

Ref: HZL/Maton/RSPCB/2017-18/32

Date: 25.09.2017

To,
The Member Secretary,
Rajasthan Pollution Control Board,
4, Institutional Area,
Jhalana Doongri, Jaipur (Raj.) – 302004.

Sub: Environment Statement for the year **2016-17** for **Maton Rock Phosphate Mine.**

Ref: 1. Consent to operate vide no. F(Mines)/Udaipur(Girwa)/1828(1)/2015-2016/2263-2267, dtd.
08.09.2015
2. Environment Clearance No. J-11015/169/2009-IA.II(M), Dated 17.03.2010.

Sir,

Please find enclosed herewith the **Environmental Statement** for the year **2016-17** for **Maton Rock Phosphate Mine.**

Thanking you,

For Maton Rock Phosphate Mine

(Amar Singh Gohil)
Mines Manager

Manager (Mines)
Hindustan Zinc Ltd.
Maton Rock Phosphate Mines
Udaipur (Raj.)

Encl.: As above

CC: 1. The Director,
Ministry of Environment, Forest & Climate Change,
Regional Office (Central Region), Kendriya Bhawan,
5th Floor, Sector "H", Aliganj, Lucknow (U.P.) – 226024.

2. The Regional Officer,
Rajasthan State Pollution Control Board,
F-470, Near UCCI Building, Madri Industrial Area,
Udaipur (Raj.) - 313003.

3. Office Copy (Env. Cell)

Hindustan Zinc Limited

Maton Rock Phosphate Mines.

P.O. - Maton, Th. - Girwa, Udaipur (Rajasthan) - 313003

Tel. : (+91-294) 2342093, Fax : + (91-294) - 2342092

Registered Office - Yashad Bhawan, Udaipur (Rajasthan) - 313004

www.hzindia.com

CIN : L27204RJ1966PLC001208

FORM – V
(ENVIRONMENTAL STATEMENT)
(See rule 14)

Environmental Statement for the financial year ending with 31st March, 2017

PART – A

- (i). Name and address of the owner / : Sh. Sunil Duggal
Occupier of the industry/ operation : Chief Operative Officer &
or process : Whole Time Director
Hindustan Zinc Limited
Yashad Bhawan
Udaipur 313001
- Name and address of unit head : Sh. Vijay Prakash Joshi,
Agent & Unit Head
Hindustan Zinc Limited
Maton Rock Phosphate Mine
Tehsil- Girwa,
Distt. Udaipur (Raj.) – 313003.
Phone : -0294-2342093
- (ii). Industry category : Red
Primary (STC code) : Mining of Rock Phosphate
minerals
- Secondary (STC code) : NA
- (iii). Production Capacity -Units : 1, 80,000 TPA of Rock
Phosphate ore Mining & Crushing
- (iv) Year of establishment : Production from the mines
commenced in 1973-74
and continued till 2001. Then mine
was closed during 2001-2008 and
restarted on 18.08.2009.
- (v). Date of last environmental statement : 22.09.2016
Submitted

PART – B

Water and Raw Material Consumption

(i) Water Consumption (m³/day)

Parameters	m ³ /day
Process	3.59
Domestic	2.74

Name of Product	Process water consumption (fresh water) per unit of product output	
	During the previous Financial year 2015-16	During the current year 2016-17
Rock Phosphate ore production	0.064 cum/MT *	0.149 cum/MT**

* Our product output is Rock Phosphate ore.

** Some of mining activities have been temporarily suspended since 01.11.2015.

(ii) Raw material consumption - NA

Name of raw material	Name of product	Consumption of raw material per unit of output (gm/MT)*	
		2015-16	2016-17
Nil	-	-	-

* Raw material consumption is shown as grams per tonne of ore treatment.

Production	2015-16 (MT)	2016-17 (MT)
Ore Production	56529.90*	8798.00**

* Some of mining activities have been temporarily suspended since 01.11.2015.

** This is not a new excavation. Due to shifting of earlier excavated ore to outside mine lease, it has been declared as production.

PART – C

POLLUTION DISCHARGED TO ENVIRONMENT/UNIT OF OUTPUT (Parameters as specified in the consent issued)

Sr. No	Pollutants	Quantity of pollutants discharged	Concentration of pollutants in discharge (mass/volume)	%age of variation from prescribed standards and reason
a	Water	Zero discharge		As per the discharge consent granted by the RSPCB.

b	Air dust emission from stack (SPM)	-	-	Air emission as per consent granted by RSPCB which is within limits
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PART – D

HAZARDOUS WASTE

[As specified under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016]

Hazardous wastes	Total quantity during the year (2016-17)
a. From Process (Used oil)	Nil
b. From pollution control facility	Nil

PART – E

SOLID WASTE

Sr. No.		Total quantity during the year	
		2015-16	2016-17
a	From process	Nil	Nil
b	From pollution control facility	Nil	Nil
C	1. Quantity recycled or reutilized	Nil	Nil
	2. Solid (Over burden)	1113645.31	Nil
	3. Disposed	Nil	Nil

PART – F

Please specify the characterizations (in terms of composition and quantum) of hazardous as well solid wastes and indicate disposal practice adopted for both these categories of waste.

The Solid Waste (waste rock or overburden) generated is stacked systematic at earmarked site in 10m x 10m lifts.

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production:

- Mine pit water is being used in dust suppression on haul road.
- Planted 7500 saplings in 2016-17 covering an area of 4.5 hectare for environmental protection and green belt coverage around mine area.

PART – H

Addition measures / investment proposal for environmental protection including abatement of pollution, prevention of pollution.

The following works are completed to improve the working environment

1. Haul road dust suppression by use of water spray to reduce air born dust.

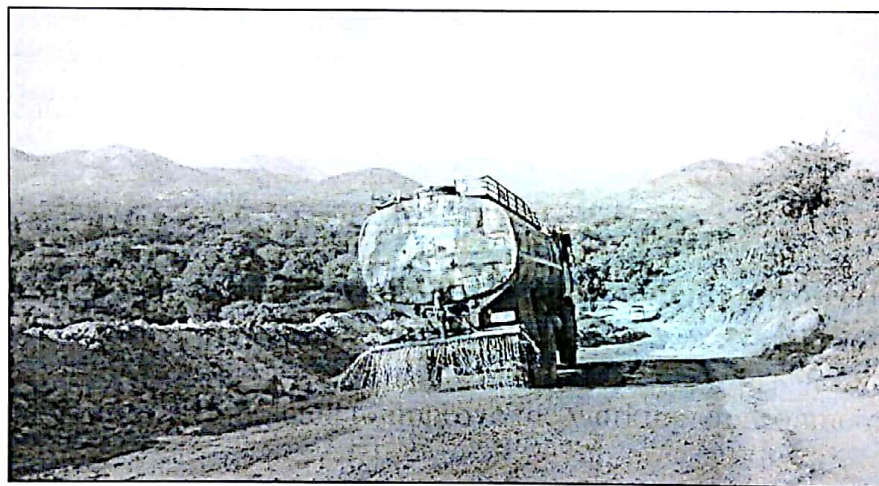


Fig : Water sprinkling

PART-I

Any other particulars for improving the quality of the environment:

1. Plantation

- Plantation of 8000 plants is planned for FY 2017-18.

2. Water pollution control:

- Quality of mine water and ground water in and around the mine complex is being monitored on quarterly basis (enclosed as **Annexure-2**).
- Garland drains all around the mine pit and waste dump with collection sump
- Zero discharge is maintained

3. Air pollution control:

- Wet drilling operation

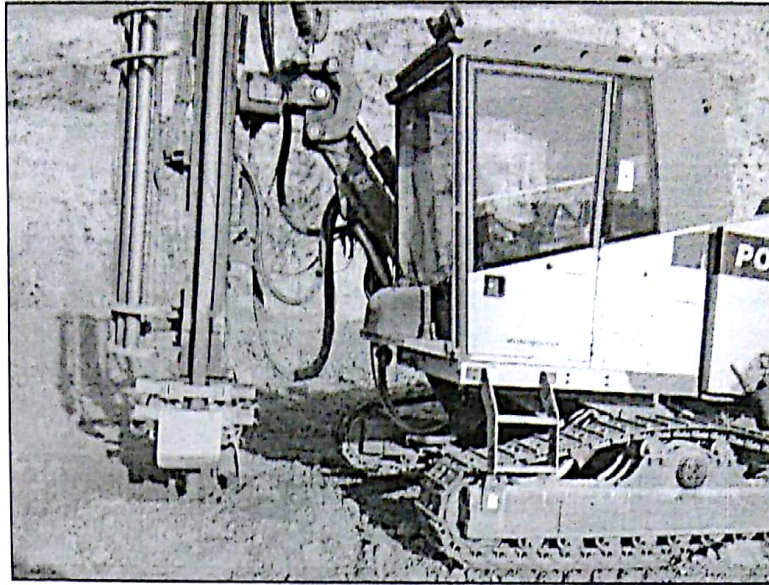


Fig : Wet Drilling

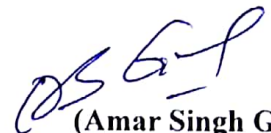
- Water sprinkling on haul roads and loading points
- Twice a month monitoring of ambient air at 5 locations for Ambient Air Quality (enclosed as **Annexure-1**).

4.. **Noise control:**

- Plantation for attenuation of noise.
- Use of PPEs
- Noise monitoring on quarterly basis (enclosed as **Annexure-3**).

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(Amar Singh Gohil)
Mines Manager

Manager (Mines)
Hindustan Zinc Ltd.
Maton Rock Phosphate Mines
Udaipur (Raj.)

Annexure-1
HINDUSTAN ZINC LIMITED, MATON ROCK PHOSPHATE MINE

Ambient Air Quality Monitoring Results*

Name of Location	April' 2016							
	PM 2.5 (µg/m3)	PM10 (µg/m3)	SO ₂ (µg/m3)	NO ₂ (µg/m3)	SiO ₂ (µg/m3)	PO4 (µg/m3)	Lead (µg/m3)	CO (ppm)
Mine office	44.17	90.38	5.37	7.99	5.87	0.519	BDL	<01
Umarada Village	34.96	68.36	4.91	6.98	4.83	0.405	BDL	<01
Lakadwas Village	33.15	67.45	4.39	7.06	5.13	0.355	BDL	<01
Mattoon Village	32.08	67.43	4.24	6.26	3.84	0.251	BDL	<01
Kharbadiya Village	35.22	75.52	4.72	6.51	4.18	0.276	BDL	<01

Name of Location	May' 2016							
	PM 2.5 (µg/m3)	PM10 (µg/m3)	SO ₂ (µg/m3)	NO ₂ (µg/m3)	SiO ₂ (µg/m3)	PO4 (µg/m3)	Lead (µg/m3)	CO (ppm)
Mine office	44.21	88.86	5.49	8.24	6.64	0.547	BDL	<01
Umarada Village	37.08	72.10	5.04	7.25	5.69	0.435	BDL	<01
Lakadwas Village	34.52	70.67	4.69	7.62	5.19	0.401	BDL	<01
Mattoon Village	31.81	66.90	4.81	6.62	4.66	0.296	BDL	<01
Kharbadiya Village	30.66	65.97	5.23	7.43	4.15	0.265	BDL	<01

Name of Location	June' 2016							
	PM 2.5 (µg/m3)	PM10 (µg/m3)	SO ₂ (µg/m3)	NO ₂ (µg/m3)	SiO ₂ (µg/m3)	PO4 (µg/m3)	Lead (µg/m3)	CO (ppm)
Mine office	45.02	85.65	5.40	8.11	7.17	0.481	BDL	<01
Umarada Village	38.06	72.74	5.10	7.91	4.71	0.424	BDL	<01
Lakadwas Village	33.48	70.66	4.64	7.54	5.14	0.362	BDL	<01
Mattoon Village	32.16	67.29	4.73	6.73	4.51	0.294	BDL	<01
Kharbadiya Village	33.20	60.95	5.09	7.23	4.19	0.294	BDL	<01

* Average for the month

Annexure-1
HINDUSTAN ZINC LIMITED, MATON ROCK PHOSPHATE MINE

Ambient Air Quality Monitoring Results*

July' 2016									
Name of Location	PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM10 ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	SiO ₂ ($\mu\text{g}/\text{m}^3$)	PO ₄ ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	CO (ppm)	
Mine office	48.33	85.51	5.63	8.28	7.38	0.516	BDL	<01	
Umarada Village	40.13	73.10	5.54	8.26	5.13	0.423	BDL	<01	
Lakadwas Village	34.90	67.88	4.93	8.05	5.72	0.372	BDL	<01	
Matoon Village	33.54	62.23	5.12	7.84	5.47	0.383	BDL	<01	
Kharbadiya Village	22.35	57.04	5.49	7.62	5.53	0.298	BDL	<01	

August' 2016									
Name of Location	PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM10 ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	SiO ₂ ($\mu\text{g}/\text{m}^3$)	PO ₄ ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	CO (ppm)	
Mine office	44.00	85.58	5.60	8.39	6.67	0.512	BDL	<01	
Umarada Village	33.05	66.53	5.29	7.90	4.55	0.355	BDL	<01	
Lakadwas Village	33.81	64.78	4.71	7.66	4.67	0.330	BDL	<01	
Matoon Village	31.67	62.08	4.69	7.36	4.94	0.291	BDL	<01	
Kharbadiya Village	32.62	58.09	4.97	7.37	4.49	0.290	BDL	<01	

September' 2016									
Name of Location	PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM10 ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	SiO ₂ ($\mu\text{g}/\text{m}^3$)	PO ₄ ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)	CO (ppm)	
Mine office	42.79	82.21	5.51	8.47	7.06	0.463	BDL	<01	
Umarada Village	31.63	67.52	5.34	7.93	4.97	0.343	BDL	<01	
Lakadwas Village	34.56	66.78	4.75	7.96	4.66	0.332	BDL	<01	
Matoon Village	31.71	61.08	4.54	7.66	4.52	0.277	BDL	<01	
Kharbadiya Village	33.43	55.87	4.48	7.36	4.23	0.276	BDL	<01	
Average for the month									

Monitoring Display Board



HINDUSTAN ZINC LIMITED

MATON ROCK PHOSPHATE MINES

INFORMATION REQUIRED VIDE MoEF CIRCULAR NO J-20012/11/2006-1A (M) DATED 27th MAY 2016



STATIC INFORMATION					
Mining Lease Area(ha.)	14.13				
Method of Mining	Open cast Mechanized				
Production Capacity	0.18MTPA of Rock Phosphate ore				
Lease Duration	16th 2010, Mining lease renewal under process				
Date of commencement of work	1973-74				

DYNAMIC INFORMATION																														
Ambient Air Quality	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Area (Block)</th> <th>Maton Village</th> <th>Khanwara Village</th> <th>Udholan Village</th> <th>Barwala Village</th> </tr> </thead> <tbody> <tr> <td>PM10 (µg/m³)</td> <td>8.0</td> <td>11.0</td> <td>12.0</td> <td>12.0</td> </tr> <tr> <td>PM2.5 (µg/m³)</td> <td>12.0</td> <td>12.0</td> <td>12.0</td> <td>12.0</td> </tr> <tr> <td>SOx (µg/m³)</td> <td>1.0</td> <td>1.0</td> <td>1.0</td> <td>1.0</td> </tr> <tr> <td>NOx (µg/m³)</td> <td>1.0</td> <td>1.0</td> <td>1.0</td> <td>1.0</td> </tr> </tbody> </table>					Area (Block)	Maton Village	Khanwara Village	Udholan Village	Barwala Village	PM10 (µg/m³)	8.0	11.0	12.0	12.0	PM2.5 (µg/m³)	12.0	12.0	12.0	12.0	SOx (µg/m³)	1.0	1.0	1.0	1.0	NOx (µg/m³)	1.0	1.0	1.0	1.0
Area (Block)	Maton Village	Khanwara Village	Udholan Village	Barwala Village																										
PM10 (µg/m³)	8.0	11.0	12.0	12.0																										
PM2.5 (µg/m³)	12.0	12.0	12.0	12.0																										
SOx (µg/m³)	1.0	1.0	1.0	1.0																										
NOx (µg/m³)	1.0	1.0	1.0	1.0																										
Peak particle velocity (mm/sec)	1.0																													
Plantation Details (till date)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Area (ha)</th> <th>Number of Plants</th> </tr> </thead> <tbody> <tr> <td>1.0</td> <td>2500</td> </tr> </tbody> </table>					Area (ha)	Number of Plants	1.0	2500																					
Area (ha)	Number of Plants																													
1.0	2500																													
Quality of discharge water	Zero discharge maintained																													

Last updated on - 15th 2016

Annexure-1

HINDUSTAN ZINC LIMITED, MATON ROCK PHOSPHATE MINE

Ambient Air Quality Monitoring Results*

October' 2016								
Name of Location	PM 2.5 (µg/m3)	PM10 (µg/m3)	SO ₂ (µg/m3)	NO ₂ (µg/m3)	SiO ₂ (µg/m3)	PO ₄ (µg/m3)	Lead (µg/m3)	CO (ppm)
Mine office	42.33	82.69	5.69	8.54	7.54	0.476	BDL	<01
Umarada Village	33.00	75.33	5.62	8.09	5.07	0.355	BDL	<01
Lakadwas Village	34.82	68.81	5.11	8.15	4.71	0.358	BDL	<01
Mattoon Village	30.28	61.17	4.44	7.20	5.06	0.282	BDL	<01
Kharbadiya Village	31.10	60.23	4.50	7.23	4.63	0.270	BDL	<01

November' 2016								
Name of Location	PM 2.5 (µg/m3)	PM10 (µg/m3)	SO ₂ (µg/m3)	NO ₂ (µg/m3)	SiO ₂ (µg/m3)	PO ₄ (µg/m3)	Lead (µg/m3)	CO (ppm)
Mine office	39.21	81.38	7.67	10.48	8.26	0.731	BDL	<01
Umarada Village	36.41	62.11	8.00	9.92	8.84	0.556	BDL	<01
Lakadwas Village	33.29	61.74	7.58	9.67	8.88	0.524	BDL	<01
Mattoon Village	32.57	56.05	7.00	9.17	8.80	0.450	BDL	<01
Kharbadiya Village	31.25	58.05	6.66	8.62	8.55	0.417	BDL	<01

December' 2016								
Name of Location	PM 2.5 (µg/m3)	PM10 (µg/m3)	SO ₂ (µg/m3)	NO ₂ (µg/m3)	SiO ₂ (µg/m3)	PO ₄ (µg/m3)	Lead (µg/m3)	CO (ppm)
Mine office	40.76	92.58	7.77	9.91	7.94	0.793	BDL	<01
Umarada Village	32.94	67.55	8.78	10.15	6.89	0.503	BDL	<01
Lakadwas Village	32.07	69.49	8.42	9.61	7.56	0.499	BDL	<01
Mattoon Village	31.33	61.03	8.15	10.21	8.37	0.440	BDL	<01
Kharbadiya Village	31.08	60.45	7.33	8.82	7.12	0.358	BDL	<01

* Average for the month

Annexure-1
HINDUSTAN ZINC LIMITED, MATON ROCK PHOSPHATE MINE

Ambient Air Quality Monitoring Results*

January' 2017								
Name of Location	PM 2.5 (µg/m3)	PM10 (µg/m3)	SO ₂ (µg/m3)	NO ₂ (µg/m3)	SiO ₂ (µg/m3)	PO4 (µg/m3)	Lead (µg/m3)	CO (ppm)
Mine office	42.17	90.14	7.74	9.67	7.60	0.726	0.001	<01
Umarada Village	34.92	74.03	8.76	9.50	6.16	0.540	0.001	<01
Lakadwas Village	33.53	70.61	8.23	9.90	6.55	0.492	0.001	<01
Matoon Village	33.33	62.12	8.04	9.00	7.18	0.447	0.001	<01
Kharbadiya Village	34.10	63.79	7.20	7.99	6.24	0.388	0.001	<01

February' 2017								
Name of Location	PM 2.5 (µg/m3)	PM10 (µg/m3)	SO ₂ (µg/m3)	NO ₂ (µg/m3)	SiO ₂ (µg/m3)	PO4 (µg/m3)	Lead (µg/m3)	CO (ppm)
Mine office	45.41	87.18	7.65	9.77	8.13	0.617	0.001	<01
Umarada Village	35.94	79.22	8.68	10.00	5.70	0.393	0.001	<01
Lakadwas Village	31.62	69.97	7.77	9.43	4.87	0.347	0.001	<01
Matoon Village	34.02	61.72	7.24	8.98	5.41	0.308	0.001	<01
Kharbadiya Village	32.64	67.77	6.77	8.18	4.77	0.287	0.001	<01

March' 2017								
Name of Location	PM 2.5 (µg/m3)	PM10 (µg/m3)	SO ₂ (µg/m3)	NO ₂ (µg/m3)	SiO ₂ (µg/m3)	PO4 (µg/m3)	Lead (µg/m3)	CO (ppm)
Mine office	44.42	89.82	9.47	11.16	8.22	0.677	0.001	<01
Umarada Village	35.33	79.30	8.79	10.19	6.68	0.459	0.001	<01
Lakadwas Village	34.20	72.78	8.97	10.21	6.12	0.382	0.001	<01
Matoon Village	35.11	60.69	6.90	9.03	6.01	0.357	0.001	<01
Kharbadiya Village	31.67	64.28	6.68	8.47	5.90	0.332	0.001	<01

* Average for the month

HINDUSTAN ZINC LIMITED, MATON ROCK PHOSPHATE MINE

Water Analysis Report, May 2016

S. No.	Parameters	Unit	IS:10500 Drinking Water Specification	Mine Lease Area	Maton Village	Kharwaria Village	Lakarwas Village	Umrada Village	Kanpur Village	Nakoli Village
1	pH (at 25°C)	-	6.5 to 8.5	7.49	7.29	7.12	6.72	7.09	7.22	7.28
2	Conductivity (at 25°C)	ms	-	1.653	2.042	1.52	3.335	1.123	2.468	1.512
3	Color	Hazen	5	<5	<5	<5	<5	<5	<5	<5
4	Odour	-	Unacceptable	Odourless	Odourless	Odourless	Odourless	Odourless	Odourless	Odourless
5	Taste	-	Acceptable	Normal	Normal	Normal	Normal	Normal	Normal	Normal
6	TDS	mg/L	500	772	1680	1096	1972	726	1602	954
7	TSS	mg/L	-	2	8	6	16	6	2	8
8	Total hardness as CaCO ₃	mg/L	300	550	592	548	596	548	592	500
9	Calcium as Ca ²⁺	mg/L	75	120	156.8	126.4	163.2	116.8	144	131.2
10	Magnesium as Mg ²⁺	mg/L	30	74.4	48	55.68	45.12	61.44	55.68	41.28
11	Alkalinity	mg/L	200	500	376	308	324	348	340	384
12	Chlorides as Cl ⁻	mg/L	250	225	440	432	605	98	485	348
13	Oil & Grease	mg/L	0.01	Nil	Nil	Nil	Nil	Nil	Nil	Nil
14	Silica as SiO ₂	mg/L	-	10.4	9.28	8.97	6.8	10.9	9.5	8.68
15	Dissolve Oxygen	mg/L	-	6	6	6	5.9	5.8	5.9	5.8
16	Residual Chlorine	mg/L	0.2	Nil	Nil	Nil	Nil	Nil	Nil	Nil
17	B.O.D. 3 days @ 27°C	mg/L	-	0.8	1.2	0.8	1.4	1.4	0.5	0.2
18	Chemical Oxygen Demand	mg/L	-	16.04	12.04	12.04	12.04	8.02	4.01	4.01
19	Copper as Cu	mg/L	0.05	Nil	Nil	Nil	Nil	Nil	Nil	Nil
20	Fluoride as F ⁻	mg/L	1	0.6	0.6	0.5	1.2	0.6	0.5	0.6
21	Phosphate	mg/L	-	0.24	0.036	0.07	1.05	0.84	0.46	0.68
22	Sulphate as SO ₄ ²⁻	mg/L	200	53.61	230.92	141.24	280.41	39.17	207.22	91.75
23	Nitrate as NO ₃ ⁻	mg/L	45	19.7	32.3	11.06	20.88	20.51	13.77	10.8
24	Zinc	mg/L	5	0.041	0.031	0.01	0.041	0.018	<0.01	0.016
25	Lead	mg/L	0.05	<0.01	<0.01	<0.01	<0.01	0	<0.01	<0.01
26	Potassium as K	mg/L	-	3.98	4.82	5.92	3.61	8.74	5.74	4.08
27	Sodium as Na	mg/L	-	90.2	155.6	74.4	29.54	52.27	158.8	44.46
28	Manganese as Mn	mg/L	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
29	Iron as Fe	mg/L	0.3	0.01	Nil	Nil	Nil	<0.01	Nil	Nil

HINDUSTAN ZINC LIMITED, MATON ROCK PHOSPHATE MINE

Water Analysis Report, August 2016

S. No.	Parameters	Unit	IS:10500 Drinking Water Specification	Mine Lease Area	Maton Village	Kharwaria Village	Lakarwas Village	Umrada Village	Kanpur Village	Nakoli Village
1	pH (at 27°C)	-	6.5 to 8.5 No Relaxation	7.51	7.03	7.35	6.9	7.34	7.31	7.14
2	Conductivity (at 25°C)	ms	-	1.166	2.728	551.3	3.024	1.843	2.518	1.638
3	Color	Hazen	5 Unobjectionable	<5	<5	<5	<5	<5	<5	<5
4	Odour	-	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	TDS	mg/L	500	754	1772	356	1968	1198	1718	1096
7	TSS	mg/L	-	4	8	2	8	4	4	6
8	Total hardness as CaCO ₃	mg/L	300	220	548	188	584	580	596	532
9	Calcium as Ca ²⁺	mg/L	75	40	99.2	49.6	160	113.6	112	139.2
10	Magnesium as Mg ²⁺	mg/L	30	28.8	72	15.36	44.16	71.04	75.84	44.16
11	Alkalinity	mg/L	200	192	452	152	308	268	332	396
12	Chlorides as Cl ⁻	mg/L	250	205	251	102	590	104	490	354
13	Oil & Grease	mg/L	0.01	Traces	Traces	Traces	Traces	Traces	Traces	Traces
14	Silica as SiO ₂	mg/L	-	10.24	8.02	4.27	6.68	10.91	9.77	9.17
15	Dissolve Oxygen	mg/L	-	6.4	6.4	6.2	6.1	6.1	6.2	6
16	Residual Chlorine	mg/L	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
17	B.O.D. 3 days @ 27°C	mg/L	-	0.4	0.4	0.2	0.6	1	0.3	0.2
18	Chemical Oxygen Demand	mg/L	-	8.03	12.04	4.02	12.05	12.05	8.03	4.02
19	Copper as Cu	mg/L	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Fluoride as F ⁻	mg/L	1	0.1	0.6	0.3	1.2	0.6	0.5	0.6
21	Phosphate	mg/L	-	0.21	0.05	0.04	1.32	0.37	0.41	0.64
22	Sulphate as SO ₄ ²⁻	mg/L	200	40.19	213.72	48.03	262.74	42.16	208.8	94.12
23	Nitrate as NO ₃	mg/L	45	16.48	3.25	4.63	19.68	20.29	12.79	10.18
24	Zinc	mg/L	5	0.038	0.028	<0.01	0.049	0.019	<0.01	0.018
25	Lead	mg/L	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Potassium as K	mg/L	-	2.83	5.73	2.13	2.79	9.18	4.57	4.19
27	Sodium as Na	mg/L	-	101.3	148.9	12.18	31.38	121.8	163.6	52.18
28	Manganese as Mn	mg/L	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
29	Iron as Fe	mg/L	0.3	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

HINDUSTAN ZINC LIMITED, MATON ROCK PHOSPHATE MINE

Water Analysis Report, Nov 2016

S. No.	Parameters	Unit	Lakanwas Village	Kanpur Village	Khanwana Village	Nakoli Village	Unrada Village	Maton Village	Mine Lease Area
1	pH (at 27°C)	-	6.95	7.24	7.28	7.20	7.29	7.08	7.58
2	Conductivity (at 25°C)	ms	3.045	2.509	562.6	1.642	1.955	2.795	1.146
3	Color	Hazen	<5	<5	<5	<5	<5	<5	<5
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	TDS	mg/L	1698	1688	360	1028	1202	1690	766
7	TSS	mg/L	24	18	04	06	08	14	10
8	Total hardness as	mg/L	592	564	196	544	568	540	232
9	Calcium as Ca ²⁺	mg/L	163.2	108.8	52.8	142.4	110.4	96.0	43.2
10	Magnesium as Mg ²⁺	mg/L	44.16	74.88	15.36	45.12	70.08	72	29.76
11	Alkalinity	mg/L	316	324	144	388	376	450	204
12	Chlorides as Cl ⁻	mg/L	585	482	106	358	110	248	220
13	Oil & Grease	mg/L	Traces	Traces	Traces	Traces	Traces	Traces	Traces
14	Silica as SiO ₂	mg/L	6.73	9.56	4.33	8.99	10.69	8.16	10.21
15	Dissolve Oxygen	mg/L	6.0	6.30	6.50	6.20	6.3	6.2	6.2
16	Residual Chlorine	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
17	B.O.D. 3 days @ 27°C	mg/L	0.60	0.20	0.30	0.30	0.80	0.20	0.30
18	Chemical Oxygen	mg/L	12.05	8.03	8.03	12.05	8.03	16.06	8.03
19	Copper as Cu	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Fluoride as F	mg/L	1.20	0.40	0.40	0.50	0.50	0.40	0.20
21	Phosphate	mg/L	1.53	0.42	0.05	0.65	0.38	0.06	0.22
22	Sulphate as SO ₄ ²⁻	mg/L	271.28	206.93	47.52	98.02	44.55	219.90	38.61
23	Nitrate as NO ₃	mg/L	19.80	12.67	4.60	10.12	20.29	3.32	16.97
24	Zinc	mg/L	0.046	<0.01	<0.01	0.021	0.022	0.032	0.036
25	Lead	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Potassium as K	mg/L	2.91	4.72	2.30	4.38	9.78	5.81	2.78
27	Sodium as Na	mg/L	33.10	158.5	11.70	49.72	11.88	150.8	162.70
28	Manganese as Mn	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
29	Iron as Fe	mg/L	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01

HINDUSTAN ZINC LIMITED, MATON ROCK PHOSPHATE MINE

Water Analysis Report, Feb. 2017

S. No.	Parameters	Unit	Lakarwas Village	Kanpur Village	Kharwara Village	Nakoli Village	Umrao Village	Maton Village	Mine Lease Area
1	pH (at 25°C)	-	6.81	7.30	7.31	7.32	7.44	7.01	7.71
2	Conductivity (at 25°C)	ms	3310	2518	1800	1618	1434	2327	1401
3	Color	Hazen	<5	<5	<5	<5	<5	<5	<5
4	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	TDS	mg/L	1640	1794	1298	1078	1110	1662	816
7	TSS	mg/L	22	18	06	06	06	16	12
8	Total hardness as CaCO ₃	mg/L	588	576	560	432	560	552	296
9	Calcium as Ca ²⁺	mg/L	160.0	110.4	142.4	124.8	108.8	116.8	46.4
10	Magnesium as Mg ²⁺	mg/L	45.12	72.0	48.9	28.8	69.12	62.4	33.6
11	Alkalinity	mg/L	316	336	380	330	364	420	212
12	Chlorides as Cl ⁻	mg/L	590	510	370	320	100	304	226
13	Oil & Grease	mg/L	Traces	Traces	Traces	Traces	Traces	Traces	Traces
14	Silica as SiO ₂	mg/L	6.82	9.66	4.48	9.05	9.67	8.32	9.92
15	Dissolve Oxygen	mg/L	5.9	6.0	6.1	6.0	6.1	6.0	6.0
16	Residual Chlorine	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
17	B.O.D. 3 days @ 27°C	mg/L	0.60	0.30	0.50	0.20	0.70	0.30	0.30
18	Chemical Oxygen Demand	mg/L	12.3	12.3	12.3	8.20	6.20	16.40	8.20
19	Copper as Cu	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Fluoride as F	mg/L	1.2	0.40	0.40	0.50	0.50	0.40	0.20
21	Phosphate	mg/L	1.62	0.44	0.11	0.62	0.36	0.07	0.21
22	Sulphate as SO ₄	mg/L	267.6	204.04	139.4	98.98	41.4	206.1	40.4
23	Nitrate as NO ₃	mg/L	18.20	13.63	12.55	9.69	19.68	4.04	16.8
24	Zinc	mg/L	0.05	<0.01	<0.01	0.029	0.031	0.041	0.04
25	Lead	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Potassium as K	mg/L	3.10	5.10	4.58	4.80	8.92	6.51	3.12
27	Sodium as Na	mg/L	36.24	146.4	49.7	51.30	12.15	131.7	108.7
28	Manganese as Mn	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
29	Iron as Fe	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Annexure- 5

Hindustan Zinc Limited , Maton Rock phosphate Mine

NOISE MONITORING : May'2016

Location	Zone	Leq dB (A)		Ldn dB (A)
		Day	Night	
Mine lease area	Industrial Area	57.7	44.7	56.93
Kharwaria Village	Rural/Residential Area	53.6	41.7	53.10
Maton Village	Rural/Residential Area	54.7	44.1	54.48
Lakarwas Village	Commercial Area	52.3	39.8	51.63
Umarda village	Commercial Area	60.2	44.7	59.02
Near Udaisagar	Rural/Residential Area	54.0	39.5	52.97

Annexure- 5

Hindustan Zinc Limited, Maton Rock phosphate Mine

NOISE MONITORING : August'2016

Location	Zone	Leq dB (A)		Ldn dB (A)
		Day	Night	
Mine lease area	Industrial Area	57.5	45.0	51.15
Kharwara Village	Rural Residential Area	51.0	29.5	43.54
Maton Village	Rural Residential Area	52.8	26.1	51.87
Lakarwas Village	Commercial Area	52.0	35.7	51.12
Umarda Village	Commercial Area	58.5	31.1	53.16
Near Lida-saga	Rural Residential Area	53.5	40.2	52.25



Annexure- 5

Hindustan Zinc Limited , Maton Rock Phosphate Mine

NOISE MONITORING : November'2016

Location	Zone	Leq dB (A)		Ldn dB (A)
		Day	Night	
Mine lease area	Industrial Area	53.7	38.0	52.51
Kharwaria Village	Rural/Residential Area	49.5	41.7	53.10
Maton Village	Rural/Residential Area	52.6	41.5	52.27
Lakarwas Village	Commercial Area	55.3	37.0	53.85
Umarda village	Commercial Area	54.0	39.5	52.97
Near Udaisagar	Rural/Residential Area	54.7	44.1	54.48

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Annexure- 5

Hindustan Zinc Limited , Maton Rock Phosphate Mine

NOISE MONITORING : February'2017

Location	Zone	Leq dB (A)		Ldn dB (A)
		Day	Night	
Mine lease area	Industrial Area	53.0	41.0	52.45
Kharwaria Village	Rural/Residential Area	51.7	37.2	50.63
Maton Village	Rural/Residential Area	51.8	36.5	50.59
Lakarwas Village	Commercial Area	51.9	36.9	50.78
Umarda village	Commercial Area	51.2	40.3	50.89
Near Udaisagar	Rural/Residential Area	52.7	39.4	51.84

AS