

ENVIRONMENT STATEMENT

KABRIBAD RE-ORGANISED MINE

FOR THE YEAR 2013-2014

B & K, AREA



Sep-14

**CENTRAL COALFIELDS LIMITED
ENVIRONMENT DIVISION CCL, RANCHI**

EXECUTIVE SUMMARY

- 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.]
- The Environmental monitoring was carried out quarterly as per the guide lines of ministry of environment & forest (MOEF). The environment results for four quarters of 2012-13 are appended as **Annexure**.
- Ambient air quality is monitored to study the level of air pollution. The main air pollutant is suspended particulate matter (SPM). It is difficult to quantify the amount of air pollutants generated due to opencast mining.
- Water is not directly used during mining for coal production it percolates into working area during mining operation. However water is consumed for other purpose mainly for dust suppression.
- The noise level recorded is generally below permissible limits prescribed by the ministry of environment & forest (MOEF). There is no continuous high level sound frequency of impulsive nature.
- Raw material used in coal mining activities is explosives and POL for machines and automobiles. The consumption is detailed in part-B of statement form.
- Hazardous wastes is not being produced either from mining operation or from any pollution control facilities solid waste produced from the mining activities is overburden (OB) material.
- Regular measures are being taken to control air, water and noise pollutions discussed in detail in part G, H, &I of Environment statement form.

PROJECT DESCRIPTION

1.1 INTRODUCTION

Kabribad Re-organise mine is one of the two working mines of Giridih project of central coalfields Ltd. The coalfield activities in Giridih were started in 1857 by private owners and organized mining was started in the year 1896 by East Indian railways. In 1936 the ownership of this coalfield was handed over to state Collieries. After independence, in the year 1956 the ownership of the Coalfields was transferred N.C.D.C Ltd. & finally ownership of the coalfields had been vested to coal India Ltd. in the year 1975 by virtue of nationalisation.

Total leasehold area of giridih project is 4595 Acres out of which only 1000 acres (approx) are being utilised for mining purpose. The mine block is situated to the 2 km in the East of project office, working by opencast method. The mine was started in the year 1982-83. The topmost seams i.e. .Balihill and Khandiha-III is almost exhausted. Presently the underneath seams i.e. Khandiha –II,I(top) & (bottom) is being taken out by departmental means as well as by outsourcing.

The OB generated is presently being dumped near by the quarry, OB dumping can be seen in the around the quarry. At present situation area is not making external O B dumping. Internal OB dumping during 2012-13 is 0.43 MM³. All dumps are located within 0.5 km distance from working quarry. Characteristics of the overburden is sand stone and shale band mostly OB dumping can be seen in the surface plan enclosed.

Working collieries surrounding this project are Giridih Opencast Mine. Coal mining is the prime industry of this region these developments has influenced various environmental attributes e.g. air, water quality, noise level, socio-economic profile, land use pattern etc.

1.2 LOCATION

The Kabribad mine of giridih project, B&K Area of central coalfields limited is located at a distance of about 220 Km from the Hd. Qtrs. Ranchi & about 85 km from area office (B&K). Giridih Coalfields is stretched over an area of about 763 Hectares out of which, only 135 hectares contains active mining zone. It is located between the coal grids 1128000 N to 1129600 N and 3233000 E to 3235000 E.

1.3 PRODUCTION

	<u>2012-13</u>	<u>2013-14</u>
(a) Coal (MT):	3,10,030 tonnes	4,31,483 tonnes
(b) Overburden:	4,30,970 Cu.M	11,61,171 Cu.M
(c) Top Soil (Mm ³):	Nil	Nil

1.4 TECHNOLOGY

- i.* **MINING METHOD** :- Considering the Geo-mining condition of the deposit namely
 - a) Moderate gradient
 - b) Short life of project, the shovel, dumper system of mining is applied. Drilling, blasting operation for loosening of coal and overburden is necessary before excavation by shovel.
- ii.* **DRAINAGE PATTERN**:- There are control sumps in the pit. This act as sedimentation lagoon for the sumps water a major portion of suspended solids are separated here before it is pumped out to natural drains. Sumps water is used for domestic purpose & partly used for dust suppression.

1.5 ENVIRONMENT CLEARANCE AVAILIBILITY

To assess the present status in respect of air, water, noise of the region on environmental quality monitoring work was undertaken by CMPDI under request from CCL. The relevant parameters of air, water, noise pollutions were studied.

Environmental Statement for the financial year ending the 31st March 2014

PART – A

i. NAME AND ADDRESS OF THE MINE:-

NAME :- Kabribad Re- Organised Mine
PLACE :- Giridih Project, P.O.- Beniadih
DIST :- Giridih
STATE :- Jharkhand

ii. INDUSTRY CATEGORY :- Primary

iii. PRODUCTION CAPACITY :-

Planned capacity of the project for the year 2013-14 was 4,50,000 MT p.a and actual production of coal for the year 2013-14 was 4,31,483 MT.

IV. DATE OF THE LAST ENVIRONMENTAL STATEMENT SUBMITTED

Environment statement report was submitted for the year 2012-13.

PART B

WATER CONSUMPTION(cu.m/day)

A. Mining

- i. Haul road dust suppression : 70 Cu.M/DAY
- ii. Workshop
- (i) HEMM washing : 08 Cu.M/DAY
- (ii) Floor washing : Nil
- (iii) Others : Nil
- iii, Fire Fighting : Nil
- iv. Others (Service building etc.) : 3 Cum/Day

B. Domestic

Water Consumption per Unit of Product		
Name of product	During financial year 2012-13	During financial year 2013-14
(a) ROM Coal	0.69KL/Te	0.61 KL/Te

RAW MATERIAL CONSUMPTION :

S.No	Name Of Raw material	Name of Products	Consumptions of raw materials (per unit output)	
			During the financial year (2012-13)	During the financial year (2013-14)
1		Coal & OB	Nil	Nil

However explosives and POL are used in coal production and OB removal.

S.No		Consumptions of materials (per unit output)	
		During the financial year (2012-13)	During the financial year (2013-14)
1	Explosives	0.90 Kg./Te	1.39 Kg ./Te
2	POL (Diesel, Lubricant)	2.59 Ltrs/Te.	1.76 Ltrs/Te.

PART C

POLLUTION DISCHARGED TO ENVIRONMENT/UNIT OF OUTPUT (PARAMETERS SPECIFIED IN THE CONSENT ISSUED)

Pollutions	Quantity of pollution generated (Mass / Day)	Concentration of Pollutants Discharged (mass/ Volume)	Percentage variation from prescribed standards with reasons
Water	The analysis results are given in Annexure	The analysis results are given in Annexure	The analysis results reveal that most of parameters below permissible limits prescribed by MOEF as general standards for class 'A' effluent (Effluent discharged into inland surface water)
Air	It is difficult to quantify the amount of air pollutants the main air pollutant is suspended particulate matter (SPM). The air quality results are appended as Annexure	The analysis results are appended as Annexure	Ambient air quality results show that values were within prescribed limits.
Noise	The high noise in mining areas owes its origin in and around excavation and material handing sites. There is no continuous sound frequency of impulsive nature. Ambient noise quality reports are appended as Annexure	The analysis results are appended as Annexure	Noise quality report shows the results are within permissible limits.

PART - D

HAZARDOUS WASTES

(AS SPECIFIED UNDER HAZARDOUS WASTE MANAGEMENT AND HANDLING RULES , 1989).

Hazardous Waste (Burnt Oil)	Total Quantity	
	During the financial year (2012-13)	During the financial year (2013-14)
From Mining Process	43.31 KL	42.04 KL
From Material handling System	17 No. 12 Volts 25 Plates Batteries.	15 No. 12 Volts 25 Plates Batteries.

PART - E

SOLID WASTES

(a) Overburden :

	Total Quantity	
	During the financial year (2012-13)	During the financial year (2013-14)
From Mining Process	4,30,970 Cu.M	11,61,171 Cu.M
From Material handling System	NIL	NIL
	During the both financial year, the entire volume of OB has been used for refiling the de-coaled area of the quarry.	

PART - F

- **PLEASE SPECIFY THE CHARACTERISTICS (IN TERMS OF COMPOSITION AND QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE THE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES**
- **1. HAZARDOUS WASTES :**
 - Hazardous wastes are not being produced either from mining operation or from any pollution control facilities.
- **2. SOLID WASTES :**
 - During opencast mining over burden produced as solid wastes temporarily as these materials are used for land reclamation. During the year 2013-14, 11,61,171 cubic meter of overburden was generated. The overburden material is more or less homogeneous comprising mainly shale, sand, silt, clay and gravel.
- **3. DISPOSAL PRACTICE :**
 - Presently a small quantity of OB is being dumped in de-coaled area as per availability of dumping place for reclamation of mined out area and the maximum quantity is being dumped in external OB dump.
 - Disposal of OIL from work shop if any are returned back to the regional store.
 - Disposal of battery if applicable are returned back to the regional store.

PART – G

IMPACT OF POLLUTION ABATEMENT MEASURES ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION

In order to carry out mining in an eco-friendly manner, following pollution control measures have been implemented.

2 AIR POLLUTION CONTROL MEASURES :

The following measures have been taken to control air pollution.

- (i) Regular sprinkling of water on haul road and other roads.
- (ii) Water sprinkling on coal stock.
- (iii) Plantation along the vacant space.
- (iv) All necessary precautions will be taken during, blasting, loading & transporting operations.
- (v)

3 WATER POLLUTION CONTROL MEASURES:

- (i) The mine water is allowed to settle in sump before pumping to natural drains. Sump water is being utilized for water sparking on haul roads for dust suppression and for domestic purpose.
- (ii) The catch drains have been constructed around the foot of the OB dumps in order to collect surface runoff water from the dumps and convey them to settling ponds.
- (iii) An oil & grease trap and settling ponds are proposed in the W/shop to prevent water pollution.
- (iv) Colony and other service building are provided with septic tank and soak pits.
- (v) A garland drain is provided around the quarry to collect the surface run off. This also prevents storm water to enter into the quarry area.

4 NOISE POLLUTION CONTROL MEASURES :

- (i) Blasting operation is carried out between 1.00 PM to 3.00 PM.
- (ii) Regular's maintenance of HEMMs and other equipments.
- (iii) Use of HEMMs with sound proof cabin.
- (iv) Providing green belt around noise generating centers.

5 MEASURES FOR RECLAMATION OF LAND:

At present OB generated during mining is being dumped in external dumped. As soon as the dumps reach to its final stage it is proposed to start technical and biological reclamation of dumps. At the end of mining operations some de-coaled area will remain empty, which would be used for storing rain water. The presence of such a water body will help in increasing the moisture content of soil of adjacent area and ultimately it would promote the growth of vegetation.

IMPECT OF POLLUTION MEASURES ON COAST OF PRODUCTION OF ENVIRONMENTAL MANAGEMENT.

Consent fee, water cess etc. are regularly deposited. Expenditure is incurred on monitoring and other pollution control measures.

PART – H

ADDITIONAL INVESTMENT PROPOSAL FOR ENVIRONMNETAL PROTECTION INCLUDING ABATEMENT OF POLLUTION

Additional investment proposal has not been finalized yet, however it is proposed to construct an effluent treatment plant for workshop effluent and plantation in vacant spaces. Others investment proposal are:

- i) All residential quarters constructed for the project has been provided with septic latrines and effluents are disposed off in soak pits. The capital investment for this purpose has not been assessed separately.
- (i) The Environmental Monitoring of the project will be continued quarterly as per guidelines of MOEF
- (ii) Environmental statement report will be prepared for each financial year ending 31st March.
- (iii) The air and water consent will be taken from Jharkhand State Pollution Control Board, Ranchi each year.

PART -I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

- The Environmental monitoring is carried out quarterly for the project by CMPDI as per the guidelines of the Ministry of Environment & Forest (MOEF).
- The Environmental Statement for the project is prepared every year.
- Ambient air quality of effluent discharged from the mine and noise level - all conform to the prescribed limits.
- To control fugitive dust on haul road arrangements has been made from water sprinkling on the haul road.
- Drilling & blasting operations are carried in a controlled manner to reduce dust.
- As stated earlier, out of the aforesaid issues, the green cover / plantation work can only be dealt throughout the operational period of the mine. However, greening of the old OB dumps can be taken up.

Dy. Manager Survey **Nodal Officer/P.E. (Civil)** **Chief Manager (M)/Agent**
(Giridih, project) (Giridih, Project) (Giridih, project)



TEST REPORT

Job No. : 094313025 Date of Issue: 05/07/13
 Name of the Customer : CCL

Customer Letter Ref. No. (if any): CCL/Env-Monitoring/13-14/ 2013/823-828 dt. 16/05/13
 Sample Description : Air
 Product Specification (BIS) : Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 01/07/13 Date of performance of Test: 01/07/13 to 05/07/13

TEST RESULT

The sample has been tested with the following results:-

Area : *Giridih* Year 2013
 Project : *Coke-Oven Plant* Quarter Ending June '2013

Name of the Sampling Station *Coke Oven Plant*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
26/06/2012 - 27/06/2012	71	33	11	46	

Name of the Sampling Station *Pipratand Colony*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
26/06/2012 - 27/06/2012	65	34	11	43	

Name of the Sampling Station *Kabribad Office*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
26/06/2012 - 27/06/2012	94	43	12	48	

Analysed By

Checked By

G.M (Chemist)
 Env. Lab., CMPDI(HQ)
 (Authorized Signatory)

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TEST REPORT

Job No. : 094313025 Date of Issue: 01/07/13
 Name of the Customer : CCL
 Customer Letter Ref. No. (if any): CCL/Env-Monitoring/13-14/ 2013/823-828 dt. 16/05/13
 Sample Description : Noise
 Product Specification (BIS) : Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 01/07/13 Date of performance of Test: -

TEST RESULT

The sample has been tested with the following results:-

Area : *Giridih* Year 2013
 Project : *Coke-Oven Plant* Quarter Ending June '2013

Sampling Stations
 1 Coke Oven Plant
 2 Pipratand Colony

Station Name	Date of Sampling	Noise Level
Coke Oven Plant	26/06/2013	48.2
Pipratand Colony	26/06/2013	51.5

Permissible Limit of Noise Level vide Gazette Notification G.S.R. 742(E) Dt. 25th Sep '2K

	6.00 AM to 10.00 PM	10.00 PM to 6.00 AM
Noise Level	Leq 75 dB(A)	Leq 70 dB(A)

Checked By

G.M (Chemist)
 Env. Lab., CMPDI(HQ)
 (Authorized Signatory)

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TEST REPORT

Job No. : 094313025 Date of Issue: 15/07/13
 Name of the Customer : CCL
 Customer Letter Ref. No. (if any) : CCL/Env-Monitoring/13-14/ 2013/823-828 dt. 16/05/13
 Sample Description : Effluent Water
 Product Specification (BIS) : MoEF Sch VI Class 'a' std.
 Test Required : 26 items as per MoEF Sch VI Class 'a' std.
 Date of receipt of sample : 01/07/13 Date of performance of Test: 01/07/13 to 15/07/13

TEST RESULT

The sample has been tested with the following results:-

Area : Giridih **Year** 2013
Project : Coke-Oven Plant **Quarter Ending June** '2013

Sampling Stations 1 Kabriband Sump Water 28-June-13

All parameter are in mg/l unless specified

BDL - Below Detectable Limit

Sl.No.	Parameter	Sampling Stations			Below Detection Limit	MOEF -SCH-VI STANDARDS	Remarks
		1	2	3			
1	Colour & Odour	Acceptable			-	Acceptable	
2	Total Suspended Solids	24			5.00	100.0	
3	pH value	8.08			0.01	5.5 to 9.0	
4	Temperature (°C)	25.7			-	Shall not exceed 5 C above the receiving temp.	
5	Oil & Grease	BDL			1.00	10.0	
6	Total Residual Chlorine	BDL			0.04	1.0	
7	Ammonical Nitrogen	0.24			0.02	50.0	
8	Total Kjeldahl Nitrogen	2.80			0.02	100.0	
9	Free Ammonia	BDL			0.02	5.0	
10	B.O.D (3 days 27°C)	1.00			1.00	30.0	
11	COD	35			5.00	250.0	
12	Arsenic	BDL			0.01	0.2	
13	Lead	BDL			0.05	0.1	
14	Hexavalent Chromium	BDL			0.01	0.1	
15	Total Chromium	0.13			0.10	2.0	
16	Copper	0.04			0.02	3.0	
17	Zinc	0.02			0.02	5.0	
18	Selenium	BDL			0.01	0.05	
19	Nickel	BDL			0.10	3.0	
20	Fluoride	0.40			0.05	2.0	
21	Dissolved Phosphate	0.12			0.01	5.0	
22	Sulphide	0.03			0.01	2.0	
23	Phenolic Compounds	BDL			0.001	1.0	
24	Manganese	BDL			0.05	2.0	
25	Iron	0.06			0.05	3.0	
26	Nitrate Nitrogen	2.4			0.01	10.0	

Analysed By

Checked By

G.M (Chemist)
Env. Lab., CMPDI(HQ)
(Authorized Signatory)

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TEST REPORT

Job No. : 094313025 Date of Issue: 15/07/13
 Name of the Customer : CCL
 Customer Letter Ref. No. (if any) : CCL/Env-Monitoring/13-14/ 2013/823-828 dt. 16/05/13
 Sample Description : Surface Water
 Product Specification (BIS) : IS: 2296 Inland Surface Water Class 'C'
 Test Required : 18 items as per IS: 2296
 Date of receipt of sample : 01/07/13 Date of performance of Test: 01/07/13 to 15/07/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Giridih** **Year** 2013
Project : **Coke-Oven Plant** **Quarter Ending June** '2013

Sampling Stations 1 Kamjor Nala U/S of Plant 28-June-13
 2 Kamajore Nala D/S of Plant 28-June-13

All parameter are in mg/l unless specified

BDL - Below Detectable Limit

Sl.No.	Parameter	Sampling Stations			Below Detection Limit	IS : 2296 INLAND SURFACE WATER [1982] Class 'C'	Remarks
		1	2	3			
1	Colour, Hazen unit,Max	18	22		1.00	300	
2	Total Suspended Solids	64	88		5.00	\$	
3	Disolved Oxygen	5.30	5.10		0.10	4	
4	pH value	8.08	8.12		0.01	6.5-8.5	
5	Iron	0.06	1.30		0.05	5	
6	Chlorides	34	48		0.25	600	
7	BOD (3 days 27°C)	2.80	2.90		1.00	3	
8	Total Dissolved Solids	290	340		1.00	1500	
9	Copper	0.05	0.05		0.02	1.5	
10	Sulphate	52	78		1.00	400	
11	Nitrate	10.18	10.63		0.01	50	
12	Fluoride	0.35	0.38		0.05	1.5	
13	Selenium	BDL	BDL		0.01	0.05	
14	Arsenic	BDL	BDL		0.01	0.2	
15	Lead	BDL	BDL		0.05	0.1	
16	Zinc	0.03	0.04		0.02	15	
17	Hexavalent Chromium	BDL	BDL		0.01	0.05	
18	Phenolics	BDL	BDL		0.001	0.005	

*Class-C: Tolerance Limit for surface water used for drinking water source with conventional treatment followed by disinfection
 \$ represents limits not specified*

Analysed By

Checked By

G.M (Chemist)
Env. Lab., CMPDI(HQ)
(Authorized Signatory)

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TEST REPORT

Job No. : 094313025 Date of Issue: 26/09/13
 Name of the Customer : CCL

Customer Letter Ref. No. (if any): CCL/Env-Monitoring/13-14/ 2013/823-828 dt. 16/05/13
 Sample Description : Air
 Product Specification (BIS) : Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 23/09/13 Date of performance of Test: 23/09/13 to 26/09/13

TEST RESULT

The sample has been tested with the following results:-

Area : *Giridih* **Year** 2013
Project : *Coke-Oven Plant* **Quarter Ending Sept.** '2013

Name of the Sampling Station *Coke Oven Plant*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
20/09/2012 - 21/09/2012	113	80	<25	22	

Name of the Sampling Station *Pipratand Colony*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
20/09/2012 - 21/09/2012	70	43	<25	21	

Name of the Sampling Station *Kabribad Office*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
20/09/2012 - 21/09/2012	80	52	<25	22	

Analysed By

Checked By

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TEST REPORT

Job No. : 094313025 Date of Issue: 23/09/13
 Name of the Customer : CCL

Customer Letter Ref. No. (if any): CCL/Env-Monitoring/13-14/ 2013/823-828 dt. 16/05/13

Sample Description : Noise
 Product Specification (BIS) : Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 23/09/13 Date of performance of Test: -

TEST RESULT

The sample has been tested with the following results:-

Area : *Giridih* **Year** 2013
Project : *Coke-Oven Plant* **Quarter Ending Sept.** '2013

Sampling Stations

- 1 Coke Oven Plant
- 2 Pipratand Colony

Station Name	Date of Sampling	Noise Level
Coke Oven Plant	20/09/2013	47.2
Pipratand Colony	20/09/2013	49.2

Permissible Limit of Noise Level vide Gazette Notification G.S.R. 742(E) Dt. 25th Sep '2K

	6.00 AM to 10.00 PM	10.00 PM to 6.00 AM
Noise Level	Leq 75 dB(A)	Leq 70 dB(A)

Checked By

G.M (Chemist)
Env. Lab., CMPDI(HQ)
(Authorized Signatory)

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TEST REPORT

Job No. : 094313025 Date of Issue: 30/09/13
 Name of the Customer : CCL

Customer Letter Ref. No. (if any) : CCL/Env-Monitoring/13-14/ 2013/823-828 dt. 16/05/13
 Sample Description : Effluent Water
 Product Specification (BIS) : MoEF Sch VI Class 'a' std.
 Test Required : 27 items as per MoEF Sch VI Class 'a' std.
 Date of receipt of sample : 23/09/13 Date of performance of Test: 23/09/13 to 30/09/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Giridih** **Year** 2013
Project : **Coke-Oven Plant** **Quarter Ending Sept.** '2013

Sampling Stations 1 Kabriband Sump Water 20-Sept-13

All parameter are in mg/l unless specified

BDL - Below Detectable Limit

Sl.No.	Parameter	Sampling Stations			Below Detection Limit	MOEF -SCH-VI STANDARDS	Remarks
		1	2	3			
1	Colour & Odour	Acceptable			5.0 Cannot be quantified	Acceptable	
2	Total Suspended Solids	38			25.00	100.0	
3	pH value	8.08			0.01	5.5 to 9.0	
4	Temperature (°C)	24.9			-	Shall not exceed 5 C above the receiving temp.	
5	Oil & Grease	2.00			2.00	10.0	
6	Total Residual Chlorine	BDL			0.02	1.0	
7	Ammonical Nitrogen	0.20			0.01	50.0	
8	Total Kjeldahl Nitrogen	2.60			1.00	100.0	
9	Free Ammonia	BDL			0.01	5.0	
10	B.O.D (3 days 27°C)	2.00			2.00	30.0	
11	COD	45			4.00	250.0	
12	Arsenic	BDL			0.005	0.2	
13	Lead	BDL			0.005	0.1	
14	Cadmium	BDL			0.0005	2.0	
15	Hexavalent Chromium	BDL			0.01	0.1	
16	Total Chromium	BDL			0.06	2.0	
17	Copper	BDL			0.03	3.0	
18	Zinc	BDL			0.01	5.0	
19	Selenium	BDL			0.005	0.05	
20	Nickel	BDL			0.10	3.0	
21	Fluoride	0.47			0.02	2.0	
22	Dissolved Phosphate	0.32			0.30	5.0	
23	Sulphide	BDL			0.005	2.0	
24	Phenolic Compounds	BDL			0.002	1.0	
25	Manganese	BDL			0.02	2.0	
26	Iron	BDL			0.06	3.0	
27	Nitrate Nitrogen	2.4			0.50	10.0	

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TEST REPORT

Job No. : 094313025 Date of Issue: 30/09/13
 Name of the Customer : CCL

Customer Letter Ref. No. (if any) : CCL/Env-Monitoring/13-14/ 2013/823-828 dt. 16/05/13
 Sample Description : Surface Water
 Product Specification (BIS) : IS: 2296 Inland Surface Water Class 'C'
 Test Required : 19 items as per IS: 2296
 Date of receipt of sample : 23/09/13 Date of performance of Test: 23/09/13 to 30/09/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Giridih** **Year** 2013
Project : **Coke-Oven Plant** **Quarter Ending Sept.** '2013

Sampling Stations 1 Kamjor Nala U/S of Plant 20-Sept-13
 2 Kamajore Nala D/S of Plant 20-Sept-13

All parameter are in mg/l unless specified

BDL - Below Detectable Limit

SI.No.	Parameter	Sampling Stations			Below Detection Limit	IS : 2296 INLAND SURFACE WATER [1982] Class 'C'	Remarks
		1	2	3			
1	Colour, Hazen unit,Max	18	22		5.0	300	
2	Total Suspended Solids	78	94		25.00	\$	
3	Disolved Oxygen	5.40	5.20		0.10	4	
4	pH value	7.98	8.14		0.01	6.5-8.5	
5	Iron	BDL	BDL		0.06	5	
6	Chlorides	32	44		2.00	600	
7	BOD (3 days 27°C)	2.40	2.80		2.00	3	
8	Total Dissolved Solids	294	328		25.00	1500	
9	Copper	BDL	BDL		0.03	1.5	
10	Sulphate	48	74		2.00	400	
11	Nitrate	9.74	10.18		0.50	50	
12	Fluoride	0.40	0.45		0.02	1.5	
13	Cadmium	BDL	BDL		0.0005	0.01	
14	Selenium	BDL	BDL		0.005	0.05	
15	Arsenic	BDL	BDL		0.005	0.2	
16	Lead	BDL	BDL		5.00	0.1	
17	Zinc	BDL	BDL		0.01	15	
18	Hexavalent Chromium	BDL	BDL		0.01	0.05	
19	Phenolics	BDL	BDL		0.002	0.005	

*Class-C: Tolerance Limit for surface water used for drinking water source with conventional treatment followed by disinfection
 \$ represents limits not specified*

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TEST REPORT

Job No. : 094313025 Date of Issue: 07/11/13
 Name of the Customer : CCL

Customer Letter Ref. No. (if any): CCL/DGM-HOD(E&F)/2013/1570 Dt. 22/11/13
 Sample Description : Air
 Product Specification (BIS) : Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 01/11/13 Date of performance of Test: 01/11/13 to 07/11/13

TEST RESULT

The sample has been tested with the following results:-

Area : *Giridih* **Year** 2013
Project : *Coke-Oven Plant* **Quarter Ending Dec.** '2013

All parameters are in µg/m³

Name of the Sampling Station *Coke Oven Plant*

Date of Sampling	SPM	RPM	SO ₂	NO _x	Remarks
30/10/2013 - 31/10/2013	432	252	<25	21	

Name of the Sampling Station *Pipratand Colony*

Date of Sampling	SPM	RPM	SO ₂	NO _x	Remarks
30/10/2013 - 31/10/2013	245	182	<25	20	

Name of the Sampling Station *Kabribad Office*

Date of Sampling	SPM	RPM	SO ₂	NO _x	Remarks
30/10/2013 - 31/10/2013	233	184	<25	21	

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TEST REPORT

Job No. : 094313025 Date of Issue: 01/11/13
 Name of the Customer : CCL

Customer Letter Ref. No. (if any): CCL/DGM-HOD(E&F)/2013/1570 Dt. 22/11/13
 Sample Description : Noise
 Product Specification (BIS) : Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 01/11/13 Date of performance of Test: -

TEST RESULT

The sample has been tested with the following results:-

Area : *Giridih* **Year** 2013
Project : *Coke-Oven Plant* **Quarter Ending Dec.** '2013

Sampling Stations

- 1 Coke Oven Plant
- 2 Pipratand Colony

Station Name	Date of Sampling	Noise Level
Coke Oven Plant	30/10/2013	47.0
Pipratand Colony	30/10/2013	47.4

Permissible Limit of Noise Level vide Gazette Notification G.S.R. 742(E) Dt. 25th Sep '2K

	<i>6.00 AM to 10.00 PM</i>	<i>10.00 PM to 6.00 AM</i>
<i>Noise Level</i>	<i>Leq 75 dB(A)</i>	<i>Leq 70 dB(A)</i>

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TEST REPORT

Job No. : 094313025 Date of Issue: 07/11/13
 Name of the Customer : CCL
 Customer Letter Ref. No. (if any) : CCL/DGM-HOD(E&F)/2013/1570 Dt. 22/11/13
 Sample Description : Effluent Water
 Product Specification (BIS) : MoEF Sch VI Class 'a' std.
 Test Required : 27 items as per MoEF Sch VI Class 'a' std.
 Date of receipt of sample : 01/11/13 Date of performance of Test: 01/11/13 to 07/11/13

TEST RESULT

The sample has been tested with the following results:-

Area : Giridih **Year 2013**
Project : Coke-Oven Plant **Quarter Ending Dec. '2013**

Sampling Stations 1 Kabriband Sump Water

31-Oct-13

All parameter are in mg/l unless specified

BDL - Below Detectable Limit

SI.No.	Parameter	Sampling Stations			Below Detection Limit	MOEF -SCH-VI STANDARDS	BIS Standard	Method
		1	2	3				
1	Colour & Odour	Acceptable			5.0 Cannot be quantified	Acceptable	APHA, 22 nd Edition IS 3025/05:1983	Pt.Cobalt Physical, Qualitative
2	Total Suspended Solids	32			25.00	100.0	IS-3025/17:1984	Gravimetric
3	pH value	8.12			0.01	5.5 to 9.0	IS-3025/11:1983	Electrometric
4	Temperature (°C)	20.8			5.0	Shall not exceed 5°C above the receiving temp.	IS-3025/09:1984	Thermometric
5	Oil & Grease	2.00			2.00	10.0	IS-3025/39:1991	Partition Gravimetric
6	Total Residual Chlorine	0.02			0.02	1.0	APHA, 22 nd Edition	DPD
7	Ammonical Nitrogen	0.22			0.01	50.0	IS:3025/34:1988	Nessler's
8	Total Kjeldahl Nitrogen	2.70			1.00	100.0	IS:3025/34:1988	Nessler's
9	Free Ammonia	0.01			0.01	5.0	IS:3025/34:1988	Nessler's
10	B.O.D (3 days 27°C)	2.00			2.00	30.0	IS-3025/44:1993	3 day incubation at 27°C
11	COD	40			4.00	250.0	IS-3025/58:2006	Titration
12	Arsenic	BDL			0.005	0.2	APHA, 22 nd Edition	AAS-GTA
13	Lead	BDL			0.005	0.1	APHA, 22 nd Edition	AAS-GTA
14	Cadmium	BDL			0.0005	2.0	APHA, 22 nd Edition	AAS-GTA
15	Hexavalent Chromium	0.01			0.01	0.1	APHA, 22 nd Edition	Diphenylcarbohydrazide
16	Total Chromium	BDL			0.06	2.0	IS-3025/52:2003	AAS-Flame
17	Copper	BDL			0.03	3.0	IS-3025/42:1992	AAS-Flame
18	Zinc	0.01			0.01	5.0	IS-3025/49:1994	AAS-Flame
19	Selenium	BDL			0.005	0.05	APHA, 22 nd Edition	AAS-GTA
20	Nickel	BDL			0.10	3.0	IS-3025/54:2003	AAS-Flame
21	Fluoride	0.44			0.02	2.0	APHA, 22 nd Edition	SPADNS
22	Dissolved Phosphate	0.38			0.30	5.0	APHA, 22 nd Edition	Molybdovanadate
23	Sulphide	0.005			0.005	2.0	APHA, 22 nd Edition	Methylene Blue
24	Phenolic Compounds	0.002			0.002	1.0	APHA, 22 nd Edition	4-Amino Antipyrine
25	Manganese	BDL			0.02	2.0	APHA, 22 nd Edition	AAS-Flame
26	Iron	BDL			0.06	3.0	IS-3025/53:2003	AAS-Flame
27	Nitrate Nitrogen	1.4			0.50	10.0	APHA, 22 nd Edition	UV Spectrophotometric

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TEST REPORT

Job No. : 094313025 Date of Issue: 07/11/13
 Name of the Customer : CCL
 Customer Letter Ref. No. (if any) : CCL/DGM-HOD(E&F)/2013/1570 Dt. 22/11/13
 Sample Description : Surface Water
 Product Specification (BIS) : IS: 2296 Inland Surface Water Class 'C'
 Test Required : 19 items as per IS: 2296
 Date of receipt of sample : 01/11/13 Date of performance of Test: 01/11/13 to 07/11/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Giridih** **Year** 2013
Project : **Coke-Oven Plant** **Quarter Ending Dec.** '2013
Sampling Stations 1 Kamjor Nala U/S of Plant 31-Oct-13
 2 Kamajore Nala D/S of Plant 31-Oct-13

All parameter are in mg/l unless specified

BDL - Below Detectable Limit

Sl.No	Parameter	Sampling Stations			Below Detection Limit	IS : 2296 INLAND SURFACE WATER [1982] Class 'C'	BIS Standard	Method
		1	2	3				
1	Colour, Hazen unit,Max	22	24		5.0	300	APHA, 22 nd Edition	Platinum Cobalt
2	Total Suspended Solids	72	94		25.00	\$	IS-3025/17:1984	Gravimetric
3	Disolved Oxygen	5.60	5.40		0.10	4	IS-3025/38:1989	Winkler Azide
4	pH value	8.10	8.07		0.01	6.5-8.5	IS-3025/11:1983	Electrometric
5	Iron	BDL	BDL		0.06	5	IS-3025/53:2003	AAS-Flame
6	Chlorides	38	44		2.00	600	IS-3025/32:1988	Argentometric
7	BOD (3 days 27°C)	2.40	2.60		2.00	3	IS-3025/44:1993	3 day incubation at 27°C
8	Total Dissolved Solids	298	344		25.00	1500	IS-3025/16:1984	Gravimetric
9	Copper	BDL	BDL		0.03	1.5	IS-3025/42:1992	AAS-Flame
10	Sulphate	48	64		2.00	400	APHA, 22 nd Edition	Turbidity
11	Nitrate	8.86	9.30		0.50	50	IS-3025/34:1988	Nessler's
12	Fluoride	0.37	0.40		0.02	1.5	APHA, 22 nd Edition	SPADNS
13	Cadmium	BDL	BDL		0.0005	0.01	APHA, 22 nd Edition	AAS-GTA
14	Selenium	BDL	BDL		0.005	0.05	APHA, 22 nd Edition	AAS-GTA
15	Arsenic	BDL	BDL		0.005	0.2	APHA, 22 nd Edition	AAS-GTA
16	Lead	BDL	BDL		0.005	0.1	APHA, 22 nd Edition	AAS-GTA
17	Zinc	BDL	BDL		0.01	15	IS-3025/49:1994	AAS-Flame
18	Hexavalent Chromium	0.01	0.01		0.01	0.05	APHA, 22 nd Edition	Diphenylcarbohydrazide
19	Phenolics	0.002	0.002		0.002	0.005	APHA, 22 nd Edition	4-Amino Antipyrine

Class-C: Tolerance Limit for surface water used for drinking water source with conventional treatment followed by disinfection
 \$ represents limits not specified

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TEST REPORT

Lab No. T-2187	Job No. 094313025	Year	2013-14
Type of Sample:	Ambient Air	Quarter Ending	March '14
Customer / W. O. no. & Date:	CCL/DGM-HOD (E&F)/2013/ 1570 Dt. 22/11/13	Date of Receipt of Sample:	18.03.14
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	18.03.14-21.03.14
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution	Date of Reporting:	21.03.14
Testing Protocol:	Gazette Notification no. G.S.R 742(E) dt.25 th Sept.'2000		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : **Giridih** **Project:** **Coke-Oven Plant**

Stations:

1. Coke Oven Plant
2. Pipratand Colony
3. Kabribad Office
- 4.

Date of Sampling:
05-06/03/2014
05-06/03/2014
05-06/03/2014

S.No	Test Parameters	Units	Test Method	TEST RESULT			
				1	2	3	4
Stations:							
1	Total Particulate Matter (PM ₁₀₊ >PM ₁₀)	µg/m ³	Lab.SOP 4 based on – IS: 5182/23, 2006	270	130	166	
2	Particulate Matter (PM ₁₀)	µg/m ³	IS: 5182/23 2006	198	90	106	
3	Sulphur Dioxide (SO ₂)	µg/m ³	IS: 5182 /02 2001 R-2006	<25	<25	<25	
4	Nitrogen Oxides (as NO _x)	µg/m ³	IS: 5182 /02 1975 R-1998	21	21	24	

Note: Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000 is enclosed along for reference

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TEST REPORT

Lab No. T-2187	Job No. 094313025	Year	2013-14
Type of Sample:	Noise	Quarter Ending	March '14
Customer / W. O. no. & Date:	CCL/DGM-HOD(E&F)/2013/ 1570 Dt. 22/11/13	Date of Receipt of Sample:	18.03.14
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	-
Testing Protocol:	Gazette Notification no. G.S.R 742(E) dt.25 th Sept.'2000	Date of Reporting:	-
Remarks:			

TEST RESULT

The sample has been tested with the following results:-

Area : **Giridih** **Project:** **Coke-Oven Plant**
Stations:

1. Coke Oven Plant
2. Pipratand Colony
- 3.
- 4.

Station Name	Date of Sampling	Noise Level
Coke Oven Plant	05/03/2014	47.5
Pipratand Colony	05/03/2014	49.3

Permissible Limit of Noise Level vide Gazette Notification G.S.R. 742(E) Dt. 25th Sep '2K

<i>Noise Level</i>	<i>6.00 AM to 10.00 PM</i>	<i>10.00 PM to 6.00 AM</i>
	<i>Leq 75 dB(A)</i>	<i>Leq 70 dB(A)</i>

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TEST REPORT

Lab No. T-2187	Job No. 094313025	Year - 2013-14	2013-14
Type of Sample:	Effluent Water	Quarter Ending	March '14
Customer / W. O. no. & Date:	CCL/DGM-HOD(E&F)/2013/ 1570 Dt. 22/11/13	Date of Receipt of Sample:	18.03.14
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	18.03.14-27.03.14
Testing Protocol:	MOEF -SCH-VI STANDARDS, Class 'A'	Date of Reporting:	27.03.14
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 : **Giridih** **Project:** **Coke-Oven Plant**

Stations: 1. Kabriband Sump Water **Date of Sampling:** **05/03/2014**

2.

3.

Sl.No.	Parameter	Sampling Stations			Desirable Limits	MOEF -SCH-VI STANDARDS Class 'A'	BIS Standard & Method
		1	2	3			
1	Total Suspended Solids, mg/l, Max	26			25.00	100.0	IS 3025/17:1984, R:1996, Gravimetric
2	pH value	8.05			0.01	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
3	Temperature (°C)	24.6			5.0	Shall not exceed 5 C above the receiving temp.	IS-3025/09:1984, Thermometric
4	Oil & Grease, mg/l, Max	2.00			2.00	10.0	IS 3025/39:1991, R : 2003, Partition Gravimetric
5	Total Residual Chlorine, mg/l, Max	<0.02			0.02	1.0	APHA, 22 nd Edition, DPD
6	Ammonical Nitrogen, mg/l, Max	0.22			0.01	50.0	IS 3025/34:1988, R : 2009, Nessler's
7	Total Kjeldahl Nitrogen, mg/l, Max	1.70			1.00	100.0	IS:3025/34:1988, Nessler's
8	Free Ammonia, mg/l, Max	<0.01			0.01	5.0	IS:3025/34:1988, Nessler's
9	B.O.D (3 days 27°C), mg/l, Max	2.00			2.00	30.0	IS 3025 /44:1993,R:2003 3 day incubation at 27°C
10	COD, mg/l, Max	32			4.00	250.0	APHA, 22 nd Edition, Closed Reflux, Titrimetric
11	Arsenic, mg/l, Max	<0.005			0.005	0.2	IS 3025/37:1988 R : 2003, AAS-VGA
12	Lead, mg/l, Max	<0.005			0.005	0.1	APHA, 22 nd Edition, AAS-GTA
13	Cadmium, mg/l, Max	<0.0005			0.0005	2.0	APHA, 22 nd Edition, AAS-GTA
14	Hexavalent Chromium, mg/l, Max	<0.01			0.01	0.1	APHA, 22 nd Edition, Diphenylcarbohydrazide
15	Total Chromium, mg/l, Max	0.42			0.06	2.0	IS-3025/52:2003, AAS-Flame
16	Copper, mg/l, Max	<0.03			0.03	3.0	IS 3025/42: 1992 R : 2009, AAS-Flame
17	Zinc, mg/l, Max	0.01			0.01	5.0	IS 3025 /49 : 1994, R : 2009, AAS-Flame
18	Selenium, mg/l, Max	<0.005			0.005	0.05	APHA, 22 nd Edition, AAS-GTA
19	Nickel, mg/l, Max	<0.10			0.10	3.0	IS-3025/54:2003, AAS-Flame
20	Fluoride, mg/l, Max	0.64			0.02	2.0	APHA, 22 nd Edition, SPADNS
21	Dissolved Phosphate, mg/l, Max	<0.30			0.30	5.0	APHA, 22 nd Edition Molybdovanadate
22	Sulphide, mg/l, Max	<0.005			0.005	2.0	APHA, 22 nd Edition, Methylene Blue
23	Phenolic Compounds, mg/l, Max	<0.002			0.002	1.0	APHA, 22 nd Edition 4-Amino Antipyrine
24	Manganese, mg/l, Max	<0.02			0.02	2.0	IS-3025/59:2006, AAS-Flame
25	Iron, mg/l, Max	<0.06			0.06	3.0	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
26	Nitrate Nitrogen, mg/l, Max	2.7			0.50	10.0	APHA, 22 nd Edition, UV-Spectrophotometric

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TEST REPORT

Lab No. T-2187	Job No. 094313025	Year - 2013-14	2013-14
Type of Sample:	Surface Water	Quarter Ending	March '14
Customer / W. O. no. & Date:	CCL/DGM-HOD(E&F)/2013/ 1570 Dt. 22/11/13	Date of Receipt of Sample:	18.03.14
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	18.03.14-27.03.14
Testing Protocol:	-	Date of Reporting:	27.03.14
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 :	Giridih	Project:-	Coke-Oven Plant
Stations:	1. Kamajore Nala U/S of Plant 2. Kamajore Nala D/S of Plant 3. 4.	Date of Sampling:	05/03/2014 05/03/2014

Sl.No	Parameter	Sampling Stations				Desirable Limits	BIS Standard & Method
		1	2	3	4		
1	Total Suspended Solids, mg/l, Max	52	68			25.00	IS 3025 /17:1984, R :1996, Gravimetric
2	Disolved Oxygen, min.	5.70	5.30			0.10	IS 3025/381989, R : 2003, Winkler Azide
3	pH value	8.14	8.40			0.01	IS-3025/11:1983, R-1996, Electrometric
4	Iron, mg/l, Max	<0.06	<0.06			0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
5	Chlorides, mg/l, Max	40	48			2.00	IS-3025/32:1988, R-2007, Argentometric
6	BOD (3 days 27°C), mg/l, Max	2.40	2.80			2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
7	Dissolved Solids, mg/l, Max	288	344			25.00	IS 3025 /16:1984 R : 2006, Gravimetric
8	Copper, mg/l, Max	<0.03	<0.03			0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
9	Sulphate, mg/l, Max	18	24			2.00	APHA, 22 nd Edition Turbidity
10	Nitrate , mg/l, Max	7.97	8.41			0.50	APHA, 22 nd Edition, UV-Spectrophotometric
11	Fluoride, mg/l, Max	0.70	0.78			0.02	APHA, 22 nd Edition SPADNS
12	Cadmium, mg/l, Max	<0.0005	<0.0005			0.0005	APHA, 22 nd Edition AAS-GTA
13	Selenium, mg/l, Max	<0.005	<0.005			0.005	APHA, 22 nd Edition AAS-GTA
14	Arsenic, mg/l, Max	<0.005	<0.005			0.005	IS 3025/37:1988 R : 2003, AAS-VGA
15	Lead, mg/l, Max	<0.005	<0.005			0.005	APHA, 22 nd Edition AAS-GTA
16	Zinc, mg/l, Max	0.01	0.01			0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame
17	Hexavalent Chromium, mg/l, Max	<0.01	<0.01			0.01	APHA, 22 nd Edition, 1,5 - Diphenylcarbohydrazide
18	Phenolics, mg/l, Max	<0.002	<0.002			0.002	APHA, 22 nd Edition 4-Amino Antipyrine

Analysed By

Checked By

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**G.M (Chemist)
Env. Lab., CMPDI(HQ)
(Authorized Signatory)**

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.