



**CENTRAL COALFIELDS LIMITED**

*A Miniratna Company*

(A Subsidiary of Coal India Limited)

OFFICE OF THE GENERAL MANAGER

RAJHARA AREA, CHANDWA

Dist. :- LATEHAR, JHARKHAND, 829203



Ref No. GM (RA)/ Env/RO/JSPCB/2019/741

Dated: - 28/09/2019

To,  
The Regional Officer  
Regional Office, Ranchi  
JSPCB, Dhurwa, Ranchi

Subject: - Submission of Environmental Statement of Rajhara Area for the year 2018-19 submitted at September 2019

Dear Sir,

Please find enclosed here with the yearly Environmental Statement for the two mines of Rajhara Area for the period of 2018-19. This is for your record and further needful. The details of the projects are given below.

Name of the Project	Details of EC		
	Ref No.	ML Area (ha)	Capacity (MTPA)
Rajhara OCP	EC/SEIAA/2014-15/460/214/96	149.38	0.3/05
Tetariakhar OCP	J-11015/318/2009-IA.II(M)	155.58	2/2.5

Thanking You.



Yours Faithfully

28-09-19  
Area Environment Officer  
Rajhara Area

Copy To: -

- General Manager, Rajhara Area (For kind information)
- Project Officer (Rajhara OCP and TTK OCP)
- Office File.

# ENVIRONMENTAL STATEMENT

OF

TETARIAKHAR PROJECT

FOR

2018-19



SEPTEMBER, 2019

ENVIRONMENT DIVISION  
Rajhara Area  
CENTRAL COALFIELDS LIMITED



## **EXECUTIVE SUMMARY**

E.1.0 Every person carrying on an industry, operation or process requiring consent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) or section 21 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) or both or Authorization under the Hazardous Wastes (Management and Handling) Rules, 1989 issued under the Environment (Protection) Act, 1986 (29 of 1986) shall submit an environmental audit report for the financial year ending the 31st March in Form V to the concerned State Pollution Control Board on or before the thirtieth day of September every year, beginning 1993.]

E.2.0. Tetariakhar block is operating in the Rajhara area of Central Coalfields Ltd. It is located in the North Karanpura Coalfield Jharkhand.

E.3.0 Tetariakhar project comprises of an active opencast mine. The total Nominal production capacity of the mine is 2 MTPA & Peak capacity is 2.5 MTPA. (J-11015/318/2009-IA.II(M)). The production in the year 2018-19 was 1.03 MTY of coal. The grade of coal is F Grade.

E.4.0 Quarterly environmental monitoring has been carried out regularly by CMPDI for air , water & noise parameters at PO Office, workshop and Pinderkom village. The results of the four quarters of 2018-19 are enclosed herewith.

E.4.1 The concentration of SO<sub>2</sub>, NO<sub>x</sub> and CO in ambient air in Core Zone as well as in buffer zone is well within permissible limits.



- E.4.2 The concentration of SPM in Core Zone & Buffer Zone is also within permissible limits.
- E.4.3 At present, there is no problem of water pollution from the mine. The water quality parameters are found to be within permissible limits.
- E.4.4 The noise level is also within permissible limits.
- E.4.5 The OB generated is being dumped externally; physical and biological reclamation of OB dumps will be carried out soon.
- E.5.0 No hazardous waste is being produced either from production process or pollution control measures except for O.B.
- E.6.0 For air pollution control measures, regular spraying of water is being done on haul roads. Proper maintenance of HEMM and other equipment is being done to control noise pollution.

### Summarized Data

1.	<u>Production capacity</u>	:	<u>2.0/2.5 MTY</u>
2.	<u>Mineable Reserve</u>	:	<u>17.20 MT</u>
3.	<u>Total Volume of O.B.</u>	:	<u>16.84 M m<sup>3</sup></u>
4.	<u>Average Stripping Ratio</u>	:	<u>0.98 m<sup>3</sup>/Te</u>
5.	<u>Total land requirement</u>	:	<u>208.47 Ha</u>
6.	<u>Forest land requirement</u>	:	<u>NA</u>
7.	<u>Life of the Project</u>	:	<u>11 Years</u>
8.	<u>Average quality of coal</u>	:	<u>Grade F</u>
9.	<u>Average Rainfall / annum</u>	:	<u>1120 mm</u>
10.	<u>Temperature</u>	:	
	i. <u>Maximum</u>	:	<u>45 °c</u>
	ii. <u>Minimum</u>	:	<u>10 °c</u>

### 11 Magnitude of waste generated

	i.	<u>Waste water discharge from</u>	
a.	<u>Colony</u>	:	<u>Nil</u>
b.	<u>Workshop</u>	:	<u>Nil</u>
c.	<u>Mine</u>	:	<u>165 cum/d</u>
	ii.	<u>Solid Waste.</u>	
a.	<u>Top Soil</u>	:	<u>NA</u>
b.	<u>O.B.</u>	:	<u>1.98 Mm<sup>3</sup></u>

## **CHAPTER ONE**

### **1.0 Introduction**

The total coal production of Tetariakhar Opencast project in the year 2018-19 was 1.03 MTY coal.

### **2.0 Location**

Tetariakhar is located in the North Karanpura Coalfield in village – Tetariakhar, Block – Balumath , District- Latehar, Jharkhand. It lies between latitudes 23° 47' 57" N to 23° 48' 45" N and longitudes of 84°50'27"E to 84°51'14"E in the survey of India Toposheet No. 73 A/13(RF 1:50000). Nearest railway station is Mahuamilan at a distance of 21 km via Chakla. The railway station at Tori on the Barkakana-Dehri-on-Sone loop line of eastern railway is about 29 km from Tetariakhar OCP.

### **3.0 Topography & Drainage**

The area has a gentle rolling topography with small mounds and narrow elongated depressions. The minimum and maximum elevations in the area are 202 m and 212 m above mean sea level respectively. Comparatively high ground is towards north and centre of the area with gentle slope towards east, west and south. Bhutna Nalla and Mukhar Nalla controls the drainage of the area. These nalla culminates to Ramghat River

#### 4.0 **Geology**

In Tetariakhar OC the coal bearing formation Barakar lies unconfirmly over metamorphics. The Talchir and Karharbari Formations are absent in this sector. Barakar Formation is composed of sandstone, shale, sandy shale, carbonaceous shale and coal seams. There are five standard co-related coal seams of Barakar Formation occurring in Tetariakhar, in most of the cases seams are splitted and merged with other seam sections.

#### 5.0 **Mining System**

Tetariakhar is an old running opencast mining project for 2.5 MTPA with a balance mineable reserve of 17.2 MT and OB volume is 16.84 Mcu.m. with average stripping ratio 0.98 Cu.m.

Considering the geo mining characteristics of the mining block i.e. thick deposits at shallow depth, gradient of the seams, occurrence of geological disturbances, opencast method of mining with shovel-dumper combination is proposed to work in Tetariakhar mining block.



## ENVIRONMENTAL STATEMENT

### FORM-V

Environmental Statement for the Financial Year ending 31st March,

2018

### PART-A

- 
- (I) **Name and address of the project:** Tetariakhar OCP, Balumath  
Dist-Latehar, Jharkhand
- (II) **Industry Category :** Primary
- (III) **Production Capacity :** 2.50 Mt/y(peak)  
2.0 Mt/y (normal)
- (IV) **Date of Last Environmental Statement**  
**Report Submitted:** Sept., 2017
- 

### PART - B

#### WATER AND RAW MATERIAL CONSUMPTION

- (I) **Water Consumption (CUM/D)** :
- Mining : 165
- (a) Haul Road Dust Suppression : 48
- (b) Industrial & Firefighting : 112
- (d) Others: (Service building etc.) : 5
- Domestic : Nil
- Arboriculture : Nil

*330 m/side*

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Name of Product	Water Consumption per Unit of Product	
cum/Mt of coal	0.053	--
	2018-19	2017-18
Coal:	1.03 MTY	0.62 MTY

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## ENVIRONMENTAL STATEMENT

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### PART - B

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Name of Product		Water Consumption per Unit of Product
cum/Mt of coal	0.053	--
	2018-19	2017-18
Coal:	1.03 MTY	0.62 MTY



Note: Industrial water consumption is mainly due to fire fighting and miscellaneous operations and not directly linked with production.

**(II) RAW MATERIAL CONSUMPTION:**

Name of Raw Material	Consumption of Raw Material (Per unit of coal produced)	
	2018-19	2017-18
Fuel (l/Te):	0.345	--
Lubricants (l/Te):	0.018	--
Explosives (Kgs/Te):	1.00	0.40

However 103.04 Te of explosive and 355.97 Kl of Diesel and 18859 lits of Lubricants were used in coal production and OB removal in 2018-19.

**PART - C**

**POLLUTION DISCHARGED TO ENVIRONMENT / UNIT OF OUTPUT**

**(PARAMETERS SPECIFIED IN THE CONSENT ISSUED)**

POLLUTANTS	QUANTITY OF POLLUTANTS GENERATED	% VARIATION FROM PRESCRIBED STANDARDS WITH REASONS
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**WATER :****2018-19**

a.	From Process	NA	The water used is mostly for firefighting and dust suppression at haul roads. However The quality of mine water is mostly meeting the prescribed standard as given in Annexure.
b.	From W/S	4 m <sup>3</sup> /day	The water is being used at Service buildings, Pit Office, TTK OCP and Project Office, TTK OCP.
c.	Colony Effluent	NIL	

<b><u>AIR :</u></b>	It is difficult to quantify amount of air pollutants. Main air pollutant is SPM. The air quality results are appended as annexure	The quantity of SO <sub>x</sub> , NO <sub>x</sub> generated are all within prescribed Standard as given in Annexure.
<b><u>NOISE:</u></b>	The high noise in mining area owes its origin in and around excavation & material handling sites. There is no continuous sound frequency of impulsive nature. Ambient noise quality report are appended as Annexure.	The noise level in the project is within tolerance limits as given in Annexures.



## PART - D

### HAZARDOUS WASTES

(As specified under Hazardous Waste Management & Handling Rules, 1989)

The project does not produce and/or release any hazardous waste which is governed by Hazardous Waste Management and Handling Rules, 1989.

## PART - E

### SOLID WASTES

	Total quantity of solid waste generated (M Cum)	
	2018-19	2017-18
(a) From process		
O.B	1.98	0.42
Top Soil	Nil	Nil
(b) From pollution control facilities	NIL	NIL
(c) Quantity recycled or reutilised	Nil	Nil

## PART - F

Please specify the characteristics (in terms of concentration and quantum) of Hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes

### **1.0 CHARACTERISTICS OF HAZARDOUS AND SOLID WASTE AND THEIR DISPOSAL PRACTICE**

Hazardous wastes are not being produced or released either from mining operation or pollution control facilities. The process of coal winning by open cast mining process produced O.B and top soil as

solid waste temporarily, as these materials later used for land reclamation. During the year 2018-19, 1.98 Mm<sup>3</sup> O.B was generated.

Top soil is a precious natural resource and it loses its biological activity unless special care is taken during stripping, storage and carpeting of top soil. Land gets degraded due to mining operation which is to be reclaimed. The overburden in the colliery at present is being dumped externally. The dumps are subjected to physical and biological reclamation.

### P A R T – G

#### Impact of pollution control measures on conservation of natural resources and consequently on cost of production

To carry out mining in an eco-friendly manner following measures have been implemented/being implemented.

##### 1.0 Anti Air Pollution Measures :

During the year 2018-19 there was no problem regarding Air Pollution. .

The following measures were undertaken for abatement of pollution.

- a. Regular monitoring for SO<sub>2</sub>, NO<sub>x</sub> & SPM was carried out by CMPDIL, Ranchi on quarterly basis.
- b. Spraying of water in haul roads is also being carried out by movable water tankers.
- c. A 28 Kl movable water tanker with mist control facility is also deployed for control of dust suppression in mining areas.

## 2.0 Anti Water Pollution Measures

During the year 2018-19 the mine water was analyzed and it was found that all parameters are mostly within prescribed limits. The surface runoff from dumps flows into the drains conveying the water, to sedimentation lagoon. A major portion of suspended solids get settled down and nearly clear water is pumped out. The mine water is reused.

## 3.0 Anti Noise Pollution Measures

At present there is no noise pollution being generated in this area. The noise values are within the prescribed limits (Annexure). Proper maintenance of the equipment (HEMM) is being done and green belt is also provided.

## 4.0 Measures for Reclamation of Land

OB is being generated since opencast mining method is being carried out. The top soil is dumped separately from the O.B and will later spread over external O.B. The external & internal O.B dumps are subjected to physical reclamation and later biological reclamation will be carried out.

# PART - H

## Additional Investment Proposal For Environmental Protection

### Including Abatement Of Pollution


The project will continue to carry regular environmental monitoring for air, water and noise pollutants. The additional investment for environmental protection and pollution abatement in the project is under consideration keeping in view future development programme.



## PART - I

### Any other particulars in respect of environmental production and abatement of pollution

1. The following actions shall be taken at the earliest for the up gradation of environment in the project:
  - (i) Adoption of additional measures for control of pollution.
  - (ii) Effective spraying of water for control of dust.
2. The suggestions made by different statutory agency e.g. Ministry of Environment & Forest, Central Pollution Control Board and State Pollution Control Board etc. from time to time are being implemented.
3. Biological Reclamation and other plantation activities will be carried out in physically reclaimed OB Dump and other parts of MLA.
4. Construction of settling pond will be made for collection of silts and other effluents of the mine before discharging to outer streams.

  
28.09.19  
Environment Officer/IC  
Rajhara Area

  
Project Officer  
TTK OCP

**TEST REPORT**

<b>06/19 Test Report No. 2403</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	Surface Water	Quarter Ending	June '19
Customer	CCL	Date of Receipt:	03.06.19
Mode of Receipt of Sample:	Picked up sample by laboratory at quarterly interval	Date of Analysis:	03.06.19-15.07.19
Testing Protocol:	-	Date of Reporting:	15.07.19
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

**TEST RESULT**

The sample has been tested with the following results:-

**Area :** **Rajhara**

**Project:** **Tetariakhar**

**Stations:**

1. Sadabahar River U/S of Mine
2. Sadabahar River D/S of Mine

**Date of Sampling:**  
22/05/2019  
22/05/2019

Sl. No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		1	2				
1	Arsenic (as As), mg/l, Max	<0.002	<0.002			0.002	IS 3025:37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2.2	8.4			2.00	IS 3025 :44: 1993, R : 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005			0.0005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	38	30			2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03			0.03	IS 3025 :42 : 1992 R : 2009, AAS-Flame
6	Dissolved Oxygen, min.	6.2	5.8			0.10	IS 3025/38:1989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	1.32	1.19			0.02	APHA, 22 <sup>nd</sup> Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01			0.01	APHA, 22 <sup>nd</sup> Edition, 1.5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.06	<0.06			0.06	IS 3025 :53 : 2003, R : 2009, AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005			0.005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	0.50	0.50			0.50	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	pH value	7.70	7.89			0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.001	<0.001			0.001	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002			0.002	APHA, 22 <sup>nd</sup> Edition AAS-GTA
15	Sulphate (as SO <sub>4</sub> ) mg/l, Max	44	50			2.00	APHA, 22 <sup>nd</sup> Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	305	290			25.00	IS 3025 :16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	38	316			10.00	IS 3025 :17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	<0.01	<0.01			0.01	IS 3025 :49 : 1994, R : 2009, AAS-Flame

Note: 1) This Report refers to the values obtained at the time of testing and results related to the items tested  
2) This Report cannot be reproduced in part or full without written permission of the management.  
3) Liability for return of samples ceases as samples cannot be retained for retests.  
4) This is computer generated report and requires no signature.

Dy. Technical Manager  
Env. Lab., CMPDI(HQ)



## TEST REPORT

06/19 Test Report No. 2404	Job No. 094319051	Year	2019-20
Type of Sample:	Drinking Water	Quarter Ending	June '19
Customer	CCL	Date of Receipt:	03.06.19
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval	Date of Analysis:	03.06.19-18.06.19
Testing Protocol:	IS:10500 Drinking Water Standards	Date of Reporting:	18.06.19
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

## TEST RESULT

The sample has been tested with the following results:-

Area : Rajhara

Project: Tetariakhar

Stations:

1. Before Purification
2. After Purification

Date of Sampling:

22/05/2019

22/05/2019

Sl.No	Parameter	Sampling Stations			Detection Limit	IS:10500 Standards	Standard / Test Method
		1	2	3			
1	Boron (as B), mg/l, Max	<0.20	<0.20		0.20	0.5	APHA, 22 <sup>nd</sup> Edition .Carmine
2	Cadmium (as Cd), mg/l, Max	<0.0005	<0.0005		0.0005	0.003	APHA, 22 <sup>nd</sup> Edition. AAS-GTA
3	Calcium (as Ca), mg/l, Max	44.8	43.2		1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	38	32		2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03		0.03	0.05	IS 3025/42 : 1992
6	Fluoride (as F) mg/l, Max	1.10	1.02		0.02	1.0	R : 2009, AAS-Flame
7	Free Residual Chlorine, mg/l, Min	<0.02	0.03		0.02	0.2	APHA, 22 <sup>nd</sup> Edition . SPADNS
8	Iron (as Fe), mg/l, Max	<0.06	<0.06		0.06	0.3	APHA, 22 <sup>nd</sup> Edition. DPD
9	Lead (as Pb), mg/l, Max	<0.005	<0.005		0.005	0.01	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
10	Manganese (as Mn), mg/l, Max	<0.02	<0.02		0.02	0.1	APHA, 22 <sup>nd</sup> Edition. AAS-GTA
11	Nickel (as Ni), mg/l, Max	<0.01	<0.01		0.01	0.02	IS-3025/59:2006,AAS-Flame
12	Nitrate (as NO <sub>3</sub> ), mg/l, Max	0.69	0.64		0.5	45	IS-3025/54:2003, AAS-Flame
13	Odour	Agreeable	Agreeable		Qualitative	Agreeable	APHA, 22 <sup>nd</sup> Edition. UV-Spectrophotometric
14	pH value	8.34	8.40		0.2	6.5 to 8.5	IS 3025 /05:1983, R-2012, Qualitative
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.001	<0.001		0.001	0.001	IS-3025/11:1983, R-1996, Electrometric
16	Selenium (as Se), mg/l, Max	<0.002	<0.002		0.002	0.01	APHA, 22 <sup>nd</sup> Edition.4-Amino Autipyrine
17	Sulphate (as SO <sub>4</sub> ) mg/l, Max	48	44		2.00	200	APHA, 22 <sup>nd</sup> Edition. AAS-GTA
18	Total Alkalinity (CaCO <sub>3</sub> ), mg/l, Max	156	152		4.00	200	APHA, 22 <sup>nd</sup> Edition. Turbidity
19	Total Arsenic (as As), mg/l, Max	<0.002	<0.002		0.002	0.01	IS-3025/23:1986, Titration
20	Total Chromium (as Cr), mg/l, Max	<0.04	<0.04		0.04	0.05	IS 3025/ 37:1988 R : 2003, AAS-VGA
21	Total Dissolved Solids, mg/l, Max	324	320		25.00	500	IS-3025/52:2003, AAS-Flame
22	Total Hardness (CaCO <sub>3</sub> ), mg/l, Max	192	188		4.00	200	IS 3025 /16:1984 R : 2006, Gravimetric
23	Turbidity, NTU, Max	1.2	1		1.0	1	IS-3025/21:1983, R-2002, EDTA
24	Zinc (as Zn), mg/l, Max	<0.01	0.01		0.01	5.0	IS-3025/10:1984 R-1996, Nephelometric
							IS 3025/ 49 : 1994, R : 2009, AAS-Flame

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Dy. Technical Manager  
 Env. Lab., CMPDI(HQ)



**TEST REPORT**

<b>06/19 Test Report No. 2405</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	Ambient Air	Quarter Ending	<b>June '19</b>
Customer / W.O. no. & Date:	CCL	Date of Receipt of Sample:	03.06.19
Mode of Receipt of Sample:	Joint sampling with customer	Date of Analysis:	03.06.19-04.06.19
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution	Date of Reporting:	04.06.19
Remarks & Observation:	All samplers placed 1.5 m above ground level		
Environmental Conditions at the time of installation of sampler	Predominate Wind Direction (from) East		
	Weather	✓	
	Rainy	Cloudy	Sunny
			Dust storm

**TEST RESULT**

The sample has been tested with the following results:-

**Area :**

**Rajhara**

**Project:**

**Tetariakhar**

**Stations:**

1. P.O.Office
2. Workshop
3. Pindercom Village

**Date of Sampling:**

23-24/05/2019  
23-24/05/2019  
24-25/05/2019

S.No	Test Parameters	Units	Test Method	TEST RESULT			
Stations:				1	2	3	4
1	*Total Particulate Matter (PM <sub>10</sub> <sup>+</sup> >PM <sub>10</sub> )	µg/m <sup>3</sup>	Lab.SOP 4 based on – IS: 5182/23, 2006	280	435	287	
2	Particulate Matter (PM <sub>10</sub> )	µg/m <sup>3</sup>	IS: 5182/23 2006	95	220	85	
3	*Particulate Matter (PM <sub>2.5</sub> )	µg/m <sup>3</sup>	-	42	81	57	
4	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS: 5182 /02 2001 R-2006	<25	<25	<25	
5	Nitrogen Oxides (as NO <sub>x</sub> )	µg/m <sup>3</sup>	IS: 5182 /06 1975 R-1998	<6	<6	<6	

**Note:** 1. Gazette Notification no. G.S.R 742(E) dt.25<sup>th</sup> Sept. '2000 is enclosed for reference applicable in Core Zone.  
2. Gazette Notification no. G.S.R 826(E) dt. Nov. '2009 is enclosed for reference applicable in Buffer Zone.

\*Out of NABL scope.

**TEST REPORT**

<b>06/19 Test Report No. 2406</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	Noise	Quarter Ending	<b>June '19</b>
Customer / W.O. no. & Date:	CCL	Date of Receipt of Sample:	03.06.19
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	
Testing Protocol:	Gazette Notification no. G.S.R 742(E) dt.25 <sup>th</sup> Sept. '2000	Date of Reporting:	
Remarks:			

**TEST RESULT**

The sample has been tested with the following results:-

**Area :** **Rajhara** **Project:** **Tetariakhar**

**Stations:**

1. P.O.Office
2. Workshop
3. Pindercom Village

<b>Station Name</b>	<b>Date of Sampling</b>	<b>Noise Level</b>
P.O.Office	23/05/2019	51.9
Workshop	23/05/2019	52.1
Pindercom Village	24/05/2019	43.9

<i>Ambient Air Quality Standards in respect of Noise as per 'The noise pollution (Regulation and Control), Rules,2000</i>		
<i>Time Frame</i>	<i>Limits in dB(A) Leq</i>	
	<i>Day Time 6.00 AM to 10.00 PM</i>	<i>Night Time 10.00 PM to 6.00 AM</i>
<i>Industrial Area</i>	75	70
<i>Commercial Area</i>	65	55
<i>Residential area</i>	55	45
<i>Silence Zone</i>	50	40

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**TEST REPORT**

<b>06/19 Test Report No. 2407</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	Effluent Water	Quarter Ending	June '19
Customer / W.O. no. & Date:	CCL	Date of Receipt of Sample:	03.06.19
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	03.06.19-20.06.19
Testing Protocol:	MOEF -SCH-VI STANDARDS, Class 'A'	Date of Reporting:	20.06.19
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

**TEST RESULT**

The sample has been tested with the following results:-

Area : **Rajhara**

Project: **Tetariakhar**

Stations:

1. Mine Water
2. Sump Water Discharge

Date of Sampling:

24/05/2019

24/05/2019

Sl.No.	Parameter	Sampling Stations			Detection Limit	MOEF -SCH-VI STANDARDS Class 'A'	BIS Standard & Method
		1	2	3			
1	Ammonical Nitrogen, mg/l, Max	<0.02	0.02		0.02	50.0	IS 3025/34:1988, R : 2009, Nessler's
2	Arsenic (as As), mg/l, Max	<0.002	<0.002		0.002	0.2	IS 3025/37:1988 R : 2003, AAS-VGA
3	B.O.D (3 days 27°C), mg/l, Max	2.00	2.00		2.00	30.0	IS 3025 44:1993,R:2003 3 day incubation at 27°C
4	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005		0.0005	2.0	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
5	COD, mg/l, Max	24	24		4.00	250.0	APHA, 22 <sup>nd</sup> Edition, Closed Reflux, Titrimetric
6	Copper (as Cu), mg/l, Max	<0.03	<0.03		0.03	3.0	IS 3025/42:1992 R : 2009, AAS-Flame
7	Dissolved Phosphate, mg/l, Max	0.36	0.42		0.30	5.0	APHA, 22 <sup>nd</sup> Edition Molybdovanadate
8	Fluoride (as F) mg/l, Max	1.68	1.54		0.02	2.0	APHA, 22 <sup>nd</sup> Edition, SPADNS
9	Free Ammonia, mg/l, Max	<0.02	<0.02		0.02	5.0	IS:3025/34:1988, Nessler's
10	Hexavalent Chromium, mg/l, Max	<0.01	<0.01		0.01	0.1	APHA, 22 <sup>nd</sup> Edition, Diphenylcarbohydrazide
11	Iron (as Fe), mg/l, Max	<0.06	<0.06		0.06	3.0	IS 3025 :53 : 2003, R : 2009 , AAS-Flame
12	Lead (as Pb), mg/l, Max	<0.005	<0.005		0.005	0.1	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
13	Manganese(as Mn), mg/l, Max	<0.02	<0.02		0.02	2.0	IS-3025/59:2006, AAS-Flame
14	Nickel (as Ni), mg/l, Max	<0.01	<0.01		0.01	3.0	IS-3025/54:2003, AAS-Flame
15	Nitrate Nitrogen, mg/l, Max	2.65	2.69		0.50	10.0	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
16	Oil & Grease, mg/l, Max	<2.00	<2.00		2.00	10.0	IS 3025/39:1991, R : 2003, Partition Gravimetric
17	pH value	7.14	7.24		0.2	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
18	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH),mg/l, Max	<0.001	<0.001		0.001	1.0	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine
19	Selenium (as Se), mg/l, Max	<0.002	<0.002		0.002	0.05	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
20	Sulphide (as SO <sub>3</sub> ), mg/l, Max	<0.005	<0.005		0.005	2.0	APHA, 22 <sup>nd</sup> Edition Methylene Blue
21	Temperature (°C)	26.2	26.2		Shall not exceed 5° C above the receiving temp.		IS-3025/09:1984, Thermometric
22	Total Chromium (as Cr), mg/l, Max	<0.04	<0.04		0.04	2.0	IS-3025/52:2003, AAS-Flame
23	Total Kjeldahl Nitrogen, mg/l, Max	1.4	1.4		1.00	100.0	IS:3025/34:1988, Nessler's
24	Total Residual Chlorine, mg/l, Max	<0.02	<0.02		0.02	1.0	APHA, 22 <sup>nd</sup> Edition, DPD
25	Total Suspended Solids, mg/l, Max	28	28		10.00	100.0	IS 3025/17:1984, R :1996, Gravimetric
26	Zinc (as Zn), mg/l, Max	<0.01	<0.01		0.01	5.0	IS 3025 :49 : 1994, R : 2009, AAS-Flame

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**TEST REPORT**

<b>06/19 Test Report No. 2408</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	Surface Water	Quarter Ending	June '19
Customer	CCL	Date of Receipt:	03.06.19
Mode of Receipt of Sample:	Picked up sample by laboratory at quarterly interval	Date of Analysis:	03.06.19-15.07.19
Testing Protocol:	-	Date of Reporting:	15.07.19
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

**TEST RESULT**

The sample has been tested with the following results:-

**Area :** **Rajhara**

**Project:** **Tetariakhar**

**Stations:**

1. Upstream of Bhutha Nala
2. Downstream of Bhutha Nala

**Date of Sampling:**  
24/05/2019  
24/05/2019

Sl. No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		1	2				
1	Arsenic (as As), mg/l, Max	<0.002	<0.002			0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2.6	2.0			2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005			0.0005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	28	30			2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03			0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
6	Dissolved Oxygen, min.	6.1	6.3			0.10	IS 3025/381989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.98	0.93			0.02	APHA, 22 <sup>nd</sup> Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01			0.01	APHA, 22 <sup>nd</sup> Edition, 1.5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.06	<0.06			0.06	IS 3025 /53 : 2003, R : 2009, AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005			0.005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	6.86	5.58			0.50	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	pH value	7.24	7.14			0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.001	<0.001			0.001	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002			0.002	APHA, 22 <sup>nd</sup> Edition AAS-GTA
15	Sulphate (as SO <sub>4</sub> ) mg/l, Max	21	20			2.00	APHA, 22 <sup>nd</sup> Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	188	192			25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	58	32			10.00	IS 3025 /17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	<0.01	<0.01			0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame

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**TEST REPORT**

<b>09/19Test Report No. 2403</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	Surface Water	Quarter Ending	Sept. '19
Customer	CCL	Date of Receipt:	01.10.19
Mode of Receipt of Sample:	Picked up sample by laboratory at quarterly interval	Date of Analysis:	01.10.19-16.10.19
Testing Protocol:	-	Date of Reporting:	16.10.19
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

**TEST RESULT**

The sample has been tested with the following results:-

**Area :** Rajhara

**Project:** Tetariakhar

**Stations:**

1. Sadabahar River U/S of Mine
2. Sadabahar River D/S of Mine

**Date of Sampling:**  
25/09/2019  
25/09/2019

Sl. No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		1	2				
1	Arsenic (as As), mg/l, Max	<0.002	<0.002			0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	<2.00	<2.00			2.00	IS 3025/44: 1993, R : 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005			0.0005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	11.78	11.66			2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03			0.03	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Disolved Oxygen, min.	6.2	6.0			0.10	IS 3025/38:1989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.65	0.61			0.02	APHA, 22 <sup>nd</sup> Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01			0.01	APHA, 22 <sup>nd</sup> Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.06	<0.06			0.06	IS 3025/53 : 2003, R : 2009, AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005			0.005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	5.44	5.15			0.50	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	pH value	7.81	7.79			0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.001	<0.001			0.001	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002			0.002	APHA, 22 <sup>nd</sup> Edition AAS-GTA
15	Sulphate (as SO <sub>4</sub> ) mg/l, Max	24.14	33.72			2.00	APHA, 22 <sup>nd</sup> Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	152	154			25.00	IS 3025/16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	24	28			10.00	IS 3025/17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	0.01	0.01			0.01	IS 3025/49 : 1994, R : 2009, AAS-Flame



**TEST REPORT**

<b>09/19Test Report No. 2404</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	Ambient Air	Quarter Ending	<b>Sept. '19</b>
Customer / W.O. no. & Date:	CCL	Date of Receipt of Sample:	01.10.19
Mode of Receipt of Sample:	Joint sampling with customer	Date of Analysis:	01.10.19-03.10.19
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution	Date of Reporting:	03.10.19
Remarks & Observation:	All samplers placed 1.5 m above ground level		
Environmental Conditions at the time of installation of sampler	Predominate Wind Direction (from) East		
	Weather		✓
	Rainy	Cloudy	Sunny
			Dust storm

**TEST RESULT**

The sample has been tested with the following results:-

<b>Area :</b>	<b>Rajhara</b>	<b>Project:</b>	<b>Tetariakhar</b>
<b>Stations:</b>	1. P.O.Office 2. Workshop 3. Pindercom Village	<b>Date of Sampling:</b>	25-26/09/2019 25-26/09/2019 25-26/09/2019

S.No	Test Parameters	Units	Test Method	TEST RESULT			
Stations:				1	2	3	4
1	*Total Particulate Matter (PM <sub>10</sub> + >PM <sub>10</sub> )	µg/m <sup>3</sup>	Lab.SOP 4 based on – IS: 5182/23, 2006	169	188	134	
2	Particulate Matter (PM <sub>10</sub> )	µg/m <sup>3</sup>	IS: 5182/23 2006	80	101	79	
3	*Particulate Matter (PM <sub>2.5</sub> )	µg/m <sup>3</sup>	-	39	51	38	
4	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS: 5182 /02 2001 R-2006	<25	<25	<25	
5	Nitrogen Oxides (as NO <sub>x</sub> )	µg/m <sup>3</sup>	IS: 5182 /06 1975 R-1998	<6	<6	<6	

**Note:** 1. Gazette Notification no. G.S.R 742(E) dt.25<sup>th</sup> Sept.'2000 is enclosed for reference applicable in Core Zone.  
2. Gazette Notification no. G.S.R 826(E) dt. Nov.'2009 is enclosed for reference applicable in Buffer Zone.

\*Out of NABL scope.



**TEST REPORT**

<b>09/19 Test Report No. 2405</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	Noise	Quarter Ending	Sept. '19
Customer / W.O. no. & Date:	CCL	Date of Receipt of Sample:	01.10.19
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	
Testing Protocol:	Gazette Notification no. G.S.R 742(E) dt.25 <sup>th</sup> Sept.'2000	Date of Reporting:	
Remarks:			

**TEST RESULT**

The sample has been tested with the following results:-

**Area :** **Rajhara** **Project:** **Tetariakhar**

**Stations:**

1. P.O.Office
2. Workshop
3. Pindercom Village

<b>Station Name</b>	<b>Date of Sampling</b>	<b>Noise Level</b>
P.O.Office	25/09/2019	51.5
Workshop	25/09/2019	52.3
Pindercom Village	25/09/2019	52.5

<i>Ambient Air Quality Standards in respect of Noise as per 'The noise pollution (Regulation and Control), Rules,2000</i>		
<i>Time Frame</i>	<i>Limits in dB(A) Leq</i>	
	<i>Day Time 6.00 AM to 10.00 PM</i>	<i>Night Time 10.00 PM to 6.00 AM</i>
<i>Industrial Area</i>	75	70
<i>Commercial Area</i>	65	55
<i>Residential area</i>	55	45
<i>Silence Zone</i>	50	40

**TEST REPORT**

<b>09/19 Test Report No. 2406</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	<b>Effluent Water</b>	Quarter Ending	<b>Sept. '19</b>
Customer / W.O. no. & Date:	CCL	Date of Receipt of Sample:	01.10.19
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	01.10.19-16.10.19
Testing Protocol:	<b>MOEF -SCH-VI STANDARDS, Class 'A'</b>	Date of Reporting:	16.10.19
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

**TEST RESULT**

The sample has been tested with the following results:-

**Area :** **Rajhara**

**Project:** **Tetariakhar**

**Stations:**

1. Mine Water
2. Sump Water Discharge

**Date of Sampling:**

26/09/2019

26/09/2019

Sl.No.	Parameter	Sampling Stations			Detection Limit	MOEF -SCH-VI STANDARDS Class 'A'	BIS Standard & Method
		1	2	3			
1	Ammonical Nitrogen, mg/l, Max	<0.02	<0.02		0.02	50.0	IS 3025-34:1988, R : 2009, Nessler's
2	Arsenic (as As), mg/l, Max	<0.002	<0.002		0.002	0.2	IS 3025-37:1988 R : 2003, AAS-VGA
3	B.O.D (3 days 27°C), mg/l, Max	2.40	<2.00		2.00	30.0	IS 3025-44:1993, R:2003 3 day incubation at 27°C
4	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005		0.0005	2.0	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
5	COD, mg/l, Max	44	32		4.00	250.0	APHA, 22 <sup>nd</sup> Edition, Closed Reflux, Titrimetric
6	Copper (as Cu), mg/l, Max	<0.03	<0.03		0.03	3.0	IS 3025-42: 1992 R : 2009, AAS-Flame
7	Dissolved Phosphate, mg/l, Max	<0.30	<0.30		0.30	5.0	APHA, 22 <sup>nd</sup> Edition Molybdovanadate
8	Fluoride (as F) mg/l, Max	2.20	2.19		0.02	2.0	APHA, 22 <sup>nd</sup> Edition, SPADNS
9	Free Ammonia, mg/l, Max	<0.02	<0.02		0.02	5.0	IS-3025-34:1988, Nessler's
10	Hexavalent Chromium, mg/l, Max	<0.01	<0.01		0.01	0.1	APHA, 22 <sup>nd</sup> Edition, Diphenylcarbohydrazide
11	Iron (as Fe), mg/l, Max	<0.06	<0.06		0.06	3.0	IS 3025-53 : 2003, R : 2009, AAS-Flame
12	Lead (as Pb), mg/l, Max	<0.005	<0.005		0.005	0.1	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
13	Manganese(as Mn), mg/l, Max	<0.02	<0.02		0.02	2.0	IS-3025-59:2006, AAS-Flame
14	Nickel (as Ni), mg/l, Max	<0.01	<0.01		0.01	3.0	IS-3025-54:2003, AAS-Flame
15	Nitrate Nitrogen, mg/l, Max	6.75	4.62		0.50	10.0	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
16	Oil & Grease, mg/l, Max	<2.00	<2.00		2.00	10.0	IS 3025-39:1991, R : 2003, Partition Gravimetric
17	pH value	7.21	6.89		0.2	5.5 to 9.0	IS-3025-11:1983, R-1996, Electrometric
18	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH),mg/l, Max	<0.001	<0.001		0.001	1.0	APHA, 22 <sup>nd</sup> Edition 4-Amino Anipyryne
19	Selenium (as Se), mg/l, Max	<0.002	<0.002		0.002	0.05	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
20	Sulphide (as SO <sub>3</sub> ), mg/l, Max	0.005	0.005		0.005	2.0	APHA, 22 <sup>nd</sup> Edition Methylene Blue
21	Temperature (°C )	24.6	24.5		Shall not exceed 5° C above the receiving temp.		IS-3025-09:1984, Thermometric
22	Total Chromium (as Cr), mg/l, Max	<0.04	<0.04		0.04	2.0	IS-3025-52:2003, AAS-Flame
23	Total Kjeldahl Nitrogen, mg/l, Max	1.4	1.4		1.00	100.0	IS-3025-34:1988, Nessler's
24	Total Residual Chlorine, mg/l, Max	<0.02	<0.02		0.02	1.0	APHA, 22 <sup>nd</sup> Edition, DPD
25	Total Suspended Solids, mg/l, Max	52	36		10.00	100.0	IS 3025-17:1984, R : 1996, Gravimetric
26	Zinc (as Zn), mg/l, Max	0.02	0.02		0.01	5.0	IS 3025-49 : 1994, R : 2009, AAS-Flame

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**TEST REPORT**

<b>09/19 Test Report No. 2407</b>	<b>Job No. 094319051</b>	<b>Year</b>	<b>2019-20</b>
Type of Sample:	Surface Water	Quarter Ending	Sept. '19
Customer	CCL	Date of Receipt:	01.10.19
Mode of Receipt of Sample:	Picked up sample by laboratory at quarterly interval	Date of Analysis:	01.10.19-16.10.19
Testing Protocol:	-	Date of Reporting:	16.10.19
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

**TEST RESULT**

The sample has been tested with the following results:-

**Area :** Rajhara

**Project:** Tetariakhar

**Stations:**

1. Upstream of Bhutha Nala
2. Downstream of Bhutha Nala

**Date of Sampling:**  
26/09/2019  
26/09/2019

Sl. No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		1	2				
1	Arsenic (as As), mg/l, Max	<0.002	<0.002			0.002	IS 3025:37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	<2.00	<2.0			2.00	IS 3025 :44: 1993, R : 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005			0.0005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	16.34	16.31			2.00	IS-3025:32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03			0.03	IS 3025 :42 : 1992 R : 2009, AAS-Flame
6	Disolved Oxygen, min.	6.0	5.8			0.10	IS 3025/381989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	1.34	1.18			0.02	APHA, 22 <sup>nd</sup> Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01			0.01	APHA, 22 <sup>nd</sup> Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.06	<0.06			0.06	IS 3025 :53 : 2003, R : 2009, AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005			0.005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	2.39	2.60			0.50	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	pH value	7.19	7.11			0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.001	<0.001			0.001	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002			0.002	APHA, 22 <sup>nd</sup> Edition AAS-GTA
15	Sulphate (as SO <sub>4</sub> ) mg/l, Max	14.05	18.72			2.00	APHA, 22 <sup>nd</sup> Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	204	208			25.00	IS 3025 :16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	32	48			10.00	IS 3025 :17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	0.01	0.01			0.01	IS 3025 :49 : 1994, R : 2009, AAS-Flame

Note: 1) This Report refers to the values obtained at the time of testing and results related to the items tested  
2) This Report cannot be reproduced in part or full without written permission of the management.  
3) Liability for return of samples ceases as samples cannot be retained for retests.  
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