

ADITYA BIRLA



Registered Post

The Additional PCCF,
Ministry of Environment, Forests & Climate Change
Regional office (West Central Zone),
Ground Floor, East Wing,
"New Secretary Building"
Civil lines, Nagpur - 440001

05/10/2017

Subject: Compliance Status of Environment Clearance conditions

Dear Sir,

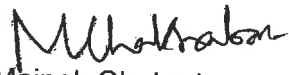
We have been granted Environment Clearance to our **Durgmanwadi Bauxite Mines** on 5th of February 2007 vide clearance No J-11015/239/2006-IA-II (M).

We are herewith submitting the compliance against the conditions laid down in the Environment Clearance; for the 6 months duration (April'17 to September'17) along with the environment monitoring reports of Air, Water and Noise quality for the summer and monsoon season.

Hope you will please find the above in order.

Thanking you,

Yours very truly,


Mainak Chakraborty
Vice President – Mines

Encl. A/a

Copy to:

1. The Chief Conservator of Forests (Central)
Ministry of Environment & Forests
Regional office, BHOPAL.
2. The Member Secretary,
Central Pollution Control Board,
Parivesh Bhavan, East Arjun Nagar,
DELHI - 110032
3. The Regional Officer
Maharashtra Pollution Control Board
Udyog Bhawan, KOLHAPUR.

HINDALCO INDUSTRIES LIMITED

Registered Office : Century Bhavan, 3rd Floor, Dr. Annie Besant Road, Worli, Mumbai 400 030. Telephone + 91 22 6662 6666

Durgmanwadi Mines : PO Radhanagari - 416 212 Dist. Kolhapur, Maharashtra. T. : + 91 02321 202072 / 202178 / 133

Kolhapur Office : T. : 91 0231 2661458, 2666621, 2021461, 2021462

Website : www.hindalco.com E-mail : hindalco@adityabirla.com

Corporate Identity No. : L27020MH1958PLC011238

**COMPLIANCE STATUS OF
ENVIRONMENTAL CLEARANCE CONDITIONS
Environment Clearance Durgmanwadi Bauxite Mines granted on 5th of
February 2007 vide clearance No J-11015/239/2006-IA-II (M)**

Sr.No.	Conditions	Compliance
Specific Conditions :-		
i)	The mining activity to be restricted to private land only for which the conservation plan has been accepted by the State Government.	The mining activity presently is restricted to private land only.
ii)	Preparation of conservation plan for protection of endangered fauna reported in the study area.	Conservation Plan for protection of endangered species is submitted to MoEF at the time of grant of Environment clearance.
iii)	Top soil to be stacked properly with proper slope with adequate safeguards & backfilled for reclamation & rehabilitation of mined out area.	The top soil stacked initially in dumps is rehandled and used for mine restoration.
iv)	Overburden to be stacked at earmarked dump site(s) only at max height not more than 20 m and slopes not to exceed 28°. The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface runoff.	All the overburden dumps are backfilled into the mined out voids. The backfilled areas are being scientifically vegetated through afforestation.
v)	External OB dumps and other wastes to be stacked at earmarked sites only.	There are no external dumps for overburden stacking.
vi)	Catch drains and siltation ponds of appropriate size to be constructed to arrest silt and sediment flows.	The run-off mine is channelised towards settling tanks and silt check dams. All the natural storm water flow is passed through silt check dams.
vii)	Drilling and blasting should not be involved.	Drilling & blasting is totally done away with. For breaking of strata Rippers and Rock Breakers are used.
viii)	Plantation to be raised in an area of 121.50 ha. The density of trees should be around 2000 plants per ha.	The plantation is carried out every year as per plan. Till date 3,07,599 plants have been planted within & outside the lease area and at feeder road side. Restored about 142.4 Ha areas. During the year 2017-18, 6400 saplings, 2500 Nigad cuttings, 4400 Karvy and grass seeds have been planted to cover 3.51 Ha and Water ponds to cover 0.49 Ha. Area.

ix)	Implement suitable conservation measures to augment ground water resources in the area.	6 Nos. Water harvesting ponds are developed in the mined out areas. As the mine plateau is on high elevation, the water accumulated in mined out area mostly percolates down to the nearby water sources. Some water is also evaporated during dry months.
x)	Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells.	The ground water quality is monitored on quarterly basis. The mining is carried out to a depth of 7 to 10 Mts from the surface. There is no interference of mining activity with the ground water table.
xi)	Plan rainwater harvesting measures on long-term basis should be planned and implemented.	6 Nos. Water harvesting ponds are developed in the mining area. The entire mined out area is itself acts as a water harvesting pit. However, the above ponds also serve as a water reservoir to cater the water requirement of dust suppression and for plantation.
xii)	a) Vehicular emissions to be kept under Control. b) The vehicles should be covered with a tarpaulin and shall not be over loaded. c) Regular water sprinkling arrangements shall be made to control the fugitive dust generation from the haul roads.	There is a system to check the PUC certificates of hired trucks. Timely maintenance of all heavy equipments is carried out. All transport vehicles are covered with tarpaulin. The vehicles are weighed within the mines. All the vehicles are carrying bauxite as per RLW. Mobile water tankers are used to sprinkle water on haul roads.
xiii)	Install sewage treatment plant for colony. ETP should be provided for workshop and waste generation from mining operation.	There is no colony set up for the mines. There is no processing of mineral carried out at mines.
xiv)	A final Mine closer plan alongwith details of Corpus Fund should be submitted to the MoEF 5 years in advance of final mine closer for approval.	Mine is still operational. Final Mine closure plan will be submitted to concerned agency.
B	General Conditions.	

i)	No change in mining technology and scope of working without prior approval	There is no change in the mining technology and in the scope of working.
ii)	No change in calendar plan including excavation, quantum of mineral ore & waste	The production is restricted to the approved quantity.
iii)	Conservation measures for protection of flora & fauna in the core & buffer zone to be drawn	Mined out area are scientifically afforested. For this we procure soil, manure, vermi compost, bagasse and press-mud to improve the condition of plantation base. We had engaged experts to implement afforestation activity. Care has been taken to plant mostly local flora along with some exotic species.
iv)	Establish four ambient air quality monitoring stations in the core zone & buffer zone for RPM, SPM, SO ₂ , NO _x . Monitoring.	4 Nos. of Ambient air quality stations have been established in the core and as well as in buffer area.
v)	Regular submission of data on ambient air quality (RPM, SPM, SO ₂ ,NO _x)	The monitoring is carried out as per the schedule and Data is submitted regularly The Post monsoon and winter season reports are attached.
vi)	Regular control of fugitive dust emissions from all the sources	The dust in crushing operation is suppressed by atomized water sprinklers and during mining and transportation by mobile water tankers.
vii)	Take measures for control of noise levels below 85 dBA in the work environment	All the noise generating machineries are enclosed to suppress the noise. The noise level in the work environment is below 85dBA and all the workers engaged in operations of HEMM are provided with ear-plugs / muffs
viii)	Proper collection, treatment of industrial waste water to conform the standards prescribed under GSR 422 (E) dt.19 th May, 1993	There is no industrial waste water, as there is no processing is carried out.
ix)	Provide adequate training and information on safety & health aspects & provide protective respiratory devices to workers	Regular training to employees on Safety and Health aspects is provided. All the employees engaged in operations are provided with dusk masks & ear-plugs / muffs.
x)	Undertake periodical Occupational health surveillance program of workers	The heath surveillance is done once in a year for all employees and there are no cases of

		occupational health hazards.																								
xi)	Set-up separate environmental management cell with suitable qualified personnel.	A qualified person has been employed at the unit level. A full fledged Environment cell operates at the corporate level.																								
xii)	The project authority shall inform to the regional office located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development.	The mining operation was commenced on 17 th April 1992. i.e; much prior to grant of EC.																								
xiii)	The funds earmarked for environmental protection measures shall be kept in separate account and should be diverted for other purposes.	<p>The separate funds have been allocated for implementation of environmental protection measures along with item-wise breakup such as furnished below. The expenditures are upto September-2017.</p> <table border="1"> <thead> <tr> <th>SO. NO.</th> <th>Shop Order Description</th> <th>Expenditure for the year 2017 -18 (Rs.) (Upto September-17)</th> </tr> </thead> <tbody> <tr> <td>1610 & 1611</td> <td>Aftercare (watering)</td> <td>1,98,500.0</td> </tr> <tr> <td>1612</td> <td>Environment Monitoring</td> <td>3,27,406.0</td> </tr> <tr> <td>1613</td> <td>Dust suppression</td> <td>2,71,642.0</td> </tr> <tr> <td>1614</td> <td>Statutory Compliance</td> <td>62,931.0</td> </tr> <tr> <td>1615</td> <td>Environment Others</td> <td>7,672.0</td> </tr> <tr> <td>1616</td> <td>ISO – 14001 system</td> <td>29,771.0</td> </tr> <tr> <td>3019</td> <td>Mine restoration & rehabilitation</td> <td>2,76,650.0</td> </tr> </tbody> </table>	SO. NO.	Shop Order Description	Expenditure for the year 2017 -18 (Rs.) (Upto September-17)	1610 & 1611	Aftercare (watering)	1,98,500.0	1612	Environment Monitoring	3,27,406.0	1613	Dust suppression	2,71,642.0	1614	Statutory Compliance	62,931.0	1615	Environment Others	7,672.0	1616	ISO – 14001 system	29,771.0	3019	Mine restoration & rehabilitation	2,76,650.0
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xv)	The project authorities should extend full cooperation to the officer(s) of the Regional office by furnishing the requisite data/information / monitoring reports.	Requisite data / information / monitoring reports will be submitted as desired by the concerned authority.																								
xvi)	A copy of clearance letter will be marked to concern Panchayat.	A copy of clearance letter is marked to concern Panchayat.																								
xvii)	The project authority should advertise at least in two local news papers within 7 days of the issue of the clearance letter.	The advertisement was published in the local daily news papers "Tarun Bharat" & "Pudari" on 08/02/2007.																								

DURGAMANWADI BAUXITE MINE

**RADHANAGARI TALUKA,
KOLHAPUR DISTRICT
MAHARASHTRA**

M/S HINDALCO INDUSTRIES LIMITED

**ENVIRONMENTAL QUALITY
MONITORING REPORT**

SUMMER 2017

IND.BH.41.16.0322/HSR

Bhagavathi Ana Labs Pvt. Ltd.,

**-7-2-C-14, Industrial Estate,
Sanathnagar, Hyderabad
500 0187**

CONTENTS

TITLE
AMBIENT AIR QUALITY
AMBIENT NOISE QUALITY
WATER QUALITY
Soil Quality

AMBIENT AIR QUALITY

Station: A1, CORE ZONE						
S.No.	Month	Date	SPM	PM 10	SO ₂ (µg/m ³)	NO _x (µg/m ³)
			µg/m ³	µg/m ³	24 hrs Average	24 hrs Average
1	MARCH '17	07-03-2017	134.0	48.2	7.8	15.6
2		10-03-2017	107.0	38.5	6.2	12.4
3		14-03-2017	123.0	44.3	7.1	14.3
4		17-03-2017	132.0	47.5	7.7	15.3
5		21-03-2017	129.0	46.4	7.5	15.0
6		24-03-2017	120.0	43.2	7.0	13.9
7		27-03-2017	104.0	37.4	6.0	12.1
8		29-03-2017	124.0	44.6	7.2	14.4
1	APRIL'17	04-04-2017	148.0	53.3	8.6	17.2
2		06-04-2017	133.0	47.9	7.7	15.4
3		11-04-2017	109.0	39.2	6.3	12.7
4		15-04-2017	126.0	45.4	7.3	14.6
5		18-04-2017	167.0	60.1	9.7	19.4
6		20-04-2017	107.0	38.5	6.2	12.4
7		25-04-2017	103.0	37.1	6.0	12.0
8		27-04-2017	104.0	37.4	6.0	12.1
1	MAY'17	02-05-2017	114.0	41.0	6.6	13.2
2		05-05-2017	128.0	46.1	7.4	14.9
3		09-05-2017	109.0	39.2	6.3	12.7
4		12-05-2017	127.0	45.7	7.4	14.7
5		16-05-2017	129.0	46.4	7.5	15.0
6		19-05-2017	107.0	38.5	6.2	12.4
7		23-05-2017	112.0	40.3	6.5	13.0
8		26-05-2017	166.0	59.8	9.6	19.3

Min	103.0	37.1	6.0	12.0
Max	167.0	60.1	9.7	19.4
Mean	123.4	44.4	7.2	14.3
10th percentile	104.9	37.8	6.1	12.2
30th percentile	109.0	39.2	6.3	12.7
50th percentile	123.5	44.5	7.2	14.3
95th percentile	163.3	58.8	9.5	19.0
98th percentile	166.5	60.0	9.7	19.3

BDL: BELOW DETECTABLE LIMIT

AMBIENT AIR QUALITY

Station: A2, NEAR MINES OFFICE						
S.No.	Month	Date	SPM	PM 10	SO ₂ (µg/m ³)	NO _x (µg/m ³)
			µg/m ³	µg/m ³	24 hrs Average	24 hrs Average
1	MARCH '17	07-03-2017	133.0	46.6	7.8	15.5
2		10-03-2017	103.0	36.1	6.0	12.0
3		14-03-2017	109.0	38.2	6.4	12.7
4		17-03-2017	167.0	58.5	9.7	19.5
5		21-03-2017	105.0	36.8	6.1	12.3
6		24-03-2017	117.0	41.0	6.8	13.7
7		27-03-2017	133.0	46.6	7.8	15.5
8		29-03-2017	107.0	37.5	6.2	12.5
1	APRIL'17	04-04-2017	105.0	36.8	6.1	12.3
2		06-04-2017	107.0	37.5	6.2	12.5
3		11-04-2017	108.0	37.8	6.3	12.6
4		15-04-2017	103.0	36.1	6.0	12.0
5		18-04-2017	111.0	38.9	6.5	13.0
6		20-04-2017	144.0	50.4	8.4	16.8
7		25-04-2017	134.0	46.9	7.8	15.6
8		27-04-2017	144.0	50.4	8.4	16.8
1	MAY'17	02-05-2017	102.0	35.7	6.0	11.9
2		05-05-2017	104.0	36.4	6.1	12.1
3		09-05-2017	105.0	36.8	6.1	12.3
4		12-05-2017	137.0	48.0	8.0	16.0
5		16-05-2017	112.0	39.2	6.5	13.1
6		19-05-2017	110.0	38.5	6.4	12.8
7		23-05-2017	103.0	36.1	6.0	12.0
8		26-05-2017	155.0	54.3	9.0	18.1

Min	102.0	35.7	6.0	11.9
Max	167.0	58.5	9.7	19.5
Mean	119.1	41.7	6.9	13.9
10th percentile	103.0	36.1	6.0	12.0
30th percentile	105.0	36.8	6.1	12.3
50th percentile	109.5	38.3	6.4	12.8
95th percentile	153.4	53.7	8.9	17.9
98th percentile	161.5	56.5	9.4	18.8

AMBIENT AIR QUALITY

Station: A3, NEAR HAULAGE ROAD.						
S.No.	Month	Date	SPM	PM 10	SO ₂ (µg/m ³)	NO _x (µg/m ³)
			µg/m ³	µg/m ³	24 hrs Average	24 hrs Average
1	MARCH '17	07-03-2017	144.0	50.4	9.0	17.1
2		10-03-2017	166.0	58.1	10.4	19.7
3		14-03-2017	124.0	43.4	7.8	14.7
4		17-03-2017	136.0	47.6	8.5	16.2
5		21-03-2017	147.0	51.5	9.2	17.5
6		24-03-2017	146.0	51.1	9.1	17.3
7		27-03-2017	130.0	45.5	8.1	15.4
8		29-03-2017	121.0	42.4	7.6	14.4
1	APRIL '17	04-04-2017	144.0	50.4	9.0	17.1
2		06-04-2017	104.0	36.4	6.5	12.4
3		11-04-2017	107.0	37.5	6.7	12.7
4		15-04-2017	156.0	54.6	9.8	18.5
5		18-04-2017	155.0	54.3	9.7	18.4
6		20-04-2017	104.0	36.4	6.5	12.4
7		25-04-2017	105.0	36.8	6.6	12.5
8		27-04-2017	108.0	37.8	6.8	12.8
1	MAY '17	02-05-2017	143.0	50.1	8.9	17.0
2		05-05-2017	105.0	36.8	6.6	12.5
3		09-05-2017	103.0	36.1	6.4	12.2
4		12-05-2017	111.0	38.9	6.9	13.2
5		16-05-2017	121.0	42.4	7.6	14.4
6		19-05-2017	105.0	36.8	6.6	12.5
7		23-05-2017	106.0	37.1	6.6	12.6
8		26-05-2017	122.0	42.7	7.6	14.5

Min	103.0	36.1	6.4	12.2
Max	166.0	58.1	10.4	19.7
Mean	125.5	43.9	7.8	14.9
10th percentile	104.3	36.5	6.5	12.4
30th percentile	106.9	37.4	6.7	12.7
50th percentile	121.5	42.5	7.6	14.4
95th percentile	155.9	54.5	9.7	18.5
98th percentile	161.4	56.5	10.1	19.2

AMBIENT AIR QUALITY

Station: A4, PADSALI VILLAGE						
S.No.	Month	Date	SPM	PM 10	SO ₂ (µg/m ³)	NO _x (µg/m ³)
			µg/m ³	µg/m ³	24 hrs Average	24 hrs Average
1	MARCH '17	07-03-2017	107.0	37.5	7.5	12.0
2		10-03-2017	100.0	35.0	7.0	11.2
3		14-03-2017	103.0	36.1	7.2	11.5
4		17-03-2017	107.0	37.5	7.5	12.0
5		21-03-2017	109.0	38.2	7.6	12.2
6		24-03-2017	104.0	36.4	7.3	11.6
7		27-03-2017	105.0	36.8	7.4	11.8
8		29-03-2017	100.0	35.0	7.0	11.2
1	APRIL '17	04-04-2017	133.0	46.6	9.3	14.9
2		06-04-2017	103.0	36.1	7.2	11.5
3		11-04-2017	144.0	50.4	10.1	16.1
4		15-04-2017	133.0	46.6	9.3	14.9
5		18-04-2017	100.0	35.0	7.0	11.2
6		20-04-2017	107.0	37.5	7.5	12.0
7		25-04-2017	133.0	46.6	9.3	14.9
8		27-04-2017	122.0	42.7	8.5	13.7
1	MAY '17	02-05-2017	121.0	42.4	8.5	13.6
2		05-05-2017	131.0	45.9	9.2	14.7
3		09-05-2017	134.0	46.9	9.4	15.0
4		12-05-2017	122.0	42.7	8.5	13.7
5		16-05-2017	134.0	46.9	9.4	15.0
6		19-05-2017	100.0	35.0	7.0	11.2
7		23-05-2017	149.0	52.2	10.4	16.7
8		26-05-2017	150.0	52.5	10.5	16.8

Min	100.0	35.0	7.0	11.2
Max	150.0	52.5	10.5	16.8
Mean	118.8	41.6	8.3	13.3
10th percentile	100.0	35.0	7.0	11.2
30th percentile	104.9	36.7	7.3	11.7
50th percentile	115.0	40.3	8.1	12.9
95th percentile	148.3	51.9	10.4	16.6
98th percentile	149.5	52.3	10.5	16.7

AMBIENT AIR QUALITY

Station: A 5; DURGAMANWADI VILLAGE						
S.No.	Month	Date	SPM	PM 10	SO ₂ (µg/m ³)	NO _x (µg/m ³)
			µg/m ³	µg/m ³	24 hrs Average	24 hrs Average
1	MARCH '17	07-03-2017	123.0	41.8	7.0	16.7
2		10-03-2017	177.0	60.2	10.0	24.1
3		14-03-2017	123.0	41.8	7.0	16.7
4		17-03-2017	100.0	34.0	5.7	13.6
5		21-03-2017	178.0	60.5	10.1	24.2
6		24-03-2017	196.0	66.6	11.1	26.7
7		27-03-2017	177.0	60.2	10.0	24.1
8		29-03-2017	93.0	31.6	5.3	12.6
1	APRIL '17	04-04-2017	100.0	34.0	5.7	13.6
2		06-04-2017	105.0	35.7	6.0	14.3
3		11-04-2017	188.0	63.9	10.7	25.6
4		15-04-2017	197.0	67.0	11.2	26.8
5		18-04-2017	118.0	40.1	6.7	16.0
6		20-04-2017	124.0	42.2	7.0	16.9
7		25-04-2017	134.0	45.6	7.6	18.2
8		27-04-2017	156.0	53.0	8.8	21.2
1	MAY '17	02-05-2017	143.0	48.6	8.1	19.4
2		05-05-2017	133.0	45.2	7.5	18.1
3		09-05-2017	167.0	56.8	9.5	22.7
4		12-05-2017	121.0	41.1	6.9	16.5
5		16-05-2017	198.0	67.3	11.2	26.9
6		19-05-2017	133.0	45.2	7.5	18.1
7		23-05-2017	204.0	69.4	11.6	27.7
8		26-05-2017	105.0	35.7	6.0	14.3

Min	93.0	31.6	5.3	12.6
Max	204.0	69.4	11.6	27.7
Mean	145.5	49.5	8.2	19.8
10th percentile	101.5	34.5	5.8	13.8
30th percentile	122.8	41.8	7.0	16.7
50th percentile	133.5	45.4	7.6	18.2
95th percentile	197.9	67.3	11.2	26.9
98th percentile	201.2	68.4	11.4	27.4

AMBIENT AIR QUALITY

Station: A6, KARIWADE VILLAGE						
S.No.	Month	Date	SPM	PM 10	SO ₂ (µg/m ³)	NO _x (µg/m ³)
			µg/m ³	µg/m ³	24 hrs Average	24 hrs Average
1	MARCH '17	07-03-2017	165.0	59.4	14.1	24.0
2		10-03-2017	156.0	56.2	13.4	22.7
3		14-03-2017	189.0	68.0	16.2	27.5
4		17-03-2017	100.0	36.0	8.6	14.6
5		21-03-2017	123.0	44.3	10.5	17.9
6		24-03-2017	111.0	40.0	9.5	16.2
7		27-03-2017	199.0	71.6	17.1	29.0
8		29-03-2017	101.0	36.4	8.7	14.7
1	APRIL'17	04-04-2017	195.0	70.2	16.7	28.4
2		06-04-2017	193.0	69.5	16.5	28.1
3		11-04-2017	177.0	63.7	15.2	25.8
4		15-04-2017	185.0	66.6	15.9	27.0
5		18-04-2017	199.0	71.6	17.1	29.0
6		20-04-2017	206.0	74.2	17.7	30.0
7		25-04-2017	155.0	55.8	13.3	22.6
8		27-04-2017	176.0	63.4	15.1	25.6
1	MAY'17	02-05-2017	144.0	51.8	12.3	21.0
2		05-05-2017	176.0	63.4	15.1	25.6
3		09-05-2017	189.0	68.0	16.2	27.5
4		12-05-2017	100.0	36.0	8.6	14.6
5		16-05-2017	102.0	36.7	8.7	14.9
6		19-05-2017	105.0	37.8	9.0	15.3
7		23-05-2017	103.0	37.1	8.8	15.0
8		26-05-2017	100.0	36.0	8.6	14.6

Min	100.0	36.0	8.6	14.6
Max	206.0	74.2	17.7	30.0
Mean	152.0	54.7	13.0	22.2
10th percentile	100.3	36.1	8.6	14.6
30th percentile	110.4	39.7	9.5	16.1
50th percentile	160.5	57.8	13.8	23.4
95th percentile	199.0	71.6	17.1	29.0
98th percentile	202.8	73.0	17.4	29.5

AMBIENT AIR QUALITY

Station: A7, MANBET VILLAGE						
S.No.	Month	Date	SPM	PM 10	SO ₂ (µg/m ³)	NO _x (µg/m ³)
			µg/m ³	µg/m ³	24 hrs Average	24 hrs Average
	NAAQSTANDARDS		100	60	80	80
1	MARCH '17	07-03-2017	176.0	70.4	16.8	28.5
2		10-03-2017	167.0	66.8	15.9	27.0
3		14-03-2017	201.0	80.4	19.1	32.5
4		17-03-2017	100.0	40.0	9.5	16.2
5		21-03-2017	104.0	41.6	9.9	16.8
6		24-03-2017	106.0	42.4	10.1	17.2
7		27-03-2017	113.0	45.2	10.8	18.3
8		29-03-2017	144.0	57.6	13.7	23.3
1	APRIL'17	04-04-2017	176.0	70.4	16.8	28.5
2		06-04-2017	188.0	75.2	17.9	30.4
3		11-04-2017	113.0	45.2	10.8	18.3
4		15-04-2017	103.0	41.2	9.8	16.7
5		18-04-2017	100.0	40.0	9.5	16.2
6		20-04-2017	159.0	63.6	15.1	25.7
7		25-04-2017	179.0	71.6	17.0	29.0
8		27-04-2017	169.0	67.6	16.1	27.4
1	MAY'17	02-05-2017	189.0	75.6	18.0	30.6
2		05-05-2017	200.0	80.0	19.0	32.4
3		09-05-2017	149.0	59.6	14.2	24.1
4		12-05-2017	104.0	41.6	9.9	16.8
5		16-05-2017	112.0	44.8	10.7	18.1
6		19-05-2017	107.0	42.8	10.2	17.3
7		23-05-2017	116.0	46.4	11.0	18.8
8		26-05-2017	144.0	57.6	13.7	23.3

Min	100.0	40.0	9.5	16.2
Max	201.0	80.4	19.1	32.5
Mean	142.5	57.0	13.6	23.1
10th percentile	103.3	41.3	9.8	16.7
30th percentile	111.5	44.6	10.6	18.1
50th percentile	144.0	57.6	13.7	23.3
95th percentile	198.4	79.3	18.9	32.1
98th percentile	200.5	80.2	19.1	32.5

AMBIENT AIR QUALITY

Station: A 8, CHAVANWADI VILLAGE						
S.No.	Month	Date	SPM	PM 10	SO ₂ (µg/m ³)	NO _x (µg/m ³)
			µg/m ³	µg/m ³	24 hrs Average	24 hrs Average
1	MARCH '17	07-03-2017	155.0	62.0	14.8	25.1
2		10-03-2017	176.0	70.4	16.8	28.5
3		14-03-2017	106.0	42.4	10.1	17.2
4		17-03-2017	101.0	40.4	9.6	16.4
5		21-03-2017	113.0	45.2	10.8	18.3
6		24-03-2017	199.0	79.6	19.0	32.2
7		27-03-2017	179.0	71.6	17.0	29.0
8		29-03-2017	199.0	79.6	19.0	32.2
1	APRIL '17	04-04-2017	106.0	42.4	10.1	17.2
2		06-04-2017	105.0	42.0	10.0	17.0
3		11-04-2017	177.0	70.8	16.9	28.7
4		15-04-2017	122.0	48.8	11.6	19.8
5		18-04-2017	195.0	78.0	18.6	31.6
6		20-04-2017	194.0	77.6	18.5	31.4
7		25-04-2017	100.0	40.0	9.5	16.2
8		27-04-2017	123.0	49.2	11.7	19.9
1	MAY '17	02-05-2017	179.0	71.6	17.0	29.0
2		05-05-2017	199.0	79.6	19.0	32.2
3		09-05-2017	100.0	40.0	9.5	16.2
4		12-05-2017	107.0	42.8	10.2	17.3
5		16-05-2017	106.0	42.4	10.1	17.2
6		19-05-2017	106.0	42.4	10.1	17.2
7		23-05-2017	105.0	42.0	10.0	17.0
8		26-05-2017	106.0	42.4	10.1	17.2

Min	100.0	40.0	9.5	16.2
Max	199.0	79.6	19.0	32.2
Mean	139.9	56.0	13.3	22.7
10th percentile	102.2	40.9	9.7	16.5
30th percentile	106.0	42.4	10.1	17.2
50th percentile	117.5	47.0	11.2	19.0
95th percentile	199.0	79.6	19.0	32.2
98th percentile	199.0	79.6	19.0	32.2

BDL for SO_x-2.0 & NO_x-4.5

NOTE: The results relate only to the conditions prevailing at the time of sampling

Method of measurement: As per CPCB Manual & IS 5182

CORE ZONE NOISE LEVEL MONITORING DATA

Location →	N - 1 CORE ZONE	N - 2 NEAR MINES OFFICE	N - 3 NEAR HAULAGE ROAD
Time (Hrs) ↓	dB(A)		
06.00	58.6	60.0	61.5
07.00	59.3	60.7	61.5
08.00	61.0	62.0	63.6
09.00	64.4	65.6	64.6
10.00	67.0	67.6	66.7
11.00	69.2	70.6	69.4
12.00	70.1	70.0	70.0
13.00	70.2	70.0	70.2
14.00	69.8	70.4	71.5
15.00	68.5	69.6	68.7
16.00	73.7	74.2	72.5
17.00	74.6	76.0	69.0
18.00	70.9	72.4	71.2
19.00	66.7	67.3	66.0
20.00	62.7	63.9	62.6
21.00	61.8	63.0	62.1
22.00	61.6	63.3	63.0
23.00	62.1	62.2	62.0
24.00	61.6	62.9	64.0
01.00	61.6	62.0	61.8
02.00	60.6	61.7	60.1
03.00	61.1	61.0	61.4
04.00	60.6	62.1	63.6
05.00	61.0	62.1	63.0
Minimum Value: - (L_{Min})	58.6	60.0	60.1
Maximum Value: - (L_{Max})	74.6	76.0	72.5
Day Equivalent: - (L_d)	69.1	69.9	68.4
Night Equivalent: - (L_n)	61.3	62.2	62.5

NOTE: The results relate only to the condition prevailing at the time of sampling

BUFFER ZONE NOISE LEVEL MONITORING DATA

Location →	N-4 PADSALI VILLAGE	N-5 DURGAMA NWADI VILLAGE	N-6 KARIWADE VILLAGE	N-7 MANBET VILLAGE	N-8 CHAVAN WADI VILLAGE
Time (Hrs) ↓	dB(A)				
06.00	61.2	62.6	47.2	48.1	49.0
07.00	61.5	61.8	55.1	56.4	57.2
08.00	63.2	63.4	57.5	58.6	59.3
09.00	64.4	65.4	60.6	61.1	62.1
10.00	67.5	67.3	63.4	63.9	64.0
11.00	69.3	70.0	71.8	71.6	72.1
12.00	70.0	70.4	72.6	73.0	73.5
13.00	70.2	70.0	71.0	71.7	71.8
14.00	71.1	71.7	70.7	71.5	71.1
15.00	68.8	69.9	69.3	69.9	69.0
16.00	72.1	72.8	68.0	67.9	67.5
17.00	72.8	70.5	66.3	66.1	66.2
18.00	72.4	71.3	64.4	65.0	65.2
19.00	66.9	66.5	63.2	64.4	64.5
20.00	62.4	63.1	57.7	59.1	59.7
21.00	62.2	62.3	56.3	58.3	58.4
22.00	62.6	63.7	49.6	51.8	51.6
23.00	62.7	62.4	48.4	50.6	50.9
24.00	63.9	64.6	48.5	50.9	50.4
01.00	61.9	62.1	49.1	51.3	51.3
02.00	61.3	61.4	50.0	51.9	52.2
03.00	61.9	61.8	50.6	53.0	52.5
04.00	63.1	64.3	45.4	48.0	47.5
05.00	63.0	64.1	44.7	47.6	47.0
Minimum Value: - (L_{Min})	61.2	61.4	44.7	47.6	47.0
Maximum Value: - (L_{Max})	72.8	72.8	72.6	73.0	73.5
Day Equivalent: - (L_d)	68.9	68.8	67.4	67.8	67.9
Night Equivalent: - (L_n)	62.6	63.2	48.7	51.0	50.8

TALGAON VILLAGE

Location Name	:	Talgaon village
Date	:	25.5.2017
Sample Type	:	Ground water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.92
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	5.0
7	Total Dissolved Solids	mg/l	96
8	Total Suspended Solids	mg/l	28
9	Alkalinity as CaCO ₃	mg/l	25.0
10	Total Hardness as CaCO ₃	mg/l	108.0
11	Nitrates NO ₃	mg/l	0.39
12	Phosphates PO ₄	mg/l	1.06
13	Chlorides as Cl	mg/l	11.99
14	Sulphates as SO ₄ ²⁻	mg/l	1.17
15	Sodium as Na.	mg/l	10
16	Potassium as K	mg/l	5
17	Calcium as Ca	mg/l	10.4
18	Magnesium as Mg	mg/l	19.68
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.02
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.03
26	Fluoride as F	mg/l	0.60
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	6

BDL: Below Detectable Limit

mg/l: - Milligram per liter

DURGAMANWADI VILLAGE

Location Name	:	Durgamanwadi village			
Date	:	25.5.2017	Sample Type	:	Ground water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.81
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	4.30
7	Total Dissolved Solids	mg/l	99
8	Total Suspended Solids	mg/l	32
9	Alkalinity as CaCO ₃	mg/l	28
10	Total Hardness as CaCO ₃	mg/l	96.0
11	Nitrates NO ₃	mg/l	0.4
12	Phosphates PO ₄	mg/l	0.02
13	Chlorides as Cl	mg/l	13.99
14	Sulphates as SO ₄ ²⁻	mg/l	1.4
15	Sodium as Na.	mg/l	3.4
16	Potassium as K	mg/l	3
17	Calcium as Ca	mg/l	14.4
18	Magnesium as Mg	mg/l	14.4
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.02
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.55
26	Fluoride as F	mg/l	0.40
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	5

BDL: Below Detectable Limit

mg/l: - Milligram per liter

CHAVANWADI VILLAGE

Location Name	: Chavanwadi village
Date	: 25.5.2017
Sample Type	: Ground water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.68
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	5.30
7	Total Dissolved Solids	mg/l	54
8	Total Suspended Solids	mg/l	23
9	Alkalinity as CaCO ₃	mg/l	16.0
10	Total Hardness as CaCO ₃	mg/l	62.0
11	Nitrates NO ₃	mg/l	0.43
12	Phosphates PO ₄	mg/l	0.02
13	Chlorides as Cl	mg/l	10.99
14	Sulphates as SO ₄ ²⁻	mg/l	2.23
15	Sodium as Na.	mg/l	6
16	Potassium as K	mg/l	4.3
17	Calcium as Ca	mg/l	12
18	Magnesium as Mg	mg/l	7.68
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.02
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.07
26	Fluoride as F	mg/l	0.27
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	5

BDL: Below Detectable Limit

mg/l: - Milligram per liter

PADSALI VILLAGE

Location Name	:	Padsali village	
Date	:	25.5.2017	Sample Type : Surface water

Sl. No.	Parameter	Unit	
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.72
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	6.50
7	Total Dissolved Solids	mg/l	41
8	Total Suspended Solids	mg/l	31
9	Alkalinity as CaCO ₃	mg/l	20
10	Total Hardness as CaCO ₃	mg/l	108.0
11	Nitrates NO ₃	mg/l	0.39
12	Phosphates PO ₄	mg/l	0.02
13	Chlorides as Cl	mg/l	13.99
14	Sulphates as SO ₄ ²⁻	mg/l	1.91
15	Sodium as Na.	mg/l	4
16	Potassium as K	mg/l	3.4
17	Calcium as Ca	mg/l	9.6
18	Magnesium as Mg	mg/l	20.16
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.03
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.04
26	Fluoride as F	mg/l	0.03
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	6

BDL: Below Detectable Limit

mg/l: - Milligram per liter

TULSI STREAM

Location Name	:	Tulsi stream
Date	:	25-5-2017
Sample Type	:	Surface Water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.68
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	4.30
7	Total Dissolved Solids	mg/l	128
8	Total Suspended Solids	mg/l	47
9	Alkalinity as CaCO ₃	mg/l	20
10	Total Hardness as CaCO ₃	mg/l	164.0
11	Nitrates NO ₃	mg/l	0.15
12	Phosphates PO ₄	mg/l	0.03
13	Chlorides as Cl	mg/l	14.99
14	Sulphates as SO ₄ ²⁻	mg/l	1.17
15	Sodium as Na.	mg/l	2.6
16	Potassium as K	mg/l	3.2
17	Calcium as Ca	mg/l	28
18	Magnesium as Mg	mg/l	22.56
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.02
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.20
26	Fluoride as F	mg/l	0.04
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	14

BDL: Below Detectable Limit

mg/l: - Milligram per liter

MINE ACCUMULATED WATER

Location Name	:	Mine Accumulated Water			
Date	:	25.5.2017	Sample Type	:	Surface Water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.85
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	7.20
7	Total Dissolved Solids	mg/l	30
8	Total Suspended Solids	mg/l	44
9	Alkalinity as CaCO ₃	mg/l	12
10	Total Hardness as CaCO ₃	mg/l	78.0
11	Nitrates NO ₃	mg/l	0.2
12	Phosphates PO ₄	mg/l	0.01
13	Chlorides as Cl	mg/l	12.99
14	Sulphates as SO ₄ ²⁻	mg/l	4.04
15	Sodium as Na.	mg/l	2
16	Potassium as K	mg/l	3
17	Calcium as Ca	mg/l	16.8
18	Magnesium as Mg	mg/l	8.64
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.03
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.07
26	Fluoride as F	mg/l	0.58
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	9

DOMESTIC EFFLUENT ANALYSIS

Sample Type: **Canteen waste water**

Date of sampling: **25.05.2017**

Sl.No	Test	Result
1	Total Suspended Solids, mg/l	45
2	Total Dissolved Solids, mg/l	77
3	COD, mg/l	24
4	BOD for 3 days at 27°C, mg/l	8
5	Total Solids	87
6	Oil and Grease, mg/l	5

Sample Type: **Canteen waste water**

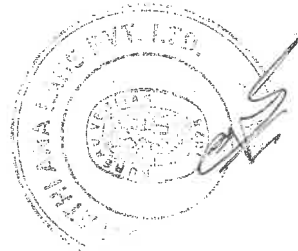
Date of sampling: **26.05.2017**

Sl.No	Test	Result
1	Total Suspended Solids, mg/l	49
2	Total Dissolved Solids, mg/l	66
3	COD, mg/l	26.4
4	BOD for 3 days at 27°C, mg/l	13.2
5	Total Solids	71
6	Oil and Grease, mg/l	5

SOIL SAMPLING LOCATIONS

Sl. No	Code	Name of Sampling Station
1	S-1	Non-mineralised afforested area
2	S-2	Overburden dump
3	S-3	Rice Plot (Near Durgmanwad)
4	S-4	Jawar Plot (Near Padsali)
5	S-5	Forest soil (Near Chavanwadi)

Sl. No.	Parameter	Unit	S1	S2	S3	S4	S5
1	pH (1:2 Soil Water Extract)	-	6	5.67	6.33	6.12	6.24
2	Electrical Conductivity	$\mu\text{S}/\text{cm}$	100	107	123	109	90
3	Total Soluble Salts	mg/kg	113	134	133	109	106
4	Nitrate as N	mg/kg	21	12	17	28	11
5	Phosphorous as P_2O_5	mg/kg	29	28	49	52	36
6	Potash as K_2O	mg/kg	57	12	67	72	70
7	Sodium as Na_2O	mg/kg	88	67	82	109	123
8	Calcium as Ca	mg/kg	550	412	500	688	644
9	Magnesium as Mg	mg/kg	134	100	121	107	99
10	Chloride as Cl	mg/kg	10	17	18	28	15
11	Organic carbon	%	0.25	0.24	0.59	0.49	0.59
12	Texture	-	SANDY LOAM	SANDY LOAM	SANDY CLAY	SANDY LOAM	SANDY SILT
13	Sand	%	60	55	45	50	50
14	Silt	%	25	25	29	30	21
15	Clay	%	25	20	26	20	19



DURGAMANWADI MINES

WELL DEPTHS OF VILLAGES

S.NO.	LOCATION	NAME OF THE MINE AREA	TOTAL DEPTH IN MTS	WATER LEVEL FROM SURFACE IN MTS
				27/5/2017
1	PADALI VILLAGE	DMW	7.00	3.0
2	CHAVANWADI VILLAGE	DMW	2.80	0.70



DURGAMANWADI BAUXITE MINE

**RADHANAGARI TALUKA,
KOLHAPUR DISTRICT
MAHARASHTRA**

M/S HINDALCO INDUSTRIES LIMITED

ENVIRONMENTAL QUALITY MONITORING REPORT

**MONSOON 2017
(JUNE, JULY, AUGUST)**

IND.BH.41.16.0322/HSR

Bhagavathi Ana Labs Pvt. Ltd.,

**7-2-C-14, Industrial Estate,
Sanathnagar, Hyderabad
500 018**

CONTENTS

TITLE

WATER QUALITY

TALGAON VILLAGE

Location Name	:	Talgaon village			
Date	:	10.08.2017	Sample Type	:	Ground water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.50
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	5.0
7	Total Dissolved Solids	mg/l	71
8	Total Suspended Solids	mg/l	34
9	Alkalinity as CaCO ₃	mg/l	27.0
10	Total Hardness as CaCO ₃	mg/l	36.2
11	Nitrates NO ₃	mg/l	0.44
12	Phosphates PO ₄	mg/l	0.01
13	Chlorides as Cl	mg/l	16.4
14	Sulphates as SO ₄ ²⁻	mg/l	3.7
15	Sodium as Na.	mg/l	6.2
16	Potassium as K	mg/l	4.3
17	Calcium as Ca	mg/l	9.3
18	Magnesium as Mg	mg/l	4.3
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.01
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.10
26	Fluoride as F	mg/l	0.01
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	<5

BDL: Below Detectable Limit

mg/l: - Milligram per liter

DURGAMANWADI VILLAGE

Location Name	:	Durgamanwadi village			
Date	:	10.08.2017	Sample Type	:	Ground water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.66
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	5.30
7	Total Dissolved Solids	mg/l	153
8	Total Suspended Solids	mg/l	16
9	Alkalinity as CaCO ₃	mg/l	56
10	Total Hardness as CaCO ₃	mg/l	60.0
11	Nitrates NO ₃	mg/l	1.7
12	Phosphates PO ₄	mg/l	0.02
13	Chlorides as Cl	mg/l	34
14	Sulphates as SO ₄ ²⁻	mg/l	11.6
15	Sodium as Na.	mg/l	17
16	Potassium as K	mg/l	12
17	Calcium as Ca	mg/l	13.3
18	Magnesium as Mg	mg/l	6.7
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.02
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.07
26	Fluoride as F	mg/l	0.02
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	<5

BDL: Below Detectable Limit

mg/l: - Milligram per liter

CHAVANWADI VILLAGE

Location Name	:	Chavanwadi village
Date	:	10.08.2017
Sample Type	:	Ground water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.53
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	4.00
7	Total Dissolved Solids	mg/l	46
8	Total Suspended Solids	mg/l	22
9	Alkalinity as CaCO ₃	mg/l	12.0
10	Total Hardness as CaCO ₃	mg/l	27.1
11	Nitrates NO ₃	mg/l	0.16
12	Phosphates PO ₄	mg/l	0.02
13	Chlorides as Cl	mg/l	14
14	Sulphates as SO ₄ ²⁻	mg/l	3.3
15	Sodium as Na.	mg/l	3.2
16	Potassium as K	mg/l	1
17	Calcium as Ca	mg/l	7.2
18	Magnesium as Mg	mg/l	2.7
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.01
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.06
26	Fluoride as F	mg/l	0.01
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	<5

BDL: Below Detectable Limit

mg/l: - Milligram per liter

PADSALI VILLAGE

Location Name	:	Padsali village			
Date	:	10.08.2017	Sample Type	:	Surface water

Sl. No.	Parameter	Unit	
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.64
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	4.30
7	Total Dissolved Solids	mg/l	38
8	Total Suspended Solids	mg/l	22
9	Alkalinity as CaCO ₃	mg/l	16
10	Total Hardness as CaCO ₃	mg/l	23.9
11	Nitrates NO ₃	mg/l	0.29
12	Phosphates PO ₄	mg/l	0.02
13	Chlorides as Cl	mg/l	7.6
14	Sulphates as SO ₄ ²⁻	mg/l	2
15	Sodium as Na.	mg/l	1.8
16	Potassium as K	mg/l	1
17	Calcium as Ca	mg/l	4.9
18	Magnesium as Mg	mg/l	2.9
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.01
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.07
26	Fluoride as F	mg/l	0.01
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	<5

BDL: Below Detectable Limit

mg/l: - Milligram per liter

TULSI STREAM

Location Name	:	Tulsi stream
Date	:	10.08.2017
Sample Type	:	Surface Water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.54
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	7.40
7	Total Dissolved Solids	mg/l	131
8	Total Suspended Solids	mg/l	44
9	Alkalinity as CaCO ₃	mg/l	42.4
10	Total Hardness as CaCO ₃	mg/l	60.2
11	Nitrates NO ₃	mg/l	0.79
12	Phosphates PO ₄	mg/l	0.03
13	Chlorides as Cl	mg/l	36
14	Sulphates as SO ₄ ²⁻	mg/l	7
15	Sodium as Na.	mg/l	13.4
16	Potassium as K	mg/l	9
17	Calcium as Ca	mg/l	14
18	Magnesium as Mg	mg/l	6.4
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.02
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.04
26	Fluoride as F	mg/l	0.01
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	<5

BDL: Below Detectable Limit

mg/l: - Milligram per liter

MINE ACCUMULATED WATER

Location Name	:	Mine Accumulated Water			
Date	:	10.08.2017	Sample Type	:	Surface Water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.34
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	7.00
7	Total Dissolved Solids	mg/l	43
8	Total Suspended Solids	mg/l	46
9	Alkalinity as CaCO ₃	mg/l	13.9
10	Total Hardness as CaCO ₃	mg/l	24.6
11	Nitrates NO ₃	mg/l	0.4
12	Phosphates PO ₄	mg/l	0.01
13	Chlorides as Cl	mg/l	12.3
14	Sulphates as SO ₄ ²⁻	mg/l	1.6
15	Sodium as Na.	mg/l	3
16	Potassium as K	mg/l	1.7
17	Calcium as Ca	mg/l	7.3
18	Magnesium as Mg	mg/l	2.5
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.03
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.03
26	Fluoride as F	mg/l	0.01
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	<5

SURFACE RUNOFF

Location Name	:	Surface Run off			
Date	:	10.08.2017	Sample Type	:	Surface Water

Sl. No.	Parameter	Unit	Result
1	Odour		Un-objectionable
2	Taste		Agreeable
3	Colour	Hazen Units	<5
4	pH		6.71
5	Turbidity	NTU	<5
6	Dissolved Oxygen	mg/l	4.30
7	Total Dissolved Solids	mg/l	40
8	Total Suspended Solids	mg/l	49
9	Alkalinity as CaCO ₃	mg/l	17
10	Total Hardness as CaCO ₃	mg/l	15.0
11	Nitrates NO ₃	mg/l	0.33
12	Phosphates PO ₄	mg/l	0.03
13	Chlorides as Cl	mg/l	8
14	Sulphates as SO ₄ ²⁻	mg/l	2.2
15	Sodium as Na.	mg/l	6
16	Potassium as K	mg/l	2.3
17	Calcium as Ca	mg/l	4
18	Magnesium as Mg	mg/l	1.7
19	Lead (Pb)	mg/l	BDL
20	Manganese as Mn	mg/l	0.01
21	Cadmium (Cd)	mg/l	BDL
22	Chromium (Cr)	mg/l	BDL
23	Copper (Cu)	mg/l	BDL
24	Zinc (Zn)	mg/l	BDL
25	Iron as Fe	mg/l	0.02
26	Fluoride as F	mg/l	0.01
27	Mercury as (Hg)	mg/l	BDL
28	Selenium as Se	mg/l	BDL
29	Arsenic as As	mg/l	BDL
30	Cyanide as CN	mg/l	BDL
31	Boron as B	mg/l	BDL
32	B.O.D (3 days 27°C)	mg/l	<5

DOMESTIC EFFLUENT ANALYSISSample Type: **Canteen waste water**

Date of sampling: 10.08.2017

Sl.No	Test	Result
1	Total Suspended Solids, mg/l	76
2	Total Dissolved Solids, mg/l	101
3	COD, mg/l	55
4	BOD for 3 days at 27°C, mg/l	23
5	Total Solids	103
6	Oil and Grease, mg/l	5

Sample Type: **Canteen waste water**

Date of sampling: 11.08.2017

Sl.No	Test	Result
1	Total Suspended Solids, mg/l	90
2	Total Dissolved Solids, mg/l	100
3	COD, mg/l	66
4	BOD for 3 days at 27°C, mg/l	21
5	Total Solids	103
6	Oil and Grease, mg/l	4.2