

# **ENVIRONMENTAL STATEMENT**

**OF**



## **KARGALI UNDERGROUND PROJECT B&K AREA**

**FOR**

**2013-14**

**CENTRAL COALFIELDS LIMITED**

## EXECUTIVE SUMMARY

- E-1.** This Environment Statement Report is prepared as per the Gazette Notification No. G.S.R. 329(E) dated 13th March, 1992, the Ministry of Environment & Forests, Government of India.
- E.2.** **Bermo Seam Incline (Kargali UG) Project** of Central Coalfields Limited is situated in the East Bokaro coalfields in Bokaro District of Jharkhand state. The project location and other surface features are given in the plan annexed.
- E-3.** The Environmental Monitoring was carried out quarterly as per the guide lines of Ministry of Environment & Forests ( MOEF). The Environmental Monitoring results for four quarters are appended
- E-4.** Ambient air quality was monitored to study the level of air pollution. The main air pollutant is suspended particulate matter (SPM). The results show that SPM was found within permissible limits except one location for one quarter. It is difficult to quantify the amount of air pollutants generated due to mining.
- E- 5.** Water is not directly used during mining for coal production. It percolates into working area during mining operation. Mine water is discharged outside from working U/G mines. Main pollutant in mine water are suspended solids. The results show that the suspended solids are well within permissible limits.
- E-6.** The noise levels recorded are generally below permissible limits prescribed by the Ministry of Environment & Forests (MoEF).
- E-7.** Hazardous wastes are not being produced either from mining operation or from any pollution control facilities. Solid waste produced from the underground mining activities is negligible. Subsidence due to U/G mining is nominal.
- E-8.** Regular Measures are being taken to control air , water and noise pollution discussed in detail in part-G,H & I of Statement Form.

## **CHAPTER-1**

### **INTRODUCTION**

#### **1.1 GENERAL PROFILE**

Bermo Seam Incline (Kargali Underground) project of Central Coalfields Ltd. is located at Kargali, P.O.- Bermo, District - Bokaro in the East Bokaro Coalfield of JHARKHAND. It is situated on the Northern side of the Barkakana - Gomoh Railway line west of Dhori Colliery and comes under Bokaro & Kargali Area of CCL. This is a very old colliery. Development of Bermo seam by incline was started in the year 1983.

#### **1.2. COMMUNICATION**

Bermo Seam Incline (Kargali U.G.) is well connected by rail and road. The Gomoh-Barkakana loop line of Eastern Railway runs East - West on the southern side of the Project. Nearest Railway Station is Bermo from the Project.

The Hazaribagh-Bermo road runs East-West on the southern side of the Project. The block is situated at a distance of about 120 KM from Ranchi via Tenughat Dam.

#### **1.3. CLIMATIC CONDITIONS**

The climate is extreme. The summer is severe between April and June. The maximum temperature reaches upto 48<sup>0</sup> C during Summer and the minimum temperature reaches 6<sup>0</sup> C during Winter in the months of December and January.

1.4 **DESCRIPTION OF THE PROJECT**

Targeted production of this U.G. mine for year 2013-14 is 35,000 Te. The total mineable reserve of the mine is 7.2 MT of coal. The life of the project is estimated 50 years. The average Gradient is 1:4.3. Here grade of coal is W-IV.

The longitude and latitude of this colliery falls within 85<sup>0</sup>-58' and 28<sup>0</sup>- 48' / respectively.

Mineable coal reserve has been estimated 7.2 MT. BERMO SEAM INCLINE mine water is being discharged to one nearby pond and its overflow joins Subhas Nagar colony drainage, which ultimately joins Damodar River via Karo Nala Old working/ abandoned mine of Bermo Seam Incline sump water overflow joins Damodar river after travelling a distance of about 4 Kms. in rainy season. Stored water of this abandoned mine is utilised for different purposes. Mine water from Incline is pumped outside which joins Karo Nala and Karo Nala ultimately joins Damodar river. Damodar river controls drainage system of this area.

Present production of coal during 203-14 is 33725 tones. The coal of this project is directly sent to Swang Washery for washing. Working collieries surrounding this project is Amlo Project, Kargali Washery, Dhori colliery, Kargali Opencast etc. Coal mining is the prime industry of this region. These developments have influenced various environmental attributes e.g. air and water quality, noise level, socio- economic profile, land use pattern etc.

1.5. **ENVIRONMENT MONITORING & RESULTS**

To assess the present status in respect of air, water, noise etc. of the region, an Environmental Quality Monitoring work was undertaken by C.M.P.D.I. under request from C.C.L. The relevant parameters of air - water - noise pollution were studied and the observations were as follows:-

- i) The air quality analysis results are within prescribed limit.
- ii) Water Quality Report of mine water (Bermo Seam Incline) found within permissible limits.
- iii) Noise level reading (LEQ) was also within limit.

**CHAPTER-II**

**ENVIRONMENTAL STATEMENT FOR BERMO SEAM INCLINE**

**(KARGALI U/G), C.C.LTD.**

**FOR THE YEAR 2013-14**

**P A R T - A**

**I. Name and Address of the Mine**

NAME : Bermo Seam Incline (Kargali Underground),

PLACE : Kargali, P.O. - Bermo,

Distt : Bokaro

PHONE/TELEX : 08987784748

**II. INDUSTRY CATEGORY - PRIMARY**

**III. Date of last Environmental Audit Report submitted**

Environmental Statement Report was submitted for the year 2013.

**IV PRODUCTION CAPACITY:**

Targeted capacity for year 2013-14 was 35000 Tonne and production of coal for the year 2013-14 is 33725 Tonne.

**P A R T - B**

**WATER AND RAW MATERIAL CONSUMPTION**

**I. Water Consumption ( m<sup>3</sup>/day) -**

**Industrial**

	<u>2013-14</u>	
a. Haul road dust suppression	NIL	} 31 m <sup>3</sup> /day
b. Workshop	NIL	
c. Fire fighting	NIL	
d. Other(Service building etc.)	NIL	

### Domestic

Total domestic :- water consumption (Supplied by sister Mine) = 42 m<sup>3</sup>/day

( NOTE- Employees of Kargali Opencast Project & Bermo Seam Incline ( Kargali Underground Project) share quarters in the same colony. The above mentioned domestic water Consumption has been accounted in Kargali O.C.P. also.)

**Water consumption for U.G. mining operation is not direct.**

### **II. Raw Material Consumption:**

Name Of Raw Material	Name of products	Consumption Of Raw Material ( per unit of coal)	
		2013-14	2013-14
	COAL	NIL	NIL

**However the following materials are being consumed for the Coal production**

Material Consumed	Year 2013 - 14	2012 - 13
Explosive	13.004 Tes	15.467 Tes.
POL	7.2 KL	7.2 KL

### **PART - C**

#### **POLLUTION GENERATED**

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

Pollution	Quantity of pollution generated	Percentage variation from prescribed standards with reasons
Water	About 170 m <sup>3</sup> /day mine effluent discharged outside. The analysis results are given in Annexure	The analysis results reveal that almost of the parameters are below permissible limits prescribed by MoEF as General Standards for Class 'A' effluent (Effluent discharged into inland surface water).
Air	Bermo Seam Inclined project being an underground mine does not have major contribution to air pollution. The ambient air quality results appended.	The analysis report reveals SPM level was found within permissible limit except at one location for one quarter. SO <sub>2</sub> & NO <sub>x</sub> levels were found within permissible limits.
Noise	The noise level in and around the project is under the prescribed limits.	

**PART - D**

**HAZARDOUS WASTES**

**(As specified under Hazardous Waste Management and Handling Rules (1989))**

Hazardous Waste	Total Quantity	
	During financial year(2013-14 )	During financial year (2012-13 )
(a) From process	Nil	Nil
(b) From pollution control facilities	Nil	Nil

Note - The entire process of coal mining, handling and despatch do not give rise to production of any hazardous waste.

**PART - E**

**SOLID WASTES**

	Total Quantity in million cubic metre.	
	During financial year (2013-14)	During financial year (2012-13)
(a) From process (Mining) Overburden	N.A	N.A.
(b) From pollution control facilities	Nil	Nil
(c) Quantity recycled or reutilized	Not Required	

**PART - F**

**PLEASE SPECIFY THE CHARACTERISTICS IN TERMS OF CONCENTRATION AND QUANTITY OF HAZARDOUS AS WELL AS SOLID WASTE AND INDICATE,**

**DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES**

As already mentioned in PART-D above that the entire process of Coal mining, handling and despatch do not give rise to production of any hazardous wastes.

In an underground mine, only coal is extracted by Board and Pillar Method and no solid waste material is generated during mining operation. Coal dust, carbon monoxide gas and methane gas are generated during mining and concentration in working environment is kept below Threshold limit by providing adequate ventilation.

## **PART – G**

### **IMPACT OF POLLUTION CONTROL MEASURES ON CONSERVATION OF NATIONAL RESOURCE AND CONSEQUENTLY ON COST OF PRODUCTION**

In order to carry out mining operations in an eco-friendly manner the following pollution control measures have been implemented:

#### **a. Air Pollution Control Measures :**

- i. Adequate amount of fresh air is circulated in the mine to keep the coal dust concentration below TLV.
- ii. The height of coal fall in CHP has been kept low (about 4.0 m) in order to minimise dust generation.
- iii. Covered belt conveyers has been provided in the CHP.
- iv. Water spraying over coal stock has been practiced..



Planataion along road side in the way of kargali UG

#### **b. Water Pollution Control Measures :**

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

- i) Mine water is collected in the underground sump and pumped to one nearby pond before the water joins Karo Nala.





ii) Each house in the colony has been provided with a septic tank.

**c. Noise Pollution Control :**

It has been observed that most of the high level noise generated in the project area is equipment originated. As such in underground mining noise pollution is less. The following control measures are followed and proposed-

- i. All HEMMs should be provided with sound proof cabin so that operators are not subjected to high noise levels.
- ii. Ear muffs are to be provided to each worker exposed to high noise levels.
- iii. Plantation/Vegetative barriers have been developed around noise prone areas as well as residential locations.
- iv. Efforts are being made to produce least noise levels. Result of noise monitoring reveal that the noise level is well below the permissible limit.

**P A R T – H**

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

Plantation is proposed in residential areas , along roads and other vacant spaces. The regular monitoring of the ambient air and water quality, noise level is to be carried out. Emission/Effluent discharge consent order for water, air and noise Charge is to be paid to Jharkhand State Pollution Control Board. Adequate financial and other provisions need to be made to cope-up with the aforesaid task in time.

**P A R T – I**

**ANY OTHER PARTICULARS IN RESPECT OF ENVIRONMENTAL PROTECTION  
AND ABATEMENT OF POLLUTION.**

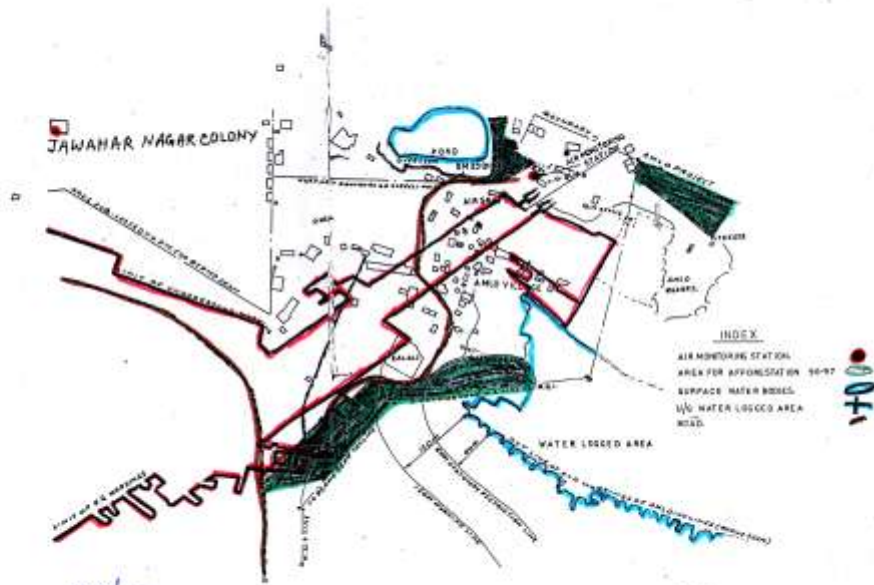
The regular monitoring of the ambient air and water quality, noise level is being done of the Project and the quarterly monitoring report is submitted to the Jharkhand State Pollution Control Board , Ranchi.

The suggestion made by different statutory agency e.g. Ministry of Environment & Forest, Central Pollution Control Board and State Pollution Control Board etc. are being implemented from time to time in the project for better environmental conditions in and around the project.

**C.C.LTD**

**KARGALI U/G PROJECT  
ENVIRONMENTAL/SURFACE PLAN  
SHOWING THE POSITION OF AIR,  
NOISE & WATER SAMPLING STATION  
(NOT TO SCALE)**

C.C.LTD KARGALI U/G PROJECT WATER MANAGEMENT PLAN (NOT TO SCALE)



*[Signature]*  
12/07/15  
Surveyor  
Kargali (UG)

*[Signature]*  
Sr. Manager (M/GM)  
Kargali (UG)

NOTE:-  
TRACED FROM REBULID PLAN OF  
KARGALI UNDERGROUND

C.C.L.  
KARGALI U.G. PROJECT  
(DERMO SEAM INCLINE)  
SURFACE PLAN  
M/S. 100/100

## 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 : 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 : 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** : *B&K* **Year** 2013  
**Project** : *Kargali UG* **Quarter Ending June** '2013

**Name of the Sampling Station** *Bermo Seam Incline Pit Office*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
22/06/2013 - 23/06/2013	244	107	10	42	

**Name of the Sampling Station** *Jawahar Nagar Colony*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
22/06/2013 - 23/06/2013	282	178	10	41	

**Analysed By**

**Checked By**

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

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- Note:
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  - 3) Liability for return of samples ceases as samples cannot be retained for retests.

## 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.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 : 01/07/13 Date of performance of Test: -

### TEST RESULT

The sample has been tested with the following results:-

Area : **B&K** Year 2013  
 Project : **Kargali UG** Quarter Ending June '2013

**Sampling Stations**  
 1 Bermo Seam Incline pit Office  
 2 Jawahar Nagar Colony

Station Name	Date of Sampling	Noise Level
Bermo Seam Incline Pit Office	22/06/2013	48.9
Jawahar Nagar Colony	22/06/2013	48.5

*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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CENTRAL MINE PLANNING AND DESIGN INSTITUTE LTD.

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Job No. : 094313025  
 Name of the Customer : CCL

Date of Issue: 15/07/13

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 : 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** : **B&K**  
**Project** : **Kargali UG**

**Year** : 2013  
**Quarter Ending June** : '2013

**Sampling Stations** 1 Bermo Seam Incline Pit Office

24-June-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	Remarks
		1	2	3			
1	Colour & Odour	Acceptable			-	Acceptable	
2	Total Suspended Solids	48			5.00	100.0	
3	pH value	7.98			0.01	5.5 to 9.0	
4	Temperature (°C)	25.9			-	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	0.17			0.02	50.0	
8	Total Kjeldahl Nitrogen	2.30			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	55			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	0.14			0.10	2.0	
16	Copper	0.04			0.02	3.0	
17	Zinc	0.05			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	0.17			0.01	5.0	
22	Sulphide	0.04			0.01	2.0	
23	Phenolic Compounds	BDL			0.001	1.0	
24	Manganese	BDL			0.05	2.0	
25	Iron	BDL			0.05	3.0	
26	Nitrate Nitrogen	1.4			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: 07/10/13  
 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 : 23/09/13 Date of performance of Test: 23/09/13 to 07/10/13

### TEST RESULT

The sample has been tested with the following results:-

Area : **B&K** Year 2013  
 Project : **Kargali UG** Quarter Ending Sept. '2013

**Name of the Sampling Station** *Bermo Seam Incline Pit Office*

Date of Sampling	SPM	RPM	SO <sub>2</sub>	NO <sub>x</sub>	Remarks
11/09/2013 - 12/09/2013	52	27	<25	22	

**Name of the Sampling Station** *Jawahar Nagar Colony*

Date of Sampling	SPM	RPM	SO <sub>2</sub>	NO <sub>x</sub>	Remarks
11/09/2013 - 12/09/2013	161	90	<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: 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.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 : 23/09/13 Date of performance of Test: -

### TEST RESULT

The sample has been tested with the following results:-

**Area** : **B&K** **Year** 2013  
**Project** : **Kargali UG** **Quarter Ending Sept.** '2013

**Sampling Stations**

- 1 Bermo Seam Incline pit Office
- 2 Jawahar Nagar Colony

Station Name	Date of Sampling	Noise Level
Bermo Seam Incline Pit Office	11/09/2013	48.5
Jawahar Nagar Colony	11/09/2013	47.9

*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  
 Name of the Customer : CCL

Date of Issue: 04/10/13

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 : 23/09/13

Date of performance of Test: 23/09/13 to 04/10/13

### TEST RESULT

The sample has been tested with the following results:-

**Area** : **B&K**  
**Project** : **Kargali UG**

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

Sampling Stations 1 Bermo Seam Incline Pit Office

19-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	52			25.00	100.0	
3	pH value	8.14			0.01	5.5 to 9.0	
4	Temperature (° C)	25.2			-	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	0.22			0.01	50.0	
8	Total Kjeldahl Nitrogen	2.70			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	60			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	0.50			0.02	2.0	
22	Dissolved Phosphate	BDL			0.30	5.0	
23	Sulphide	0.005			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	2.7			0.50	10.0	

Analysed By

Checked By

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

B&k - 8

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## TEST REPORT

Job No. : 094313025 Date of Issue: 17/01/14  
 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 : 02/01/14 Date of performance of Test: 02/01/14 to 17/01/14

### TEST RESULT

The sample has been tested with the following results:-

**Area** : **B&K** **Year** 2013  
**Project** : **Kargali UG** **Quarter Ending Dec.** '2013

*All parameters are in µg/m<sup>3</sup>*

**Name of the Sampling Station** *Bermo Seam Incline Pit Office*

Date of Sampling	SPM	RPM	SO <sub>2</sub>	NO <sub>x</sub>	Remarks
23/12/2013 - 24/12/2013	249	160	<25	24	

**Name of the Sampling Station** *Jawahar Nagar Colony*

Date of Sampling	SPM	RPM	SO <sub>2</sub>	NO <sub>x</sub>	Remarks
23/12/2013 - 24/12/2013	240	151	<25	22	

**Analysed By**

**Checked By**

**B&K - 6**

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

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## TEST REPORT

Job No. : 094313025 Date of Issue: 02/01/14  
 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 : 02/01/14 Date of performance of Test: -

### TEST RESULT

The sample has been tested with the following results:-

**Area** : **B&K** **Year** 2013  
**Project** : **Kargali UG** **Quarter Ending Dec.** '2013

**Sampling Stations**

- 1 Bermo Seam Incline pit Office
- 2 Jawahar Nagar Colony

Station Name	Date of Sampling	Noise Level
Bermo Seam Incline Pit Office	23/12/2013	48.6
Jawahar Nagar Colony	23/12/2013	47.8

*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**

**B&K - 7**

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

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## TEST REPORT

Job No. : 094313025 Date of Issue: 10/01/14  
 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 : 02/01/14 Date of performance of Test: 02/01/14 to 10/01/14

### TEST RESULT

The sample has been tested with the following results:-

**Area** : **B&K** **Year** 2013  
**Project** : **Kargali UG** **Quarter Ending Dec.** '2013

**Sampling Stations** 1 Bermo Seam Incline Pit Office 30-Dec-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	44			25.00	100.0	IS-3025/17:1984	Gravimetric
3	pH value	8.08			0.01	5.5 to 9.0	IS-3025/11:1983	Electrometric
4	Temperature (°C)	18.9			5.0	Shall not exceed 5 C above the receiving temp.	IS-3025/09:1984	Thermometric
5	Oil & Grease	BDL			2.00	10.0	IS-3025/39:1991	Partition Gravimetric
6	Total Residual Chlorine	BDL			0.02	1.0	APHA, 22 <sup>nd</sup> Edition	DPD
7	Ammonical Nitrogen	0.18			0.01	50.0	IS:3025/34:1988	Nessler's
8	Total Kjeldahl Nitrogen	1.70			1.00	100.0	IS:3025/34:1988	Nessler's
9	Free Ammonia	BDL			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	55			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	BDL			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	BDL			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	0.43			0.02	2.0	APHA, 22 <sup>nd</sup> Edition	SPADNS
22	Dissolved Phosphate	BDL			0.30	5.0	APHA, 22 <sup>nd</sup> Edition	Molybdovanadate
23	Sulphide	0.005			0.005	2.0	APHA, 22 <sup>nd</sup> Edition	Methylene Blue
24	Phenolic Compounds	BDL			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	1.5			0.50	10.0	APHA, 22 <sup>nd</sup> Edition	UV Spectrophotometric

**Analysed By**

**Checked By**

**B&K – 8**

**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:	03.04.14
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	03.04.14-17.04.14
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution	Date of Reporting:	17.04.14
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 :** **B&K** **Project:** **Kargali UG**

**Stations:**

1. Bermo Seam Incline Pit Office	<b>Date of Sampling:</b>
2. Jawahar Nagar Colony	26-27/03/2014
3.	26-27/03/2014
4.	

S.No	Test Parameters	Units	Test Method	TEST RESULT			
				1	2	3	4
Stations:							
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	639	264		
2	Particulate Matter (PM <sub>10</sub> )	µg/m <sup>3</sup>	IS: 5182/23 2006	274	169		
3	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS: 5182 /02 2001 R-2006	<25	<25		
4	Nitrogen Oxides (as NO <sub>x</sub> )	µg/m <sup>3</sup>	IS: 5182 /02 1975 R-1998	22	20		

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

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**B&K - 6**

**G.M (Chemist)  
Env. Lab, CMPDI(HQ)  
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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:	03.04.14
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 :** **B&K** **Project:** **Kargali UG**

**Stations:**

1. Bermo Seam Incline pit Office
2. Jawahar Nagar Colony
- 3.
- 4.

Station Name	Date of Sampling	Noise Level
Bermo Seam Incline Pit Office	26/03/2014	50.2
Jawahar Nagar Colony	26/03/2014	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**

**B&K - 7**

**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 - 2013-14</b>	<b>2013-14</b>
Type of Sample:	<b>Effluent Water</b>	Quarter Ending	<b>March '14</b>
Customer / W. O. no. & Date:	CCL/DGM-HOD(E&F)/2013/ 1570 Dt. 22/11/13	Date of Receipt of Sample:	03.04.14
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	03.04.14-14.04.14
Testing Protocol:	<b>MOEF -SCH-VI STANDARDS, Class 'A'</b>	Date of Reporting:	14.04.14
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:-

<b>Area :</b>	<b>B&amp;K</b>	<b>Project:</b>	<b>Kargali UG</b>
<b>Stations:</b>	1. Bermo Seam Incline Pit Office 2. 3.	<b>Date of Sampling:</b>	29/03/2014

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	36			25.00	100.0	IS 3025/17:1984, R:1996, Gravimetric
2	pH value	8.10			0.01	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
3	Temperature (°C)	24.9			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 <sup>nd</sup> Edition, DPD
6	Ammonical Nitrogen, mg/l, Max	0.07			0.01	50.0	IS 3025/34:1988, R : 2009, Nessler's
7	Total Kjeldahl Nitrogen, mg/l, Max	<1.00			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	44			4.00	250.0	APHA, 22 <sup>nd</sup> 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 <sup>nd</sup> Edition, AAS-GTA
13	Cadmium, mg/l, Max	<0.0005			0.0005	2.0	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
14	Hexavalent Chromium, mg/l, Max	<0.01			0.01	0.1	APHA, 22 <sup>nd</sup> Edition, Diphenylcarbohydrazide
15	Total Chromium, mg/l, Max	0.16			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 <sup>nd</sup> 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 <sup>nd</sup> Edition, SPADNS
21	Dissolved Phosphate, mg/l, Max	<0.30			0.30	5.0	APHA, 22 <sup>nd</sup> Edition Molybdovanadate
22	Sulphide, mg/l, Max	<0.005			0.005	2.0	APHA, 22 <sup>nd</sup> Edition, Methylene Blue
23	Phenolic Compounds, mg/l, Max	<0.002			0.002	1.0	APHA, 22 <sup>nd</sup> 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	1.5			0.50	10.0	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric

**Analysed By**

**Checked By**

**B&K - 8**

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