

# **ENVIRONMENTAL STATEMENT**

**OF**

**ASHOKA OPENCAST PROJECT**

**FOR**

**2013-14**



**CENTRAL COALFIELDS LIMITED**

***AUGUST, 2014***

**ENVIRONMENT DIVISION  
CCL, RANCHI**

## **EXECUTIVE SUMMARY**

**E-1** This Annual Environmental Statement has been prepared as per gazette notification no.G.S.R. 329 (E) dated 13th March 1992 laid down by Ministry of Environment and Forest. The Environmental Audit has been subsequently renamed to " **Environmental Statement** " vide MOEF gazette notification no. G.S.R. 386 (E) dated 22nd April 1993.

**E-2** Ashoka Opencast Project of Central Coalfields Limited is located in the North Karanpura Coalfields in Chatra distt. of Jharkhand State. The project locations and other surface features are given in the plan annexed as Annexure I.

**E-3** The Ashoka Opencast Project has commenced its operation since 1995. The present coal production of the project (2013-14) is 7.50 MT. The estimated mineable reserve in the Ashoka block is 121.66 MT as on 01.04.2014.

**E-4** The Environmental Monitoring was carried out quarterly as per the guidelines of Ministry of Environment & Forest (MOEF). The Environmental Monitoring results for the four quarters of 2013-14 are appended as Annexures II.

**E-5** Ambient air quality was 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 . However , the results show that SPM , SO<sub>2</sub> , NO<sub>x</sub> values are generally below permissible limits prescribed by Ministry of Environment and Forest (MOEF)

**E-6** Water is not directly used during mining for coal production. It percolates into the working area during mining operation. However, water is consumed for other purposes mainly, for fire-fighting, haul road dust suppression, workshop etc and recharging the ground water by passing mine water through four ponds.

**E-7** Raw materials are used in coal mining activities used are explosives and POL for machines and automobiles. The consumption is detailed in Part-B of Statement Form.

**E-8** Regular measures are being taken to control air , water & noise pollutions discussed in detail in part G, H & I of the Statement Form.

## CHAPTER I

### **PROJECT DESCRIPTION**

#### **1.1 INTRODUCTION :**

The Ashoka Opencast project of Central Coalfields Limited is located in North Karanpura Coalfield in Chatra district. of Jharkhand State. The Ashoka Opencast project started in 1995. The planned capacity of the project is 10 MTY with stripping ratio of 1 : 1.46 in Ashoka Block. Estimated mineable reserve in Ashoka block is 121.66 MT as on 01.04.2014. Ashoka block coal reserve is non-coking type, useful for power house mainly.

#### **1.2 LOCATION & COMMUNICATION**

The Ashoka block area is bounded by latitudes 23° 42' 53" and 23° 44' 41" and longitudes 84° 57' 07" and 85° 02' 11" E .Access to Ashoka block is by a State Highway connecting Khalari with Hazaribagh via Dakra , Tandwa and Barkagaon.

Khalari and Ray Railway Station on Gomoh - Dehri-on-sone loop line on the eastern railway are at a distance of 10 Kms. and 5 Kms. respectively.

The project location and other surface features are given in the plan and annexed as Annexures

#### **1.3 GEOLOGY OF ASHOKA BLOCK :**

Ashoka Block contains coal measures of the Barakar formation and underlying Katharbari formation. The opencast reserves of the block is contained in the Barakar formation. The area is generally covered by alluvium which is up to 10 mtrs. thick . The coal measures predominantly consists of eremites including greywacke, sub greywacke , sub arkoses, gritty sandstones and conglomerates. Subordinates litho types are shale, sandy shale, carbonaceous shale and interbedded sand stone and shale. Sandstones display well developed current bedding with symmetrical rhythms Ashoka block is part of the Northern limits of Karkatta plunging anticline. The dip generally varies from 1 in 11 to 1 in 57 North.

#### **1.4 TOPOGRAPHY**

Ashoka block is characterized by more or less flat terrain with gentle undulations. The highest and the lowest elevations in Ashoka block are 480 m and 420m (above MSL) respectively. The northern side of this block is bounded by Satpahari range of hills.

Damodar river, which forms the main drainage system, flows from west to east along the southern boundary of the block. Surface run offs within the block drains into Benti Nallah which joins Damodar River.

**ENVIRONMENT STATEMENT FOR ASHOKA OCP, C.C. LTD.  
FOR THE YEAR 2013-14**

**PART-A**

Name and Address of the mine

NAME : ASHOKA OPENCAST PROJECT  
 PLACE : BENTI  
 POST : BACHRA  
 DISTT. : CHATRA, Jharkhand  
 TELEX : STD CODE 06531 66611 EXTN: 4500

II. INDUSTRY CATEGORY: PRIMARY

III. Date of last Environmental Audit Report submitted

- Environmental Statement report was last submitted for the year 2013

IV. PRODUCTION CAPACITY : 10 MTY

V. YEAR OF STARTING : 1994-95

**PART - B**

**WATER AND RAW MATERIAL CONSUMPTION**

**1. WATER CONSUMPTION( cu.m/day)**

**a. Mining**

i. Haul road dust suppression : 412 M<sup>3</sup>/ Day  
 ii. Workshop : 30 M<sup>3</sup>/ Day  
 iii. Fire Fighting : 25 M<sup>3</sup>/Day  
 iv. Others (Service bulding etc.) : 5 M<sup>3</sup>/Day

**b. Domestic**

i. Colony : Scattered at different places 8.71 M<sup>3</sup>/ Day

Name of Product	Water Consumption per Unit of Product			
	During financial year (2013-14)		During financial year (2012-13)	
	Industrial	Domestic	Industrial	Domestic
1. ROM Coal	0.0232 m3 / te.	0.0004 m3/te.	0.0212 m3 / te.	0.0004 m3/te.

2. **RAW MATERIAL CONSUMPTION :**

Sl. No.	Name of raw material	Name of products	Consumption of raw material ( per unit of output)	Consumption of raw material ( per unit of out put )
			During the financial year (2013-14)	During the financial year (2012-13)
	No raw material is used for coal production	ROM	Nil	Nil

However Explosive – 2228565 Kg has been used in the year 2013-14.

**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	Water discharged from: (a) Mine - Nil (b)Workshop - Nil	The quality of mine water at the discharge point vis-à-vis the prescribed standards are given in <b>Annexure</b>	The analysis results reveal that most of the parameters are below the limits prescribed by MOEF.
AIR	It is difficult to quantify the amount of air pollutants. The main air pollutant is suspended particulate matter (SPM).	The Ambient air quality monitoring results are placed as Annexure	Ambient air quality results show that SO <sub>2</sub> , NOX, CO & SPM level are well within prescribed standards.

**PART - D**

**HAZARDOUS WASTES**

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

Hazardous Wastes	Total Quantity	
	During the financial year (2013-14)	During the financial year (2012-13)

From Mining Process	NIL	NIL
From Material handling System	NIL	NIL

**PART - E**

**SOLID WASTES**

	Total quantity	
	During the financial year (2013-14) M cum	During the financial year (2012-13) M cum
a) From process	5.71	7.97
b) From pollution control facilities	NIL	NIL

**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 is 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, **5.71** Million cubic meter of overburden was generated. The overburden material are more or less homogeneous comprising mainly shale, sand, silt, clay and gravel and is used for back-filing.

**3. DISPOSAL PRACTICE :**

Presently, the OB material is being filled in decoaled area of quarry. The external O.B dump of previous year is used in back filling and reclamation of land.

**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.

### **1.0 AIR POLLUTION CONTROL MEASURES :**

The following measures have been taken to control Air pollution:

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

### **2.0 WATER POLLUTION CONTROL MEASURES :**

The following measures have been taken to control water pollution from the mine :

- (i) The mine water discharge outside only in the rainy season, which is allowed to settle in sump before pumping to natural drains. Some of mine water is also used for haul road dust suppression, for haul road dust suppression, in workshop and in fire fighting in the mine
- (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 the settling ponds .
- (iii) An Oil & grease traps and settling ponds are operating in the workshop to prevent water pollution.
- (iv) Colony and other service buildings are provided with septic tank and soak- pit.
- (v) A garland drain is provided around the quarry to collect the surface runoff. This also prevents storm water to enter into the quarry area.

### **3.0 NOISE POLLUTION CONTROL MEASURES :**

- (i) Blasting operation is carried out between 12.30 PM to 3.00 PM.
- (ii) Regular maintenance of HEMMs, CHP, and other equipments.
- (iii) Use of HEMMs with sound proof cabin.
- (iv) Providing belt around noise generating centers.

### **4.0 MEASURES FOR RECLAMATION OF LAND:**

At present overburden generated during mining is being used as refilling material in decoaled area of quarry. As soon as the dumps reaches its final stage it is proposed to start technical and biological reclamation of the dumps.

At the end of mining operation , some decoaled 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 and some part being penetrated in ground for recharging the ground water.

## **PART - H**

### **ADDITIONAL INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION**

The following are the additional investment proposal for Environmental protection

- (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.

(ii) The Environmental Monitoring of the project will be continued quarterly as per guideline of MoEF.

(iii) Environmental statement report will be prepared for each financial year ending 31<sup>st</sup> march.

(iv) 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**

1. The Environmental monitoring is carried out quarterly for the project by CMPDI as per the guidelines of the Ministry of Environment & Forest (MOEF).
2. The Environmental Statement for the project is prepared every year.
3. Ambient air quality, quality of effluent discharged from the mine and noise level - all conform to the prescribed limits.
4. To control fugitive dust on haul road arrangements has been made from water sprinkling on the haul road.
5. 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. Till 2012-13, 193.29 Ha. of back filled area has been reclaimed and 4.98 lakhs saplings have been planted over the reclaimed area.

PROJECT OFFICER  
ASHOK PROJECT.



## TEST REPORT

Job No. : 094313025 Date of Issue: 14/05/13  
 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.25<sup>th</sup> Sept.'2000  
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25<sup>th</sup> Sept.'2000  
 Date of receipt of sample : 02/05/13 Date of performance of Test: 02/05/13 to 14/05/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** 2013  
**Project** : *Ashoka OCP* **Quarter Ending June** '2013

**Name of the Sampling Station** *Benti Village*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
25/04/2013 - 26/04/2013	449	256	10	38	

**Name of the Sampling Station** *Tola Across Bentina*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
25/04/2013 - 26/04/2013	245	125	11	44	

**Analysed By**

**Checked By**

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

- Note:
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  - 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.

## TEST REPORT

Job No. : 094313025 Date of Issue: 02/05/13  
 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.25<sup>th</sup> Sept.'2000  
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25<sup>th</sup> Sept.'2000  
 Date of receipt of sample : 02/05/13 Date of performance of Test: -

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** 2013  
**Project** : *Ashoka OCP* **Quarter Ending June** '2013

**Sampling Stations**

- 1 Benti Village
- 2 Tola Across Bentinaala

Station Name	Date of Sampling	Noise Level
Benti Village	25/04/2013	48.6
Tola Across Bentinaala	25/04/2013	46.5

*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>

**Checked By**

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

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## TEST REPORT

Job No. : 094313025 Date of Issue: 16/05/13  
 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 : 02/05/13 Date of performance of Test: 02/05/13 to 16/5/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** 2013  
**Project** : *Ashoka OCP* **Quarter Ending June** '2013  
**Sampling Stations** 1 Lagoon discharge 30-April-13

*BDL - Below Detectable Limit*

*All parameter are in mg/l unless specified*

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)	29.2			-	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	0.22			0.02	50.0	
8	Total Kjeldahl Nitrogen	2.70			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	40			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	BDL			0.02	3.0	
17	Zinc	BDL			0.02	5.0	
18	Selenium	BDL			0.01	0.05	
19	Nickel	BDL			0.10	3.0	
20	Fluoride	0.48			0.05	2.0	
21	Dissolved Phosphate	0.16			0.01	5.0	
22	Sulphide	0.03			0.01	2.0	
23	Phenolic Compounds	BDL			0.001	1.0	
24	Manganese	0.04			0.05	2.0	
25	Iron	0.06			0.05	3.0	
26	Nitrate Nitrogen	1.5			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: 16/05/13  
 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 : 02/05/13 Date of performance of Test: 02/05/13 to 16/5/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** 2013  
**Project** : *Ashoka OCP* **Quarter Ending June** '2013  
**Sampling Stations** 1 Bentinaala near Quarry 30-April- 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	22			1.00	300	
2	Total Suspended Solids	38			5.00	\$	
3	Disolved Oxygen	4.70			0.10	4	
4	pH value	8.08			0.01	6.5-8.5	
5	Iron	BDL			0.05	5	
6	Chlorides	92			0.25	600	
7	BOD (3 days 27°C)	2.70			1.00	3	
8	Total Dissolved Solids	774			1.00	1500	
9	Copper	BDL			0.02	1.5	
10	Sulphate	132			1.00	400	
11	Nitrate	9.30			0.01	50	
12	Fluoride	0.48			0.05	1.5	
13	Selenium	BDL			0.01	0.05	
14	Arsenic	BDL			0.01	0.2	
15	Lead	BDL			0.05	0.1	
16	Zinc	BDL			0.02	15	
17	Hexavalent Chromium	BDL			0.01	0.05	
18	Phenolics	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: 16/05/13  
 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 : Drinking Water  
 Product Specification (BIS) : IS: 10500 Drinking Water Standards  
 Test Required : 23 items as per IS: 10500  
 Date of receipt of sample : 02/05/13 Date of performance of Test: 02/05/13 to 16/5/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** 2013  
**Project** : *Ashoka OCP* **Quarter Ending June** '2013

**Sampling Stations** 1 Well Water / Ground Water in the Mine Premises 15-April-13

*All Parameters are in mg/l unless specified*

*BDL- Below Detectable Limit*

Sl.No.	Parameter	Sampling Stations			Below Detection Limit	IS:10500 Drinking Water Standards	Remarks
		1	2	3			
1	Colour, Hazen unit.Min.	6			1.0	5	
2	Odour	Unobj.			--	Unobjectionable	
3	Turbidity, NTU, Max	7			1.0	5	
4	pH value	8.04			0.01	6.5-8.5	
5	Alkalinity	136			0.50	200	
6	Total Hardness (c <sub>a</sub> co <sub>3</sub> )	232			0.50	300	
7	Iron	BDL			0.05	0.3	
8	Chlorides	60			0.25	250	
9	Residual Free chlorine, Min.	0.14			0.04	0.2	
10	Total Dissolved Solids	424			1.00	500	
11	Calcium	60.8			0.02	75	
12	Copper	BDL			0.02	0.05	
13	Manganese	0.06			0.05	0.1	
14	Sulphate	72			1.00	200	
15	Nitrate	4.87			0.01	45	
16	Fluoride	0.40			0.05	1.0	
17	Selenium	BDL			0.01	0.01	
18	Arsenic	BDL			0.01	0.05	
19	Lead	BDL			0.05	0.05	
20	Zinc	BDL			0.02	5	
21	Hexavalent Chromium	BDL			0.01	0.05	
22	Boron	BDL			0.01	1	
23	Phenolics	BDL			0.001	0.001	

**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: 08/08/13  
 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.25<sup>th</sup> Sept.'2000  
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25<sup>th</sup> Sept.'2000  
 Date of receipt of sample : 31/07/13 Date of performance of Test: 31/07/13 to 08/08/13

### TEST RESULT

The sample has been tested with the following results:-

Area : *Piparwar* Year 2013  
 Project : *Ashoka OCP* Quarter Ending Sept. '2013

**Name of the Sampling Station** *Benti Village*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
25/07/2013 - 26/07/2013	64	43	<25	19	

**Name of the Sampling Station** *Tola Across Bentina*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
25/07/2013 - 26/07/2013	79	43	<25	17	

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: 31/07/13  
 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.25<sup>th</sup> Sept.'2000  
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25<sup>th</sup> Sept.'2000  
 Date of receipt of sample : 31/07/13 Date of performance of Test: -

### TEST RESULT

The sample has been tested with the following results:-

Area : *Piparwar* Year 2013  
 Project : *Ashoka OCP* Quarter Ending Sept. '2013

Sampling Stations  
 1 Benti Village  
 2 Tola Across Bentalala

Station Name	Date of Sampling	Noise Level
Benti Village	25/07/2013	47.9
Tola Across Bentalala	25/07/2013	49.3

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

Noise Level	6.00 AM to 10.00 PM	10.00 PM to 6.00 AM
	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  
 Name of the Customer : CCL

Date of Issue: 12/08/13

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 : 31/07/13 Date of performance of Test: 31/07/13 to 12/08/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : Piparwar  
**Project** : Ashoka OCP

**Year** 2013  
**Quarter Ending Sept.** '2013

**Sampling Stations** 1 Lagoon discharge

29-Jul-13

*BDL - Below Detectable Limit*

*All parameter are in mg/l unless specified*

SI.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	36			25.00	100.0	
3	pH value	8.07			0.01	5.5 to 9.0	
4	Temperature (°C)	26.8			-	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	0.30			0.01	50.0	
8	Total Kjeldahl Nitrogen	2.75			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	0.42			0.02	2.0	
22	Dissolved Phosphate	0.20			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	1.8			0.50	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: 12/08/13  
 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 : 31/07/13 Date of performance of Test: 31/07/13 to 12/08/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** 2013  
**Project** : *Ashoka OCP* **Quarter Ending Sept.** '2013  
**Sampling Stations** 1 Bentina near Quarry 29-Jul- 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	20			5.0	300	
2	Total Suspended Solids	34			25.00	\$	
3	Disolved Oxygen	5.10			0.10	4	
4	pH value	8.04			0.01	6.5-8.5	
5	Iron	BDL			0.06	5	
6	Chlorides	94			2.00	600	
7	BOD (3 days 27°C)	2.20			2.00	3	
8	Total Dissolved Solids	770			25.00	1500	
9	Copper	BDL			0.03	1.5	
10	Sulphate	128			2.00	400	
11	Nitrate	7.53			0.50	50	
12	Fluoride	0.42			0.02	1.5	
13	Cadmium	BDL			0.0005	0.01	
14	Selenium	BDL			0.005	0.05	
15	Arsenic	BDL			0.005	0.2	
16	Lead	BDL			5.00	0.1	
17	Zinc	BDL			0.01	15	
18	Hexavalent Chromium	BDL			0.01	0.05	
19	Phenolics	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*

**Analysed By**

**Checked By**

**G.M (Chemist)**  
**Env. Lab, CMPDI(HQ)**  
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## TEST REPORT

Job No. : 094313025  
 Name of the Customer : CCL

Date of Issue: 12/08/13

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

Sample Description : Drinking Water

Product Specification (BIS) : IS: 10500 Drinking Water Standards

Test Required : 24 items as per IS: 10500

Date of receipt of sample : 31/07/13                      Date of performance of Test: 31/07/13 to 12/08/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar*  
**Project** : *Ashoka OCP*

**Year** : 2013  
**Quarter Ending Sept.** : '2013

**Sampling Stations** : 1 Well Water / Ground Water in the Mine Premises

29-Jul-13

*All Parameters are in mg/l unless specified*

*BDL- Below Detectable Limit*

Sl.No.	Parameter	Sampling Stations			Below Detection Limit	IS:10500 Drinking Water Standards	Remarks
		1	2	3			
1	Colour, Hazen unit.Min.	7			5.0	5	
2	Odour	Unobj.			--	Unobjectionable	
3	Turbidity, NTU, Max	8			1.0	5	
4	pH value	7.82			0.01	6.5-8.5	
5	Alkalinity	132			4.00	200	
6	Total Hardness (CaCO <sub>3</sub> )	228			4.00	300	
7	Iron	BDL			0.06	0.3	
8	Chlorides	64			2.00	250	
9	Residual Free chlorine, Min.	0.16			0.02	0.2	
10	Total Dissolved Solids	426			25.00	500	
11	Calcium	52.8			1.60	75	
12	Copper	BDL			0.03	0.05	
13	Manganese	BDL			0.02	0.1	
14	Sulphate	68			2.00	200	
15	Nitrate	3.98			0.5	45	
16	Fluoride	0.40			0.02	1.0	
17	Cadmium	BDL			0.0005	0.01	
18	Selenium	BDL			0.005	0.01	
19	Arsenic	BDL			0.005	0.05	
20	Lead	BDL			0.005	0.05	
21	Zinc	0.02			0.01	5	
22	Hexavalent Chromium	BDL			0.01	0.05	
23	Boron	BDL			0.02	1	
24	Phenolics	BDL			0.002	0.001	

**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: 22/11/13  
 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.25<sup>th</sup> Sept.'2000  
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25<sup>th</sup> Sept.'2000  
 Date of receipt of sample : 14/11/13 Date of performance of Test: 14/11/13 to 22/11/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** : 2013  
**Project** : *Ashoka OCP* **Quarter Ending Dec.** : '2013

All parameters are in  $\mu\text{g}/\text{m}^3$

#### **Name of the Sampling Station** *Benti Village*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
06/11/2013 - 07/11/2013	98	67	<25	20	

#### **Name of the Sampling Station** *Tola Across Bentina*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
07/11/2013 - 08/11/2013	66	48	<25	21	

**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: 14/11/13  
 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.25<sup>th</sup> Sept.'2000  
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25<sup>th</sup> Sept.'2000  
 Date of receipt of sample : 14/11/13 Date of performance of Test: -

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** 2013  
**Project** : *Ashoka OCP* **Quarter Ending Dec.** '2013

**Sampling Stations**  
 1 Benti Village  
 2 Tola Across Bentinaala

Station Name	Date of Sampling	Noise Level
Benti Village	06/11/2013	47.5
Tola Across Bentinaala	07/11/2013	49.5

*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)

## TEST REPORT

Job No. : 094313025 Date of Issue: 26/11/13  
 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 : 14/11/13 Date of performance of Test: 14/11/13 to 26/11/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** 2013  
**Project** : *Ashoka OCP* **Quarter Ending Dec.** '2013

**Sampling Stations** 1 Lagoon discharge 13-Nov-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	BIS Standard	Method
		1	2	3				
1	Colour & Odour	Acceptable			5.0 Cannot be quantified	Acceptable	APHA, 22 <sup>nd</sup> Edition IS 3025/05:1983	Pt.Cobalt Physical, Qualitative
2	Total Suspended Solids	48			25.00	100.0	IS-3025/17:1984	Gravimetric
3	pH value	7.98			0.01	5.5 to 9.0	IS-3025/11:1983	Electrometric
4	Temperature (°C)	20.8			0.5	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 <sup>nd</sup> Edition	DPD
7	Ammonical Nitrogen	0.40			0.01	50.0	IS:3025/34:1988	Nessler's
8	Total Kjeldahl Nitrogen	2.80			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	50			4.00	250.0	IS-3025/58:2006	Titration
12	Arsenic	BDL			0.005	0.2	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
13	Lead	BDL			0.005	0.1	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
14	Cadmium	BDL			0.0005	2.0	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
15	Hexavalent Chromium	0.01			0.01	0.1	APHA, 22 <sup>nd</sup> 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	0.04			0.01	5.0	IS-3025/49:1994	AAS-Flame
19	Selenium	BDL			0.005	0.05	APHA, 22 <sup>nd</sup> 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 <sup>nd</sup> Edition	SPADNS
22	Dissolved Phosphate	0.27			0.30	5.0	APHA, 22 <sup>nd</sup> Edition	Molybdovanadate
23	Sulphide	0.006			0.005	2.0	APHA, 22 <sup>nd</sup> Edition	Methylene Blue
24	Phenolic Compounds	0.002			0.002	1.0	APHA, 22 <sup>nd</sup> Edition	4-Amino Antipyrine
25	Manganese	BDL			0.02	2.0	APHA, 22 <sup>nd</sup> Edition	AAS-Flame
26	Iron	BDL			0.06	3.0	IS-3025/53:2003	AAS-Flame
27	Nitrate Nitrogen	2.4			0.50	10.0	APHA, 22 <sup>nd</sup> Edition	UV Spectrophotometric

**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: 26/11/13  
 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 : 14/11/13 Date of performance of Test: 14/11/13 to 26/11/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : Piparwar **Year** : 2013  
**Project** : Ashoka OCP **Quarter Ending Dec.** : '2013  
**Sampling Stations** 1 Bentinala near Quarry **13-Nov-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	17			5.0	300	APHA, 22 <sup>nd</sup> Edition	Platinum Cobalt
2	Total Suspended Solids	58			25.00	\$	IS-3025/17:1984	Gravimetric
3	Disolved Oxygen	5.10			0.10	4	IS-3025/38:1989	Winkler Azide
4	pH value	8.10			0.01	6.5-8.5	IS-3025/11:1983	Electrometric
5	Iron	BDL			0.06	5	IS-3025/53:2003	AAS-Flame
6	Chlorides	82			2.00	600	IS-3025/32:1988	Argentometric
7	BOD (3 days 27°C)	3.00			2.00	3	IS-3025/44:1993	3 day incubation at 27°C
8	Total Dissolved Solids	778			25.00	1500	IS-3025/16:1984	Gravimetric
9	Copper	BDL			0.03	1.5	IS-3025/42:1992	AAS-Flame
10	Sulphate	114			2.00	400	APHA, 22 <sup>nd</sup> Edition	Turbidity
11	Nitrate	8.41			0.50	50	IS-3025/34:1988	Nessler's
12	Fluoride	0.43			0.02	1.5	APHA, 22 <sup>nd</sup> Edition	SPADNS
13	Cadmium	BDL			0.0005	0.01	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
14	Selenium	BDL			0.005	0.05	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
15	Arsenic	BDL			0.005	0.2	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
16	Lead	BDL			0.005	0.1	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
17	Zinc	BDL			0.01	15	IS-3025/49:1994	AAS-Flame
18	Hexavalent Chromium	0.01			0.01	0.05	APHA, 22 <sup>nd</sup> Edition	Diphenylcarbohydr azide
19	Phenolics	0.002			0.002	0.005	APHA, 22 <sup>nd</sup> 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

**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: 26/11/13  
 Name of the Customer : CCL  
 Customer Letter Ref. No. (if any): CCL/DGM-HOD(E&F)/2013/1570 Dt. 22/11/13  
 Sample Description : Drinking Water  
 Product Specification (BIS) : IS: 10500 Drinking Water Standards  
 Test Required : 24 items as per IS: 10500  
 Date of receipt of sample : 14/11/13 Date of performance of Test: 14/11/13 to 26/11/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : *Piparwar* **Year** 2013  
**Project** : *Ashoka OCP* **Quarter Ending Dec.** '2013

**Sampling Stations** 1 Well Water / Ground Water in the Mine Premises 13-Nov-13

*All Parameters are in mg/l unless specified*

*BDL- Below Detectable Limit*

Sl.No	Parameter	Sampling Stations			Below Detection Limit	IS:10500 Drinking Water Standards	BIS Standard	Method
		1	2	3				
1	Colour, Hazen unit.Min.	6			5.0	5	APHA, 22 <sup>nd</sup> Edition	Platinum Cobalt
2	Odour	Unobj.			--	Unobj.	IS 3025 /05:1983	Physical, Qualitative
3	Turbidity, NTU, Max	8			1.0	5	IS-3025/10:1984	Nephelometric
4	pH value	7.78			0.01	6.5-8.5	IS-3025/11:1983	Electrometric
5	Alkalinity	140			4.00	200	IS-3025/23:1986	Titration
6	Total Hardness (c <sub>a</sub> CO <sub>3</sub> )	216			4.00	300	IS-3025/21:1983	EDTA
7	Iron	BDL			0.06	0.3	IS-3025/53:2003	AAS-Flame
8	Chlorides	48			2.00	250	IS-3025/32:1988	Argentometric
9	Residual Free chlorine, Min.	0.18			0.02	0.2	APHA, 22 <sup>nd</sup> Edition	DPD
10	Total Dissolved Solids	432			25.00	500	IS-3025/16:1984	Gravimetric
11	Calcium	51.2			1.60	75	IS-3025/40:1991	EDTA
12	Copper	BDL			0.03	0.05	IS-3025/42:1992	AAS-Flame
13	Manganese	BDL			0.02	0.1	APHA, 22 <sup>nd</sup> Edition	AAS-Flame
14	Sulphate	64			2.00	200	APHA, 22 <sup>nd</sup> Edition	Turbidity
15	Nitrate	5.31			0.5	45	IS-3025/34:1988	Nessler's
16	Fluoride	0.40			0.02	1.0	APHA, 22 <sup>nd</sup> Edition	SPADNS
17	Cadmium	BDL			0.0005	0.01	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
18	Selenium	BDL			0.005	0.01	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
19	Arsenic	BDL			0.005	0.05	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
20	Lead	BDL			0.005	0.05	APHA, 22 <sup>nd</sup> Edition	AAS-GTA
21	Zinc	BDL			0.01	5	IS-3025/49:1994	AAS-Flame
22	Hexavalent Chromium	0.01			0.01	0.05	APHA, 22 <sup>nd</sup> Edition	Diphenylcarbohydrazide
23	Boron	BDL			0.20	1.0	APHA, 22 <sup>nd</sup> Edition	Carmine
24	Phenolics	BDL			0.002	0.001	APHA, 22 <sup>nd</sup> Edition	4-Amino Autipyrine

**Analysed By**

**Checked By**

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

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## TEST REPORT

<b>Lab No. T-2187</b>	<b>Job No. 094313025</b>	<b>Year</b>	<b>2013-14</b>
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:	01.04.14
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	01.04.14-10.04.14
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution	Date of Reporting:	10.04.14
Testing Protocol:	Gazette Notification no. G.S.R 742(E) dt.25 <sup>th</sup> 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 :** **Piparwar** **Project:** **Ashoka OCP**

**Stations:**

1. Benti Village
2. Tola Across Bentinala
- 3.
- 4.

**Date of Sampling:**  
21-22/03/2014  
24-25/03/2014

S.No	Test Parameters	Units	Test Method	TEST RESULT			
				1	2	3	4
Stations:							
9.	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	390	362		
10.	Particulate Matter (PM <sub>10</sub> )	µg/m <sup>3</sup>	IS: 5182/23 2006	185	208		
11.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS: 5182 /02 2001 R-2006	<25	<25		
12.	Nitrogen Oxides (as NO <sub>x</sub> )	µg/m <sup>3</sup>	IS: 5182 /02 1975 R-1998	23	20		

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

**Analysed By**

**Checked By**

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

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## TEST REPORT

<b>Lab No. T-2187</b>	<b>Job No. 094313025</b>	<b>Year</b>	<b>2013-14</b>
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:	01.04.14
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	-
Testing Protocol:	Gazette Notification no. G.S.R 742(E) dt.25 <sup>th</sup> Sept.'2000	Date of Reporting:	-
Remarks:			

### TEST RESULT

The sample has been tested with the following results:-

**Area :** **Piparwar** **Project:** **Ashoka OCP**

**Stations:**

1. Benti Village
2. Tola Across Bentina
- 3.
- 4.

Station Name	Date of Sampling	Noise Level
Benti Village	21/03/2014	47.2
Tola Across Bentina	24/03/2014	48.6

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

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

**Checked By**

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

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- 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.



## TEST REPORT

<b>Lab No. T-2187</b>	<b>Job No. 094313025</b>	<b>Year - 2013-14</b>	<b>2013-14</b>
Type of Sample:	<b>Surface Water</b>	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:	01.04.14
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	01.04.14-12.04.14
Testing Protocol:	IS: 2296 Inland Surface Water Class 'C'	Date of Reporting:	12.04.14
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 :** **Piparwar** **Project:** **Ashoka OCP**  
**Stations:** **1. Benti nala near Quarry** **Date of Sampling:** **26/03/2014**  
**2.**  
**3.**

Sl. No	Parameter	Sampling Stations				Desirable Limits	BIS Standard & Method
		1	2	3	4		
1	Total Suspended Solids, mg/l, Max	56				25.00	IS 3025 /17:1984, R :1996, Gravimetric
2	Disolved Oxygen, min.	5.90				0.10	IS 3025/381989, R : 2003, Winkler Azide
3	pH value	8.08				0.01	IS-3025/11:1983, R-1996, Electrometric
4	Iron, mg/l, Max	<0.06				0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
5	Chlorides, mg/l, Max	84				2.00	IS-3025/32:1988, R-2007, Argentometric
6	BOD (3 days 27°C), mg/l, Max	2.60				2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
7	Dissolved Solids, mg/l, Max	678				25.00	IS 3025 /16:1984 R : 2006, Gravimetric
8	Copper, mg/l, Max	<0.03				0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
9	Sulphate, mg/l, Max	38				2.00	APHA, 22 <sup>nd</sup> Edition Turbidity
10	Nitrate , mg/l, Max	6.20				0.50	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
11	Fluoride, mg/l, Max	0.52				0.02	APHA, 22 <sup>nd</sup> Edition SPADNS
12	Cadmium, mg/l, Max	<0.0005				0.0005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
13	Selenium, mg/l, Max	<0.005				0.005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
14	Arsenic, mg/l, Max	<0.005				0.005	IS 3025/37:1988 R : 2003, AAS-VGA
15	Lead, mg/l, Max	<0.005				0.005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
16	Zinc, mg/l, Max	<0.01				0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame
17	Hexavalent Chromium, mg/l, Max	<0.01				0.01	APHA, 22 <sup>nd</sup> Edition, 1,5 - Diphenylcarbohydrazide
18	Phenolics, mg/l, Max	<0.002				0.002	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine

**Analysed By**

**Checked By**

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

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