	20.8	11.9	15.6	29.3	16.9	12.0	17.6	15.2
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	8.2	7.3	5.8	6.4	10.4	6.3	5.3	10.3	9.8
Particulate Matter (PM10)	$\mu g/m^3$	100	49.6	51.3	54.2	60.8	58.6	49.0	53.7	58.2	50.9
Particulate Matter (PM2.5)	$\mu g/m^3$	60	13.2	15.1	17.8	21.4	19.2	13.5	16.2	18.6	13.8
Ammonia (NH_3)	$\mu g/m^3$	400	2.0	2.7	4.5	3.2	4.8	3.6	2.7	3.7	4.7
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	<0.01
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	<0.01
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.6	2.9	3.5	2.1	1.4	2.9	4.1	2.3	3.2
Lead as Pb	$\mu g/m^3$	1	0.018	0.031	0.036	0.025	0.027	0.045	0.029	0.016	0.021
Carbon Monoxide	$\mu g/m^3$	2000	264	289	431	341	229	368	251	379	405
Ozone	$\mu g/m^3$	100	3.3	5.2	4.1	5.0	4.5	3.9	3.5	6.1	4.7

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KORBA (C.G.)

Report Number :- VLL/VLS/21/12527/002
Issue Date :- 2022/01/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars: AMBIENT AIR QUALITY MONITORING AT NEW ETP (BALCO)

Analysis starting date :- 2021-12-01

Anal, sis Completion date :- 2022-01-04

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 : NEW ETP								
Sampling Date			2021-12-01	2021-12-03	2021-12-09	2021-12-11	2021-12-15	2021-12-17	2021-12-21	2021-12-23	2021-12-27
Sulphur Dioxide (SO_2)	µg/m³	80	19.6	17.2	19.8	10.5	21.7	15.6	19.8	16.5	21.1
Nitrogen Dioxide (NO_x)	µg/m³	80	10.5	9.8	13.4	12.6	11.7	9.6	6.2	5.6	11.9
Particulate Matter (PM10)	µg/m³	100	50.1	49.2	55.7	59.6	45.1	51.7	57.4	63.6	54.3
Particulate Matter (PM2.5)	µg/m³	60	13.9	10.8	15.1	19.5	11.6	13.2	16.7	19.4	14.8
Ammonia (NH_3)	µg/m³	400	3.0	5.3	4.6	5.8	3.5	4.1	3.8	4.1	4.3
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
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	2.8	4.6	3.9	3.5	2.8	1.4	3.1	2.7	3.9
Lead as Pb	µg/m³	1	0.037	0.022	0.019	0.011	0.021	0.028	0.031	0.026	0.033
Carbon Monoxide	µg/m³	2000	261	435	318	399	543	308	361	552	424
Ozone	µg/m³	100	3.9	4.8	4.0	5.4	5.3	6.6	6.7	6.2	4.1

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KORBA (C.G.)

Report Number :- VLL/VLS/21-22/14209/002
Issue Date :- 2022/02/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT NEW ETP (BALCO)**

Analysis starting date :- 2022-01-09

Analysis Completion date :- 2022-02-04

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 : NEW ETP							
Sampling Date			2022-01-08	2022-01-10	2022-01-12	2022-01-14	2022-01-18	2022-01-20	2022-01-24	2022-01-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	12.7	20.1	15.3	18.0	32.2	14.6	13.4	17.5
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	7.9	6.3	12.9	14.2	8.5	11.5	9.5	8.4
Particulate Matter (PM10)	$\mu g/m^3$	100	56.6	62.7	51.3	61.9	62.7	59.7	64.4	54.8
Particulate Matter (PM2.5)	$\mu g/m^3$	60	16.9	21.3	14.7	19.1	23.6	12.5	20.9	15.4
Ammonia (NH_3)	$\mu g/m^3$	400	3.1	4.6	6.8	3.8	6.1	4.4	4.0	5.0
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	1.4	3.6	2.8	2.4	3.1	2.2	1.7	2.6
Lead as Pb	$\mu g/m^3$	1	0.026	0.021	0.042	0.018	0.039	0.027	0.036	0.016
Carbon Monoxide	$\mu g/m^3$	2000	352	437	152	329	228	463	274	361
Ozone	$\mu g/m^3$	100	11.0	7.9	7.4	8.6	12.0	10.5	8.1	6.2

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Report Number :- VLL/VLS/21-22/14209/003
Issue Date :- 2022/02/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — AMBIENT AIR QUALITY MONITORING AT GAP & BAKE OVEN ROAD (BALCO)

Analysis starting date :- 2022-01-09

Analysis Completion date :- 2022-02-04

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 : GAP & BAKE OVEN RAOD							
Sampling Date			2022-01-08	2022-01-10	2022-01-12	2022-01-14	2022-01-18	2022-01-20	2022-01-24	2022-01-27
Sulphur Dioxide (SO_2)	µg/m³	80	31.7	35.3	37.4	27.0	20.2	29.9	35.6	33.1
Nitrogen Dioxide (NO_x)	µg/m³	80	11.9	18.3	9.8	12.0	14.1	8.0	10.9	6.8
Particulate Matter (PM10)	µg/m³	100	57.4	64.8	62.3	59.7	61.2	64.2	61.5	63.1
Particulate Matter (PM2.5)	µg/m³	60	18.3	27.6	22.9	26.4	15.6	20.9	24.5	21.8
Ammonia (NH_3)	µg/m³	400	5.6	4.3	3.8	4.4	3.1	4.1	5.5	3.3
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	2.4	3.3	2.9	1.6	3.7	2.2	4.1	3.8
Lead as Pb	µg/m³	1	0.041	0.039	0.028	0.021	0.037	0.026	0.033	0.038
Carbon Monoxide	µg/m³	2000	379	523	289	449	326	451	492	347
Ozone	µg/m³	100	8.0	10.9	8.3	9.3	13.0	5.5	8.4	5.8

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Report Number :- VLL/VLS/21-22/14209/006
Issue Date :- 2022/02/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT COAL GATE (BALCO)**

Analysis starting date :- 2022-01-09 — Analysis Completion date :- 2022-02-04

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 : Coal Gate							
Sampling Date			2022-01-08	2022-01-10	2022-01-12	2022-01-14	2022-01-18	2022-01-20	2022-01-24	2022-01-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	26.5	16.3	27.9	22.4	14.6	36.5	21.9	20.2
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	12.9	6.5	15.6	11.2	6.4	10.2	13.5	7.4
Particulate Matter (PM10)	$\mu g/m^3$	100	59.4	70.4	62.4	53.7	61.4	67.4	74.2	69.5
Particulate Matter (PM2.5)	$\mu g/m^3$	60	14.9	28.2	21.5	12.7	20.9	22.7	26.9	25.1
Ammonia (NH_3)	$\mu g/m^3$	400	3.6	5.3	7.3	4.9	6.7	4.3	6.1	2.8
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	3.8	2.4	2.2	1.6	4.5	2.7	4.9	3.2
Lead as Pb	$\mu g/m^3$	1	0.041	0.029	0.044	0.034	0.011	0.028	0.035	0.029
Carbon Monoxide	$\mu g/m^3$	2000	546	394	568	498	528	607	413	619
Ozone	$\mu g/m^3$	100	6.3	10.5	7.2	11.8	10.7	8.5	9.7	6.4

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KORBA (C.G.)

Report Number :- VLL/VLS/21-22/14209/008
Issue Date :- 2022/02/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — AMBIENT AIR QUALITY MONITORING AT GET HOSTEL (BALCO)

Analysis starting date :- 2022-01-09 — Analysis Completion date :- 2022-02-04

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 : GET Hostel							
Sampling Date			2022-01-08	2022-01-10	2022-01-12	2022-01-14	2022-01-18	2022-01-20	2022-01-24	2022-01-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	19.7	13.9	15.1	18.4	20.2	25.3	16.4	26.0
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	6.8	9.5	10.3	8.6	9.8	7.4	11.3	8.1
Particulate Matter (PM10)	$\mu g/m^3$	100	60.7	57.3	54.1	57.2	50.5	46.3	56.2	44.6
Particulate Matter (PM2.5)	$\mu g/m^3$	60	16.1	13.1	11.8	18.3	10.8	9.6	15.6	12.3
Ammonia (NH_3)	$\mu g/m^3$	400	3.0	4.7	2.9	5.1	3.8	3.4	4.9	4.2
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	3.2	1.6	2.8	2.6	3.4	2.3	2.4	1.3
Lead as Pb	$\mu g/m^3$	1	0.015	0.008	0.031	0.003	0.028	0.017	0.036	0.019
Carbon Monoxide	$\mu g/m^3$	2000	362	154	289	246	411	327	298	343
Ozone	$\mu g/m^3$	100	7.2	6.5	4.7	5.8	4.2	5.6	6.4	6.1

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KORBA (C.G.)

Report Number :- VLL/VLS/21-22/14209/009
Issue Date :- 2022/02/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT BALCO HOSPITAL (BALCO)**

Analysis starting date :- 2022-01-09 — Analysis Completion date :- 2022-02-04

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 : Balco Hospital							
Sampling Date			2022-01-08	2022-01-10	2022-01-12	2022-01-14	2022-01-18	2022-01-20	2022-01-24	2022-01-27
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	15.0	22.7	19.8	12.9	14.2	20.2	22.4	26.9
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	9.7	8.1	11.3	8.7	7.3	6.2	11.7	10.4
Particulate Matter (PM10)	$\mu g/m^3$	100	46.9	57.2	54.4	42.2	60.3	58.7	43.1	52.3
Particulate Matter (PM2.5)	$\mu g/m^3$	60	12.3	18.2	17.4	16.7	19.1	13.8	20.2	17.6
Ammonia (NH_3)	$\mu g/m^3$	400	6.7	2.9	4.3	5.9	3.6	2.9	4.5	4.7
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.1	4.3	2.9	3.3	3.8	2.1	1.3	3.6
Lead as Pb	$\mu g/m^3$	1	0.018	0.052	0.028	0.036	0.018	0.036	0.034	0.025
Carbon Monoxide	$\mu g/m^3$	2000	367	412	389	462	349	403	318	426
Ozone	$\mu g/m^3$	100	4.6	6.0	4.7	7.7	5.8	5.3	3.9	6.4

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Report Number :- VLL/VLS/21-22/15854/002
Issue Date :- 2022/03/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT NEW ETP (BALCO)**

Analysis starting date :- 2022-02-02 — **Analysis Completion date :- 2022-03-04**

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 : NEW ETP							
Sampling Date			2022-02-01	2022-02-03	2022-02-09	2022-02-11	2022-02-15	2022-02-17	2022-02-21	2022-02-23
Sulphur Dioxide (SO_2)	µg/m³	80	32.6	27.4	35.7	17.3	23.2	25.8	27.3	30.4
Nitrogen Dioxide (NO_x)	µg/m³	80	26.2	15.8	17.5	10.0	27.6	18.3	11.8	15.2
Particulate Matter (PM10)	µg/m³	100	55.3	57.8	53.2	60.1	63.7	52.0	64.3	58.5
Particulate Matter (PM2.5)	µg/m³	60	14.5	18.2	20.6	23.5	21.8	16.1	22.7	19.4
Ammonia (NH_3)	µg/m³	400	10.1	4.8	7.5	4.6	5.2	4.2	5.7	7.8
Benzene (C_6H_6)	µg/m³	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	3.8	4.1	2.9	2.5	1.9	3.6	2.4	3.9
Lead as Pb	µg/m³	1	0.029	0.035	0.022	0.028	0.035	0.019	0.022	0.034
Carbon Monoxide	µg/m³	2000	524	196	352	471	339	254	309	467
Ozone	µg/m³	100	13.1	7.6	10.0	8.6	12.1	10.0	6.3	8.0

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ISSUED TO:
M/s. Bharat Aluminium Company Limited, KORBA (C.G.)

Report Number :- VLL/VLS/21-22/15854/003
Issue Date :- 2022/03/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars AMBIENT AIR QUALITY MONITORING AT GAP & BAKE OVEN ROAD (BALCO)

Analysis starting date :- 2022-02-02 Analysis Completion date :- 2022-03-04

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 : GAP & BAKE OVEN RAOD							
Sampling Date			2022-02-01	2022-02-03	2022-02-09	2022-02-11	2022-02-15	2022-02-17	2022-02-21	2022-02-23
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	21.8	37.7	32.8	27.5	23.6	39.0	25.1	34.8
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	25.8	12.9	9.3	9.4	11.1	20.3	13.4	17.1
Particulate Matter (PM10)	$\mu g/m^3$	100	60.4	65.1	57.9	67.3	54.8	58.2	64.6	66.1
Particulate Matter (PM2.5)	$\mu g/m^3$	60	23.5	27.2	14.8	16.3	13.8	22.8	21.3	20.8
Ammonia (NH_3)	$\mu g/m^3$	400	13.1	7.0	8.7	10.1	6.1	9.6	4.7	8.0
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	3.8	3.1	2.9	2.2	1.4	4.6	3.7	3.5
Lead as Pb	$\mu g/m^3$	1	0.027	0.022	0.046	0.039	0.027	0.013	0.039	0.025
Carbon Monoxide	$\mu g/m^3$	2000	628	547	329	513	664	503	469	536
Ozone	$\mu g/m^3$	100	15.0	7.3	10.8	9.6	10.3	8.0	12.0	9.7

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Report Number :- VLL/VLS/21-22/15854/008
Issue Date :- 2022/03/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT GET HOSTEL (BALCO)**

Analysis starting date :- 2022-02-02 — Analysis Completion date :- 2022-03-04

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 : GET Hostel							
Sampling Date			2022-02-01	2022-02-03	2022-02-09	2022-02-11	2022-02-15	2022-02-17	2022-02-21	2022-02-23
Sulphur Dioxide (SO_2)	µg/m^3	80	20.9	18.3	25.5	24.7	32.7	28.3	20.4	12.7
Nitrogen Dioxide (NO_x)	µg/m^3	80	10.8	7.3	12.9	7.5	8.0	8.8	13.7	8.2
Particulate Matter (PM10)	µg/m^3	100	51.4	47.5	56.3	48.6	58.2	53.9	55.8	57.0
Particulate Matter (PM2.5)	µg/m^3	60	12.4	10.6	17.3	11.9	16.8	13.4	13.5	16.3
Ammonia (NH_3)	µg/m^3	400	10.5	5.8	4.8	7.9	5.6	4.1	5.8	7.5
Benzene (C_6H_6)	µg/m^3	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.8	4.5	1.6	3.9	2.5	2.9	1.4	2.7
Lead as Pb	µg/m^3	1	0.026	0.018	0.009	0.034	0.022	0.014	0.024	0.027
Carbon Monoxide	µg/m^3	2000	251	249	365	252	419	347	213	398
Ozone	µg/m^3	100	10.0	6.3	9.8	9.1	10.6	6.7	10.9	8.2

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Report Number :- VLL/VLS/21-22/15854/009
Issue Date :- 2022/03/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars AMBIENT AIR QUALITY MONITORING AT BALCO HOSPITAL (BALCO)

Analysis starting date :- 2022-02-02 **Analysis Completion date :- 2022-03-04**

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 : Balco Hospital							
Sampling Date			2022-02-01	2022-02-03	2022-02-09	2022-02-11	2022-02-15	2022-02-17	2022-02-21	2022-02-23
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	28.8	19.1	13.3	20.1	15.7	20.3	18.5	26.7
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	14.6	8.0	11.5	8.1	7.3	9.7	13.2	9.4
Particulate Matter (PM10)	$\mu g/m^3$	100	46.2	53.8	49.8	56.7	51.3	61.1	46.9	57.6
Particulate Matter (PM2.5)	$\mu g/m^3$	60	14.3	17.9	16.2	21.9	15.1	24.9	16.4	20.5
Ammonia (NH_3)	$\mu g/m^3$	400	8.8	3.2	7.2	5.4	5.5	6.4	4.0	5.7
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	3.5	2.9	2.4	2.7	3.1	2.6	1.8	2.3
Lead as Pb	$\mu g/m^3$	1	0.025	0.019	0.011	0.034	0.021	0.032	0.027	0.023
Carbon Monoxide	$\mu g/m^3$	2000	354	169	287	346	255	471	326	293
Ozone	$\mu g/m^3$	100	10.8	8.9	5.8	7.6	8.2	8.0	6.3	11.2

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Report Number :- VLL/VLS/21-22/15854/006
Issue Date :- 2022/03/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars — **AMBIENT AIR QUALITY MONITORING AT COAL GATE (BALCO)**

Analysis starting date :- 2022-02-02 — **Analysis Completion date :- 2022-03-04**

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 : Coal Gate							
Sampling Date			2022-02-01	2022-02-03	2022-02-09	2022-02-11	2022-02-15	2022-02-17	2022-02-21	2022-02-23
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	25.7	34.3	26.1	21.1	34.2	39.6	25.5	44.1
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	27.8	18.9	12.2	9.9	20.9	14.5	10.8	8.1
Particulate Matter (PM10)	$\mu g/m^3$	100	58.7	62.8	56.4	62.4	53.3	62.9	63.5	54.7
Particulate Matter (PM2.5)	$\mu g/m^3$	60	21.7	20.5	16.3	23.8	24.3	19.2	19.2	17.4
Ammonia (NH_3)	$\mu g/m^3$	400	14.2	8.3	5.1	9.7	9.1	5.9	10.6	8.9
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
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
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.9	5.1	3.9	4.7	3.4	2.9	2.2	3.6
Lead as Pb	$\mu g/m^3$	1	0.035	0.029	0.014	0.035	0.027	0.034	0.021	0.037
Carbon Monoxide	$\mu g/m^3$	2000	419	532	437	283	616	423	297	353
Ozone	$\mu g/m^3$	100	13.5	9.4	11.3	9.7	8.3	16.4	14.6	11.1

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KORBA (C.G.)

Report Number :- VLL/VLS/21-22/17798/002
Issue Date :- 2022-04-05
Your Ref :- 8500003497
and date :- 2019-02-16

Sample Particulars

AMBIENT AIR QUALITY MONITORING AT NEW ETP (BALCO)

Analysis starting date :- 2022-03-02

Analysis Completion date :- 2022-04-04

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 : NEW ETP								
Sampling Date			2022-03-01	2022-03-03	2022-03-09	2022-03-11	2022-03-15	2022-03-17	2022-03-21	2022-03-23	2022-03-26
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	29.6	21.3	31.5	26.3	15.8	22.9	34.1	19.6	28.5
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	19.3	12.6	14.1	13.9	21.6	19.9	15.8	23.2	17.6
Particulate Matter (PM10)	$\mu g/m^3$	100	59.5	66.3	67.3	64.3	58.3	52.9	61.9	57.3	60.8
Particulate Matter (PM2.5)	$\mu g/m^3$	60	19.5	22.8	25.9	29.6	21.3	15.8	24.1	16.8	20.3
Ammonia (NH_3)	$\mu g/m^3$	400	6.9	5.1	8.3	5.4	3.8	4.7	5.8	8.3	7.2
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	<0.01
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	<0.01
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.7	3.3	3.1	1.6	4.6	3.2	2.9	3.1	4.3
Lead as Pb	$\mu g/m^3$	1	0.022	0.029	0.044	0.031	0.017	0.029	0.035	0.026	0.039
Carbon Monoxide	$\mu g/m^3$	2000	471	248	572	288	352	416	453	376	437
Ozone	$\mu g/m^3$	100	8.9	11.3	14.3	9.6	6.3	9.1	13.6	10.8	11.6

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Report Number :- VLL/VLS/21-22/17798/003
Issue Date :- 2022-04-05
Your Ref :- 8500003497
and date :- 2019-02-16

Sample Particulars — AMBIENT AIR QUALITY MONITORING AT GAP & BAKE OVEN ROAD (BALCO)

Analysis starting date :- 2022-03-02

Analysis Completion date :- 2022-04-04

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 : GAP & BAKE OVEN RAOD								
Sampling Date			2022-03-01	2022-03-03	2022-03-09	2022-03-11	2022-03-15	2022-03-17	2022-03-21	2022-03-23	2022-03-26
Sulphur Dioxide (SO_2)	µg/m³	80	35.7	40.1	38.9	22.6	42.6	58.7	31.6	28.3	38.4
Nitrogen Dioxide (NO_x)	µg/m³	80	22.1	17.6	12.9	18.3	14.6	22.8	10.7	21.8	16.3
Particulate Matter (PM10)	µg/m³	100	62.1	62.8	64.8	59.6	57.3	61.5	65.3	61.9	63.5
Particulate Matter (PM2.5)	µg/m³	60	24.1	29.3	28.3	26.8	20.7	25.8	26.8	24.7	22.6
Ammonia (NH_3)	µg/m³	400	8.7	9.2	11.4	6.9	4.3	8.3	6.9	12.1	7.6
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
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	4.3	3.8	3.3	3.1	2.5	2.8	3.7	4.2	3.9
Lead as Pb	µg/m³	1	0.031	0.038	0.022	0.028	0.022	0.042	0.031	0.048	0.034
Carbon Monoxide	µg/m³	2000	563	499	635	589	483	664	504	386	527
Ozone	µg/m³	100	9.4	13.1	18.6	7.8	12.9	8.4	5.8	11.7	14.6

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Report Number :- VLL/VLS/21-22/17798/008
Issue Date :- 2022-04-05
Your Ref :- 8500003497
and date :- 2019-02-16

Sample Particulars

AMBIENT AIR QUALITY MONITORING AT GET HOSTEL (BALCO)

Analysis starting date :- 2022-03-02

Analysis Completion date :- 2022-04-04

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 : GET Hostel								
Sampling Date			2022-03-01	2022-03-03	2022-03-09	2022-03-11	2022-03-15	2022-03-17	2022-03-21	2022-03-23	2022-03-26
Sulphur Dioxide (SO_2)	µg/m^3	80	16.8	21.9	14.7	25.3	17.4	25.8	22.6	28.4	19.8
Nitrogen Dioxide (NO_x)	µg/m^3	80	8.9	12.6	6.9	9.4	8.4	8.2	10.4	9.2	11.6
Particulate Matter (PM10)	µg/m^3	100	58.7	60.8	57.3	55.1	52.8	56.9	65.9	58.2	56.1
Particulate Matter (PM2.5)	µg/m^3	60	16.3	19.7	15.8	14.3	12.9	16.5	22.1	17.4	18.7
Ammonia (NH_3)	µg/m^3	400	8.9	4.1	6.7	9.2	5.8	7.2	5.9	9.1	6.4
Benzene (C_6H_6)	µg/m^3	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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	<0.01
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	1.7	2.7	2.2	2.5	3.1	3.6	1.7	2.6	3.2
Lead as Pb	µg/m^3	1	0.016	0.031	0.028	0.033	0.029	0.035	0.017	0.024	0.013
Carbon Monoxide	µg/m^3	2000	358	312	297	268	391	453	368	241	372
Ozone	µg/m^3	100	5.8	8.2	6.9	9.2	5.4	6.8	8.7	4.2	7.6

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

Report Number :- VLL/VLS/21-22/17798/009
Issue Date :- 2022/04/05
Your Ref :- 8500003497
and date :- 2019/02/16

Sample Particulars

AMBIENT AIR QUALITY MONITORING AT BALCO HOSPITAL (BALCO)

Analysis starting date :- 2022-03-02

Analysis Completion date :- 2022-04-04

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 : Balco Hospital								
Sampling Date			2022-03-01	2022-03-03	2022-03-09	2022-03-11	2022-03-15	2022-03-17	2022-03-21	2022-03-23	2022-03-26
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	18.4	21.7	15.4	19.6	22.6	29.3	17.6	14.1	25.7
Nitrogen Dioxide (NO_x)	$\mu g/m^3$	80	10.7	9.4	11.4	6.9	17.1	9.4	15.7	8.4	13.2
Particulate Matter (PM10)	$\mu g/m^3$	100	51.4	58.7	56.8	52.4	55.9	48.7	62.4	57.3	54.6
Particulate Matter (PM2.5)	$\mu g/m^3$	60	15.9	14.8	16.1	13.7	12.4	11.9	18.6	16.9	13.7
Ammonia (NH_3)	$\mu g/m^3$	400	7.4	5.1	8.9	5.6	4.7	6.1	8.7	3.9	7.2
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	<0.01
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	<0.01
Arsenic as As	ng/m^3	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m^3	20	2.3	2.6	1.1	1.9	3.5	2.6	2.9	3.2	1.6
Lead as Pb	$\mu g/m^3$	1	0.022	0.018	0.034	0.029	0.017	0.027	0.015	0.031	0.012
Carbon Monoxide	$\mu g/m^3$	2000	452	228	293	369	413	309	446	235	326
Ozone	$\mu g/m^3$	100	8.4	5.8	7.6	6.8	6.5	9.2	11.4	8.7	5.2

ENVIRONMENT LABORATORY
VIMTA LABS
Dr. Subba Reddy Mallampati
Group Leader - Environment
VIMTA

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ISSUED TO:
M/s. Bharat Aluminium
Company Limited,
KORBA (C.G.)

Report Number :- VLL/VLS/21-22/17798/006
Issue Date :- 2022-04-05
Your Ref :- 8500003497
and date :- 2019-02-16

Sample Particulars

AMBIENT AIR QUALITY MONITORING AT COAL GATE (BALCO)

Analysis starting date :- 2022-03-02

Analysis Completion date :- 2022-04-04

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 : Coal Gate								
Sampling Date			2022-03-01	2022-03-03	2022-03-09	2022-03-11	2022-03-15	2022-03-17	2022-03-21	2022-03-23	2022-03-26
Sulphur Dioxide (SO_2)	µg/m³	80	27.4	35.6	30.9	26.9	21.6	31.7	45.3	36.9	41.2
Nitrogen Dioxide (NO_x)	µg/m³	80	17.8	15.4	21.6	18.3	14.3	18.9	21.7	22.9	12.1
Particulate Matter (PM10)	µg/m³	100	64.7	59.3	63.2	56.2	67.4	60.8	62.6	70.4	58.3
Particulate Matter (PM2.5)	µg/m³	60	21.6	17.5	22.9	24.7	23.1	19.4	25.8	28.4	20.8
Ammonia (NH_3)	µg/m³	400	7.9	6.5	10.4	8.9	9.3	6.8	12.6	8.9	4.6
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
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
Arsenic as As	ng/m³	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel as Ni	ng/m³	20	4.6	2.3	2.8	3.4	3.1	3.8	2.6	4.2	3.8
Lead as Pb	µg/m³	1	0.022	0.029	0.034	0.039	0.019	0.012	0.026	0.031	0.027
Carbon Monoxide	µg/m³	2000	354	647	474	397	328	548	391	462	449
Ozone	µg/m³	100	12.8	7.8	9.2	11.5	14.2	18.7	9.3	10.6	8.7

ENVIRONMENT LABORATORY
VIMTA LABS
Dr. Subba Reddy Mallampati
Group Leader - Environment
VIMTA

Annexure – 10

Hazardous Waste Authorization Report

CHHATTISGARH ENVIRONMENT CONSERVATION BOARD

PARYAVAS BHAWAN, NORTH BLOCK, SECTOR -19,
NAVA RAIPUR ATAL NAGAR, RAIPUR (C.G.) 492002
E-mail : hocecb@gmail.com, Ph. No. 0771-2512220

No. 5255 /HSMD/HO/CECB/2021 Raipur, Date 22/10/2021

To,

M/S Bharat Aluminium Company Limited,
P.O.- Balco Nagar,
District - Korba (C.G.)

Sub:- Grant of amendment in authorization and subsequent renewal of authorization under the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

Ref :- 1. Grant of amendment in existing authorization letter no. 780/ HSMD/HO/CECB/2021 dated 01/06/2021.
2. Your Online application no. 7916285 dated 22/07/2021 & Subsequent Correspondence ending dated 05/10/2021.

---00---

Chhattisgarh Environment Conservation Board had granted an amendment of authorization under Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 vide letter no. 780/ HSMD/HO/CECB/2021 dated 01/06/2021. For following hazardous waste, category and quantity subject to fulfillment of the terms and conditions mentioned therein. :-

S. No.	Category of Hazardous Waste as per the Schedules I, II and III of these rules	Authorised mode of disposal or recycling or utilization or co-processing etc.	Quantity (Tonnes/Annum)
1.	Used or Spent oil (Schedule - I, Cat. No. 5.1)	Sale to authorized recyclers	300 MT/Year
2.	Waste or residue containing oil (Schedule - I, Cat. No. 5.2)	Captive Incineration in cast house furnaces/ Sale to authorized recyclers	7 MT/Year
3.	Cathode residues including Pot Lining wastes (Schedule - I, Cat. No. 11.2)	(i) Disposal through captive SLF/ Sale to authorized re-processor for detoxification/ Co-processing in cement plant/other residues of cathode will be sale to authorized recyclers/re-processor/Co-processing in Cement Plant/SLF.	12000 T/Year
		(ii) Utilization of Spent Pot Lining (SPL) stored in Captive Secured Land Fill (SLF) and Sale to authorized re-processor	42000 MT/Year

		for detoxification/ Co-processing in Cement Plant	
4.	Chemical sludge from waste water treatment (Schedule - I, Cat. No. 35.3)	Disposal through captive SLF/ co-processing in cement plant	20MT/Year
5.	Rejected filter bags (FTP) (Schedule-I, Cat.no. 33.1)	Captive Incineration in pots	50 MT/Year
6.	Flammable chemical waste lab (Schedule-II, Class-C-I)	Sale to authorized recycler/ captive incineration in cast house furnaces/ Captive incineration in power plant boilers /distillation and reuse	0.4 KL/Year
7.	Used anode butts (Schedule - I, Cat. No. - 11.6),	Recycle and reuse in green anode plant for anode making/ captive SLF/ Sale to authorized recycler	1,00,000 MT/ Year.
8.	Drosses and waste from treatment of salt sludge (Schedule - I, Cat. No. - 11.5)	Recycle in cast houses/ Sale to authorized utilizers	10,000 MT/ Year
9.	Flue gas dust and other particulates (Schedule - I, Cat. No. - 11.4)	Reuse in GAP for anode making/ disposal in captive SLF/ Sale to authorized utilizers	5,000 MT/ Year
10.	Spent Ion exchange resin containing toxic metals (Schedule - I, Cat. No. - 35.2)	Utilization for energy recovery in boiler for steam or power generation as per SOP issued by CPCB	60 MT in 05 Years i.e. within authorization period
11.	Glasswool (Schedule - II, C-4)	Dispose of in captive SLF	150 MT/Year
12.	Discarded asbestos (Schedule - I, Cat. No. - 15.2)	Sale to authorised recyclers/ disposal in captive SLF	100 MT/ Year
13.	Empty barrels/containers/liners contaminated with hazardous chemicals /wastes (Schedule - I, Cat. No. - 33.1)	Sale to authorized recyclers	300MT/Year
14.	Oil and grease skimming (Schedule - I, Cat. No. - 35.4)	Dispose of in captive SLF/ Sale to authorised recyclers	1 KL/ Year

Industry, vide their online application no. 7916285 dated 22/07/2021 has requested for renewal of authorization. After considering the application, facts and materials in records the board has decided to issue amendment and subsequent renewal of authorization with respect to hazardous waste and their corresponding quantity mentioned below.

S. No.	Category of Hazardous Waste as per the Schedules I, II and III of these rules	Authorised mode of disposal or recycling or utilization or co-processing etc.	Quantity (Tonnes/Annum)
1.	Used or Spent oil (Schedule - I, Cat. No. 5.1)	Sale to authorized recyclers	300 MT/Year
2.	Waste or residue containing oil (Schedule - I, Cat. No. 5.2)	Captive Incineration in cast house furnaces/ Sale to authorized recyclers	7 MT/Year
3.	Cathode residues including Pot Lining wastes (Schedule - I, Cat. No. 11.2)	(i) Disposal through captive SLF/ Sale to authorized re-processor for detoxification/ Co-processing in cement plant/other residues of cathode will be sale to authorized recyclers/re-processor/Co-processing in Cement Plant/SLF.	12000 T/Year
		(ii) Utilization of Spent Pot Lining (SPL) stored in Captive Secured Land Fill (SLF) and Sale to authorized re-processor for detoxification/ Co-processing in Cement Plant	42000 MT/Year
4.	Chemical sludge from waste water treatment (Schedule - I, Cat. No. 35.3)	Disposal through captive SLF/ co-processing in cement plant	20MT/Year
5.	Rejected filter bags (FTP) (Schedule-I, Cat.no. 33.1)	Captive Incineration in pots	50 MT/Year
6.	Flammable chemical waste lab (Schedule-II, Class-C-I)	Sale to authorized recycler/ captive incineration in cast house furnaces/ Captive incineration in power plant boilers /distillation and reuse	0.4 KL/Year
7.	Used anode butts (Schedule - I, Cat. No. - 11.6),	Recycle and reuse in green anode plant for anode making/ captive SLF/ Sale to authorized recycler	1,00,000 MT/ Year.
8.	Drosses and waste from treatment of salt sludge (Schedule - I, Cat. No. - 11.5)	**Metal recovery in cast house/sale to authorized utilizers /Disposal of residues to authorized utilizers**	10,000 MT/ Year
9.	Flue gas dust and other particulates (Schedule - I, Cat. No. - 11.4)	Reuse in GAP for anode making/ disposal in captive SLF/ Sale to authorized utilizers	5,000 MT/ Year

10.	Spent Ion exchange resin containing toxic metals (Schedule - I, Cat. No. - 35.2)	Utilization for energy recovery in boiler for steam or power generation as per SOP issued by CPCB	60 MT in 05 Years i.e. within authorization period
11.	Glasswool (Schedule - II, C-4)	Disposal in captive SLF	150 MT/Year
12.	Discarded asbestos (Schedule - I, Cat. No. - 15.2)	Sale to authorised recyclers/ disposal in captive SLF	100 MT/ Year
13.	Empty barrels/containers/liners contaminated with hazardous chemicals /wastes (Schedule - I, Cat. No. - 33.1)	Sale to authorized recyclers	300MT/Year
14.	Oil and grease skimming (Schedule - I, Cat. No. - 35.4)	Disposal in captive SLF/ Sale to authorised recyclers	1 KL/ Year

The amendment and renewal of authorization shall be valid for the period of **Five Years i.e. from 24/10/2021 to 23/10/2026.** The details of authorization along with terms & conditions are given as per below:

FORM 2
[See rule 6 (2)]

GRANT OF AMENDMENT AND SUBSEQUENT RENEWAL OF AUTHORIZATION BY STATE POLLUTION CONTROL BOARD TO THE OCCUPIERS, RECYCLERS, REPROCESSORS, REUSERS, USER AND OPERATORS OF DISPOSAL FACILITIES

1. Number of authorization **410 HO/HSMD/CECB/NAVA RAIPUR ATAL NAGAR, RAIPUR**
2. Reference of Online application no**. 7916285 dated 22/07/2021 & Subsequent Correspondence ending dated 05/10/2021.**
3. The operator of facility i.e. occupier **M/S Bharat Aluminium Company Limited, P.O.- Balco Nagar, District - Korba (C.G.)** is hereby granted amendment in authorization and subsequent renewal of authorization based on the signed inspection report from RO for generation, collection, storage, reuse, recycling and disposal of hazardous wastes in the premises situated at **P.O.- Balco Nagar, District - Korba (C.G.).**

Detail of Authorisation

S. No.	Category of Hazardous Waste as per the Schedules I, II and III of these rules	Authorised mode of disposal or recycling or utilization or co-processing etc.	Quantity (Tonnes/Annum)
1.	Used or Spent oil (Schedule - I, Cat. No. 5.1)	Sale to authorized recyclers	300 MT/Year
2.	Waste or residue containing oil (Schedule - I, Cat. No. 5.2)	Captive Incineration in cast house furnaces/ Sale to authorized recyclers	7 MT/Year
3.	Cathode residues including Pot Lining wastes (Schedule - I, Cat. No. 11.2)	(i) Disposal through captive SLF/ Sale to authorized re-processor for detoxification/ Co-	12000 T/Year

		processing in cement plant/other residues of cathode will be sale to authorized recyclers/re-processor/Co-processing in Cement Plant/SLF.	
		(ii) Utilization of Spent Pot Lining (SPL) stored in Captive Secured Land Fill (SLF) and Sale to authorized re-processor for detoxification/ Co-processing in Cement Plant	42000 MT/Year
4.	Chemical sludge from waste water treatment (Schedule - I, Cat. No. 35.3)	Disposal through captive SLF/ co-processing in cement plant	20MT/Year
5.	Rejected filter bags (FTP) (Schedule-I, Cat.no. 33.1)	Captive Incineration in pots	50 MT/Year
6.	Flammable chemical waste lab (Schedule-II, Class-C-I)	Sale to authorized recycler/ captive incineration in cast house furnaces/ Captive incineration in power plant boilers /distillation and reuse	0.4 KL/Year
7.	Used anode butts (Schedule - I, Cat. No. - 11.6),	Recycle and reuse in green anode plant for anode making/ captive SLF/ Sale to authorized recycler	1,00,000 MT/ Year.
8.	Drosses and waste from treatment of salt sludge (Schedule - I, Cat. No. - 11.5)	**Metal recovery in cast house/sale to authorized utilizers/Disposal of residues to authorized utilizers**	10,000 MT/ Year
9.	Flue gas dust and other particulates (Schedule - I, Cat. No. - 11.4)	Reuse in GAP for anode making/ disposal in captive SLF/ Sale to authorized utilizers	5,000 MT/ Year
10.	Spent Ion exchange resin containing toxic metals (Schedule - I, Cat. No. - 35.2)	Utilization for energy recovery in boiler for steam or power generation as per SOP issued by CPCB	60 MT in 05 Years i.e. within authorization period
11.	Glasswool (Schedule - II, C-4)	Disposal in captive SLF	150 MT/Year
12.	Discarded asbestos (Schedule - I, Cat. No. - 15.2)	Sale to authorised recyclers/ disposal in captive SLF	100 MT/ Year

13.	Empty barrels/containers/liners contaminated with hazardous chemicals /wastes (Schedule - I, Cat. No. - 33.1)	Sale to authorized recyclers	300MT/Year
14.	Oil and grease skimming (Schedule - I, Cat. No. - 35.4)	Disposal in captive SLF/ Sale to authorised recyclers	1 KL/ Year

(1) The authorization shall be valid for the period of **Five Years i.e. from 24/10/2021 to 23/10/2026.**

(2) The authorization is subject to the following conditions:

TERMS & CONDITIONS OF AUTHORIZATION

1. The authorization shall comply with the provisions of Environment (protection) Act, 1986 and the rules made there-under.
2. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the Chhattisgarh Environment Conservation Board.
3. The person authorized shall not rent, lend, sell transfer or otherwise transport the hazardous wastes without obtaining prior permission of the Chhattisgarh Environment Conservation Board.
4. Any unauthorized change in personnel, equipment, or working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.
5. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time.
6. The person authorised shall comply with the provisions outlined in the Central Pollution Control Board guidelines on “Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty”.
7. It is the duty of the authorized person to take prior permission of the Chhattisgarh Environment Conservation Board to close down the facility.
8. The record of consumption and fate of the imported hazardous and other wastes shall be maintained.
9. Industry shall prepare emergency response plan (ERP) and ensure implementation the same at the event of any accident occurs due to handling and transporting of hazardous waste as per CPCB guideline.
10. The hazardous and other waste which gets generated during recycling or reuse or recovery or pre-processing or utilisation of imported hazardous or other wastes shall be treated and disposed of as per standard operating procedures/guidelines issued by CPCB from time to time.
11. An application for the renewal of an authorisation shall be made three months before the expiry of authorization as laid down in the Rules.
12. Annual return in form IV shall be filed by June 30th for the period ending 31st March of the last financial year.
13. Industry shall submit On site Emergency Plan approved by Department of Industrial Health and Safety within 03 months from the date of issue of this letter.
14. The wastes shall be collected and stored properly with adequate safety measures as per rule.
15. Authorized person shall comply with the provisions of rule 17, 18 and 19 for packing, labeling and transport of Hazardous Waste.
16. The authorized person should maintain the record of Hazardous Waste as per Form-3 of Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

17. The occupier shall follow the guidelines (if any) issued by Central Pollution Control Board or MoEF & CC for management of Hazardous waste from time to time.

18. The industry shall display data outside factory gate on quantity and nature of hazardous chemicals and wastes being used in the plant, water and air emissions and solid wastes generated within the factory premises.

19. Industry shall ensure disposal of hazardous waste generated during the production process through authorized recycler/Co-processing in cement plant/captive disposal facility/arrangement for sharing of authorized disposal facility/common TSDF as per rule. Failing which this authorization shall be treated as cancelled and appropriate action would be initiated against the industry.

20. Industry shall create new website for Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 and upload all the information above the waste in the website.

21. Industry shall submit documents regarding agreement with CTSDF of nearby state for disposal of Hazardous Waste generated from the unit within 3 months from the date of issue of this letter failing which the authorization may be treated as null and void.

22. Industry shall ensure that transportation of hazardous wastes shall be carried out through GPS enabled dedicated vehicles of authorized transporters only.

23. The waste must be given thermal/biological/physico-chemical treatment; the waste should be completely dewatered, detoxified, and proper conditioned and any possible recovery is made before their disposal.

24. The industry should constitute a hazardous waste management cell to take care of the management aspect to the hazardous waste generated in the plant.

25. An on-site storage of the hazardous wastes for a maximum period of 90 days should be provided and it shall be ensured that there is no leakage or seepage from the surrounding walls or bottom. The site should be covered and properly protected to prevent the entry of rain water in storage area.

26. At least four nos. of peizometric points should be provided around the storage site of H.W. to monitor the leaching of the waste and monitoring report shall be submitted to the board in every six months. Each type of waste shall be stored in a separate storage cell.

27. The discarded containers of Hazardous waste and chemical shall not be used for storage of food grade products. At the storage site "Hazardous waste storage site & danger signboard" shall be provided with all safety devices.

28. In the event of any accident due to handling of hazardous waste the authorized person must inform immediately to the Concerned Regional Office and H.O., Nava Raipur Atal Nagar, Raipur of the Board by fax/telephone or by E-mail about the incident and details report be sent in form no. 11 [see rule 22].

29. The authorization obtained by the Chhattisgarh Environment Conservation Board should be prominently displayed.

30. Used batteries shall be disposed of as per the Batteries (Management & Handling) Rules, 2001.

31. Board reserves the right to cancel/amend the above condition and add new conditions as and when deemed necessary.

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

Endt. No. 5256/H.O./HSMD/CECB/2021 Atal Nagar, Raipur, Date 22/10/2021

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

Signature Not Verified

Digitally Signed by :R P Tiwari MS

Date: 2021.10.21 20:55:46 IST

Annexure – 11

Ambient Noise Monitoring Report

Vimta Labs Limited
Registered Office
142, IDA Phase II, Cherlapally
Hyderabad-500 051,Telangana, India
T : +91 40 2726 4141
F : +91 40 2726 3657

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ISSUED TO

M/s. Bharat Aluminium Company Limited,
KORBA chhattisgarh

Report Number: VLL/VLS/21/09392/003

Issue Date : 3/11/2021
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: AMBIENT NOISE MONITORING (SMELTER 3.25 LTPA)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD LAB REF.: EC

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	20/10/2021 9.00AM to 17.00 PM	Norms in dB(Night)	20/10/2021 10.00PM to 6.00AM
1	Rectifier Control room	dB	75	70.3	70	55.2
2	Process Control room First Floor (Nucleus Zone-1)	dB	75	67.9	70	58.3
3	Technical In charge room Second Floor (Nucleus Zone-1)	dB	75	72.1	70	51.7
4	Control room GIS	dB	75	55.8	70	48.9
5	CRP room GIS	dB	75	57.4	70	52.4

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

Dr. Subba Reddy Mallampati
Group Leader - Environment

Vimta Labs Limited
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Driven by Quality, Inspired by Science.

ISSUED TO
M/s. Bharat Aluminium Company Limited,
KORBA Chhattisgarh

Report Number: VLL/VLS/21/09392/015

Issue Date : 3/11/2021
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: NOISE LEVEL REPORT (UTILITY POTLINE-2)
Tests required: Sound Level
SAMPLES COLLECTED BY VIMTA LABS LTD LAB REF.: EC

TEST RESULTS

S.NO	LOCATION	Unit	13/10/2021 9.00 AM to 5.00 PM
	PUMP HOUSE & COMPRESSOR HOUSE		
1	Pump house out side (near compressor house)	dB	72.1
2	Pump house In side (near compressor house)	dB	97.3
3	Control room compressor House	dB	64.1
4	Near air compressor between LP # 1 & 2	dB	98.9
5	Near air compressor between HP # 3 & 4	dB	99.3
6	Out side of compressor House	dB	83.8
	RECTIFIER PUMP HOUSE		
1	Control room	dB	63.9
2	Rectifier pump house	dB	82.5
3	Out side office	dB	62.9
	SWITCH YARD / RECTIFIER POT LINE-1		
1	Switch yard control room	dB	52.8
2	11 kv HT room	dB	64.2
3	Utility transformer no. 1	dB	60.5
4	Utility transformer no. 2	dB	72.9
5	Switch yard near bay no.8	dB	63.1
6	Near rectifier Unit -32	dB	81.7
7	Near rectifier Unit -33	dB	83.9
8	Near rectifier Unit -34	dB	80.5
9	Near rectifier Unit -35	dB	72.1
10	11/440 self use transformer 1	dB	63.1
11	11/440 self use transformer 2	dB	64.7
12	Road infront of rectifier	dB	64.2

As Per the factories act .The Norms for the work Place area are as follows

For continuous exposure to noise ,Total time of exposure permitted (hrs)	Sound Pressure dB (A)
8	85
6	87
4	90
3	92
2	95
1.5	97
1	100
0.75	102
0.5	105
0.25	

ENVIRONMENT LABORATORY
Vimta LABS
RECD. No:- D.L.-33004/99
Dr. Subba Reddy Mallampati
Group Leader - Environment
VIMTA

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Vimta
Driven by Quality. Inspired by Science.

ISSUED TO

M/s. Bharat Aluminium Company Limited,
KORBA chhattisgarh

Report Number: VLL/VLS/21/10611/003

Issue Date : 3/12/2021
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: AMBIENT NOISE MONITORING (SMELTER 3.25 LTPA)

Tests required: Sound Level

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

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	20/11/2021 9.00AM to 17.00 PM	Norms in dB(Night)	20/11/2021 10.00PM to 6.00AM
1	Rectifier Control room	dB	75	72.1	70	56.1
2	Process Control room First Floor (Nucleus Zone-1)	dB	75	68.3	70	58.9
3	Technical In charge room Second Floor (Nucleus Zone-1)	dB	75	73.2	70	53.2
4	Control room GIS	dB	75	57.3	70	49.6
5	CRP room GIS	dB	75	58.3	70	51.9

ENVIRONMENT LABORATORY
Vimta VIMS/VLS
REGD. No.- D.L.-33004/99
Sr. No.- 6

Dr. Subba Reddy Mallampati
Group Leader : Environment

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ISSUED TO
M/s. Bharat Aluminium Company Limited,
KORBA Chhattisgarh

Report Number: VLL/VLS/21/10611/015

Issue Date : 3/12/2021
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: NOISE LEVEL REPORT (UTILITY POTLINE-2)
Tests required: Sound Level
SAMPLES COLLECTED BY VIMTA LABS LTD LAB REF.: EC

TEST RESULTS

S.NO	LOCATION	Unit	16/11/2021 9.00 AM to 5.00 PM
	PUMP HOUSE & COMPRESSOR HOUSE		
1	Pump house out side (near compressor house)	dB	70.2
2	Pump house In side (near compressor house)	dB	94.3
3	Control room compressor House	dB	61.4
4	Near air compressor between LP # 1 & 2	dB	96.5
5	Near air compressor between HP # 3 & 4	dB	95.3
6	Out side of compressor House	dB	82.1
	RECTIFIER PUMP HOUSE		
1	Control room	dB	62.5
2	Rectifier pump house	dB	83.5
3	Out side office	dB	63.1
	SWITCH YARD / RECTIFIER POT LINE-1		
1	Switch yard control room	dB	54.5
2	11 kv HT room	dB	63.9
3	Utility transformer no. 1	dB	61.3
4	Utility transformer no. 2	dB	74.2
5	Switch yard near bay no.8	dB	64.5
6	Near rectifier Unit -32	dB	82.4
7	Near rectifier Unit -33	dB	84.3
8	Near rectifier Unit -34	dB	81.2
9	Near rectifier Unit -35	dB	73.6
10	11/440 self use transformer 1	dB	64.4
11	11/440 self use transformer 2	dB	65.2
12	Road infront of rectifier	dB	63.7

As Per the factories act .The Norms for the work Place area are as follows

For continuous exposure to noise ,Total time of exposure permitted (hrs)	Sound Pressure dB (A)
8	85
6	87
4	90
3	92
2	95
1.5	97
1	100
0.75	102
0.5	105
0.25	110

ENVIRONMENT LABORATORY
Vimta VIMTA LABS LTD
RECD No: 01 SIGNED
SR No - 3
VIMTA

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ISSUED TO

M/s. Bharat Aluminium Company Limited,
KORBA chhattisgarh

Report Number: VLL/VLS/21/12527/003

Issue Date : 4/1/2022
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: AMBIENT NOISE MONITORING (SMELTER 3.25 LTPA)

Tests required: Sound Level

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

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	17/12/2021 9.00AM to 17.00 PM	Norms in dB(Night)	17/12/2021 10.00PM to 6.00AM
1	Rectifier Control room	dB	75	70.3	70	57.3
2	Process Control room First Floor (Nucleus Zone-1)	dB	75	67.5	70	57.4
3	Technical In charge room Second Floor (Nucleus Zone-1)	dB	75	72.4	70	54.1
4	Control room GIS	dB	75	58.3	70	50.5
5	CRP room GIS	dB	75	57.4	70	52.4

ENVIRONMENT LABORATORY Vimta VIMTA LABS REGD. NO. D.L.-5300/99 Sr. No. 5

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KORBA Chhattisgarh

Report Number: VLL/VLS/21/12527/015

Issue Date : 4/1/2022
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: NOISE LEVEL REPORT (UTILITY POTLINE-2)
Tests required: Sound Level
SAMPLES COLLECTED BY VIMTA LABS LTD — LAB REF.: EC

TEST RESULTS

S.NO	LOCATION	Unit	18/12/2021 9.00 AM to 5.00 PM
	PUMP HOUSE & COMPRESSOR HOUSE		
1	Pump house out side (near compressor house)	dB	72.1
2	Pump house In side (near compressor house)	dB	93.5
3	Control room compressor House	dB	62.4
4	Near air compressor between LP # 1 & 2	dB	94.5
5	Near air compressor between HP # 3 & 4	dB	95.9
6	Out side of compressor House	dB	83.2
	RECTIFIER PUMP HOUSE		
1	Control room	dB	63.4
2	Rectifier pump house	dB	83.4
3	Out side office	dB	64.2
	SWITCH YARD / RECTIFIER POT LINE-1		
1	Switch yard control room	dB	55.4
2	11 kv HT room	dB	64.2
3	Utility transformer no. 1	dB	63.2
4	Utility transformer no. 2	dB	75.4
5	Switch yard near bay no.8	dB	65.8
6	Near rectifier Unit -32	dB	83.1
7	Near rectifier Unit -33	dB	85.3
8	Near rectifier Unit -34	dB	83.2
9	Near rectifier Unit -35	dB	74.3
10	11/440 self use transformer 1	dB	65.3
11	11/440 self use transformer 2	dB	66.6
12	Road infront of rectifier	dB	64.9

As Per the factories act .The Norms for the work Place area are as follows

For continuous exposure to noise ,Total time of exposure permitted (hrs)	Sound Pressure dB (A)
8	85
6	87
4	90
3	92
2	95
1.5	97
1	100
0.75	102
0.5	105
0.25	110

ENVIRONMENT LABORATORY VIMTA LABS REGD. No.: D.L.330/4/99 VIMTA

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KORBA chhattisgarh

Report Number: VLL/VLS/21-22/14209/003

Issue Date : 2022-02-05
Your Ref : 8500003497
and Date : 2019-02-16

Sample Particulars: AMBIENT NOISE MONITORING (SMELTER 3.25 LTPA)

Tests required: Sound Level

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

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	2022-01-15 9.00AM to 17.00 PM	Norms in dB(Night)	2022-01-15 10.00PM to 6.00AM
1	Rectifier Control room	dB	75	69.4	70	56.8
2	Process Control room First Floor (Nucleus Zone-1)	dB	75	69.2	70	51.3
3	Technical In charge room Second Floor (Nucleus Zone-1)	dB	75	70.4	70	53.8
4	Control room GIS	dB	75	56.4	70	51.3
5	CRP room GIS	dB	75	58.3	70	53.5

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KORBA Chhattisgarh

Report Number: VLL/VLS/21-22/14209/15

Issue Date : 3/2/2022
Your Ref : 8500003497
and Date : 16/02/2022

Sample Particulars: NOISE LEVEL REPORT (UTILITY POTLINE-2)
Tests required: Sound Level
SAMPLES COLLECTED BY VIMTA LABS LTD LAB REF.: EC

TEST RESULTS

S.NO	LOCATION	Unit	24/1/2022 9.00 AM to 5.00 PM
	PUMP HOUSE & COMPRESSOR HOUSE		
1	Pump house out side (near compressor house)	dB	73.5
2	Pump house In side (near compressor house)	dB	94.2
3	Control room compressor House	dB	63.2
4	Near air compressor between LP # 1 & 2	dB	95.3
5	Near air compressor between HP # 3 & 4	dB	96.4
6	Out side of compressor House	dB	84.1
	RECTIFIER PUMP HOUSE		
1	Control room	dB	64.2
2	Rectifier pump house	dB	85.4
3	Out side office	dB	65.8
	SWITCH YARD / RECTIFIER POT LINE-1		
1	Switch yard control room	dB	56.7
2	11 kv HT room	dB	65.9
3	Utility transformer no. 1	dB	64.8
4	Utility transformer no. 2	dB	76.3
5	Switch yard near bay no.8	dB	66.4
6	Near rectifier Unit -32	dB	84.1
7	Near rectifier Unit -33	dB	85.8
8	Near rectifier Unit -34	dB	84.3
9	Near rectifier Unit -35	dB	75.2
10	11/440 self use transformer 1	dB	66.4
11	11/440 self use transformer 2	dB	64.3
12	Road infront of rectifier	dB	65.1

As Per the factories act .The Norms for the work Place area are as follows

For continuous exposure to noise ,Total time of exposure permitted (hrs)	Sound Pressure dB (A)
8	85
6	87
4	90
3	92
2	95
1.5	97
1	100
0.75	102
0.5	105
0.25	110

ENVIRONMENT LABORATORY
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KORBA chhattisgarh

Report Number: VLL/VLS/21-22/15854/003

Issue Date : 5/3/2022
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: AMBIENT NOISE MONITORING (SMELTER 3.25 LTPA)

Tests required: Sound Level

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

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	16/2/2022 9.00AM to 17.00 PM	Norms in dB(Night)	16/2/2022 10.00PM to 6.00AM
1	Rectifier Control room	dB	75	68.4	70	59.3
2	Process Control room First Floor (Nucleus Zone-1)	dB	75	70.7	70	55.3
3	Technical In charge room Second Floor (Nucleus Zone-1)	dB	75	70.2	70	54.6
4	Control room GIS	dB	75	58.3	70	52.4
5	CRP room GIS	dB	75	59.3	70	54.2

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KORBA Chhattisgarh

Report Number: VLL/VLS/21-22/15854/015

Issue Date : 5/3/2022
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: NOISE LEVEL REPORT (UTILITY POTLINE-2)
Tests required: Sound Level
SAMPLES COLLECTED BY VIMTA LABS LTD LAB REF.: EC

TEST RESULTS

S.NO	LOCATION	Unit	11/2/2022 9.00 AM to 5.00 PM
	PUMP HOUSE & COMPRESSOR HOUSE		
1	Pump house out side (near compressor house)	dB	74.8
2	Pump house In side (near compressor house)	dB	95.2
3	Control room compressor House	dB	64.6
4	Near air compressor between LP # 1 & 2	dB	94.8
5	Near air compressor between HP # 3 & 4	dB	96.3
6	Out side of compressor House	dB	85.1
	RECTIFIER PUMP HOUSE		
1	Control room	dB	65.3
2	Rectifier pump house	dB	84.2
3	Out side office	dB	66.4
	SWITCH YARD / RECTIFIER POT LINE-1		
1	Switch yard control room	dB	57.4
2	11 kv HT room	dB	65.1
3	Utility transformer no. 1	dB	65.7
4	Utility transformer no. 2	dB	77.2
5	Switch yard near bay no.8	dB	65.8
6	Near rectifier Unit -32	dB	85.3
7	Near rectifier Unit -33	dB	86.1
8	Near rectifier Unit -34	dB	85.3
9	Near rectifier Unit -35	dB	76.1
10	11/440 self use transformer 1	dB	67.9
11	11/440 self use transformer 2	dB	65.3
12	Road infront of rectifier	dB	64.8

As Per the factories act .The Norms for the work Place area are as follows

For continuous exposure to noise ,Total time of exposure permitted (hrs)	Sound Pressure dB (A)
8	85
6	87
4	90
3	92
2	95
1.5	97
1	100
0.75	102
0.5	105
0.25	110

ENVIRONMENT LABORATORY
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KORBA chhattisgarh

Report Number: VLL/VLS/21-22/17798/003

Issue Date : 5/4/2022
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: AMBIENT NOISE MONITORING (SMELTER 3.25 LTPA)

Tests required: Sound Level

SAMPLES COLLECTED BY VIMTA LABS LTD

LAB REF.: EC

TEST RESULTS

S. No	Location	Unit	Norms in dB(Day)	26/3/2022 9.00AM to 17.00 PM	Norms in dB(Night)	26/3/2022 10.00PM to 6.00AM
1	Rectifier Control room	dB	75	69.4	70	58.7
2	Process Control room First Floor (Nucleus Zone-1)	dB	75	71.4	70	56.1
3	Technical In charge room Second Floor (Nucleus Zone-1)	dB	75	69.7	70	54.8
4	Control room GIS	dB	75	59.3	70	53.5
5	CRP room GIS	dB	75	58.7	70	53.8

ENVIRONMENT LABORATORY
REGD. No.: D.L.-33004/99

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KORBA Chhattisgarh

Report Number: VLL/VLS/21-22/17798/015

Issue Date : 5/4/2022
Your Ref : 8500003497
and Date : 16/2/2019

Sample Particulars: NOISE LEVEL REPORT (UTILITY POTLINE-2)

Tests required: Sound Level

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

TEST RESULTS

S.NO	LOCATION	Unit	15/3/2022 9.00 AM to 5.00 PM
	PUMP HOUSE & COMPRESSOR HOUSE		
1	Pump house out side (near compressor house)	dB	75.2
2	Pump house In side (near compressor house)	dB	96.5
3	Control room compressor House	dB	65.2
4	Near air compressor between LP # 1 & 2	dB	95.4
5	Near air compressor between HP # 3 & 4	dB	95.2
6	Out side of compressor House	dB	84.8
	RECTIFIER PUMP HOUSE		
1	Control room	dB	64.8
2	Rectifier pump house	dB	85.3
3	Out side office	dB	67.2
	SWITCH YARD / RECTIFIER POT LINE-1		
1	Switch yard control room	dB	58.1
2	11 kv HT room	dB	66.4
3	Utility transformer no. 1	dB	64.6
4	Utility transformer no. 2	dB	76.3
5	Switch yard near bay no.8	dB	66.3
6	Near rectifier Unit -32	dB	86.8
7	Near rectifier Unit -33	dB	86.4
8	Near rectifier Unit -34	dB	85.1
9	Near rectifier Unit -35	dB	75.6
10	11/440 self use transformer 1	dB	67.3
11	11/440 self use transformer 2	dB	64.8
12	Road infront of rectifier	dB	65.2

As Per the factories act .The Norms for the work Place area are as follows

For continuous exposure to noise ,Total time of exposure permitted (hrs)	Sound Pressure dB (A)
8	85
6	87
4	90
3	92
2	95
1.5	97
1	100
0.75	102
0.5	105
0.25	110

ENVIRONMENT LABORATORY
For VIMTA LABS
Dr. Subba Reddy Mallampati
Group Leader - Environment
VIMTA

Annexure – 12

Newspaper Advertisement

नवम्बर 2003

...र्यों को कार्य संपादन करने से संबंधित
...न संबंध कार्यों का प्रभारी अधिकारी के रूप
...दन हेतु में उप जिला कार्य संपादन करने से
...व्यवस्था संबंधित कार्यों की प्रभारी
अधिकारी के रूप में उप जिला
...कारी एवं निर्वाचन अधिकारी श्रीमती भारती
...निर्वाचन ओगरे एवं एस.एल.धुतलहरे डिप्टी
...ि प्रदान कलेक्टर संयुक्त रूप से अपने
...त आरा दायित्वों का निर्वहन करेंगे तथा
...ारी जे.आर.चौरसिया तहसीलदार
...कोरबा, एस.के.वैद्य अतिरिक्त
...शहनम शेरवानी तहसीलदार एवं जे.खलखो
...तथा सहायक सांख्यिकी अधिकारी इस
...-3 इस कार्य में उनके निर्देशानुसार कार्य
नाम निर्देशन प्रक्रिया से संबंधित समस्त कार्य संपादन हेतु जिन अधिकारियों एवं कर्मचारियों की ड्यूटी लगाई गई है-वे 7 नवंबर से प्रतिदिन 10.30 बजे से अपने निर्धारित स्थान पर अपने कर्तव्यों पर उपस्थित रहेंगे तथा किसी भी स्थिति में 3 बजे से पहले अपनी सीट को नहीं छोड़ेंगे तथा पूर्ण तत्परता से अपने दायित्वों का निर्वहन करेंगे। कोई भी अधिकारी कर्मचारी उप जिला निर्वाचन अधिकारी की बिना अनुमति कार्यालय से प्रस्थान नहीं करेंगे।

भारत एल्यूमिनियम कंपनी लिमिटेड
कोरबा, छत्तीसगढ़

सर्वसाधारण को यह सूचित किया जाता है कि पर्यावरण व वन मंत्रालय भारत सरकार ने भारत एल्यूमिनियम कंपनी लिमिटेड (भालको) की एल्यूमिना रिफाइनरी और स्मेल्टर की विस्तार परियोजना को पर्यावरणीय मंजूरी दे दी है। अनुमति पत्र की प्रति छत्तीसगढ़ पर्यावरण संरक्षण मंडल और पर्यावरण व वन मंत्रालय की वेबसाइट http://envfor.nic.in में उपलब्ध है।

कृते, भारत एल्यूमिनियम कंपनी
लिमिटेड कोरबा, छत्तीसगढ़

CENTRAL
Chronicle
RAIPUR, NOVEMBER 11, 2003

Bharat Aluminium Co. Ltd.
Korba, Chhattisgarh

This is to inform to general public that Ministry of Environment and Forests, Govt. of India has granted Environmental Clearance for Bharat Aluminium Company Limited's (Balco) expansion project of Alumina Refinery and Smelter. Copy of the Clearance letter is available at Chhattisgarh Environment Conservation Board and in the MOEF website http://envfor.nic.in.

For Bharat Aluminium Co. Ltd.
Korba, Chhattisgarh

ANNEXURE - VII