

ENVIRONMENTAL STATEMENT

OF ARGADA UG



FOR

2013-14



CENTRAL COALFIELDS LIMITED
JULY, 2014
ENVIRONMENT DIVISION
CCL, RANCHI

EXECUTIVE SUMMARY

- E.1 This Environmental Statement Report is prepared with a view to fulfil the statutory obligations laid down by Ministry of Environment & Forest (MOEF), Government of India vide their gazette notification no. G.S.R. 329 (E) dated 13th March 1992. The '*Environmental Audit has* been made mandatory through this notification. The 'Environmental Audit' has subsequently renamed to '*Environmental Statement*' vide MOEF gazette notification no.G.S.R 386 (E) dated 22nd April 1993.
- E.2 Argada UG Project is operating in Argada Area of Central Coalfields Limited. The capacity of the Project is to produce 0.072 M tonnes/ year of raw coal.
- E.3 The coal is being produced by using Bord & Pillar mining method through underground mines.
- E.4 The water although not used directly during the coal winning process, water is being consumed mainly for domestic purposes.
- E.5 The regular ambient air quality monitoring is being carried by the Institute of Environment CMPDI Ltd as per the guidelines of Ministry of Environment and Forest. The results reveal that concentration of parameters i.e. SPM, SO₂, NO_x in ambient air, most of the time, are within the permissible limits.
The quality of mine water at the disposal point is under the limits as prescribed.
The noises level recorded are generally below the prescribed limits by Ministry of Environment & Forest.
- E.6 Hazardous wastes are not being produced either from mining operations or from any pollution control facilities.
- E.7 No solid waste is generated during the process of coal winning in Argada Underground Mines.

CHAPTER ONE

PROJECT DESCRIPTION

1.1 GENERAL

The Argada UG project is located in the eastern part of South Karanpura coalfields of Central Coalfields Limited. It is one of the taken over mine and was belong to M/S Bird & Co. Ltd. at the time of nationalisation in 1973. At the time of nationalisation the production of coal was 0.35 Mty.

1.2 LOCATION

Argada UG project is located in the eastern part of South Karanpura coalfields in Argada area and is surrounded by metamorphic rocks in the north and south. Argada UG Project lies between latitudes 23⁰ 30' and 23⁰ 40' and longitude 85⁰ 25' and 85⁰ 28'. It is included in the Survey of India Toposheet no. 73E/6. Argada colliery is situated in the east whereas Damodar River makes its western and southern boundaries. It is situated in the Ramgarh district of Jharkhand state.

1.3 COMMUNICATION

Argada UG Project is connected by all weather metalled road from Ramgarh on the National highway no.33 between Ranchi and Hazaribagh. It is situated at a distance of 10 km from Ramgarh. The nearest Railway station is Argada, on Gomoh - Barwadih line of Eastern Railway, within 2 km of the mine. The nearest airport is at Ranchi at a distance 80 km.

1.4 TOPOGRAPHY AND DRAINAGE

Argada UG forms a part of low land between Hazaribagh plateau in the north and Ranchi plateau in the south and represents undulating slopping towards south topography.

An ephemeral stream, called Patratu nalla flows in the east of the property, along N-S alignment, discharging water into Damodar River. The Damodar River flows along the western and southern boundary of Argada UG block.

1.5 MINING SYSTEM

Underground mining system is being practiced in the project considering geomining conditions of the deposits namely

- (i) gradient of seams
- (ii) multiple seams
- (iii) the property being faulted with as many as 10 faults
- (iv) Argada UG Project is developing seam I & J through manual Bord and Pillar mining system.

CHAPTER TWO

Environmental Statement for the assessment year 2013-14

PART - A

(I) NAME AND ADDRESS OF THE PROJECT:

Name: Argada UG Project
Address: Project Officer
Place: Argada UG
District: Ramgarh

(II) INDUSTRY CATEGORY: Primary

(III) PRODUCTION CAPACITY: 0.06 Mt/y

(IV) YEAR OF ESTABLISHMENT: -----

(V) DATE OF THE LAST ENVIRONMENTAL REPORT SUBMITTED:

- Last report submitted in September, 2013

PART-B

WATER AND RAW MATERIAL CONSUMPTION

I. WATER CONSUMPTION (CUM/day)

- a. Mining
 - i Haul road dust suppression : nil
 - ii. Workshop : nil
 - iii. Fire fighting :nil
 - iv Others(service building etc.) :nil
- b. Cooling : nil
- c. Domestic : nil



Name of product	Water consumption per unit of product	
	During financial year (2012-13)	During financial year (2013-14)
1. ROM coal	nil	nil

Note: There is no direct relation between water consumption and coal production.

i) Raw Material Consumption

Name of raw material	Consumption of raw material (per unit of coal produced 2013-14)
	NIL

However the following materials are being consumed for production of 30,252 Tonne of coal.

Materials	2013-14
Explosive in Kg	20025
POL in Litre	34110
Detonators in Nos.	51292

PART - C

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

Pollutants	Quantity of Pollutants Generated	% of variations from prescribed standards with reasons
<u>Water</u>		
(a) Discharge from mine	Nil	The results reveal that all parameters are under prescribed limit. The quality of mine water at the disposal point vis-a-vis the prescribed standards are given in Annexure
B Workshop Effluent	Nil	
(c) Domestic discharge	Nil	Not Applicable
<u>Air</u>		
The SPM, SO ₂ , NO _x are being generated from coal mining projects.	The concentration of air pollutants from mine is difficult to measure. However concentration of pollutants are measured and given in Annexure.	

All four quarters environment statement monitoring report is attached.

PART - D
HAZARDOUS WASTES

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

Hazardous Wastes	Total Quantity	
	During the financial year (2013-14)	During the financial year (2012-13)
From Mining Process	NIL	NIL

The process of Coal mining, handling and despatch do not give rise to production of any hazardous wastes.

**PART - E
SOLID WASTES**

	Total quantity of solid waste generated (M m ³)	
	2012-13	2013-14
(a) From process		
(i) Top soil	NIL	NIL
(ii) O.B.	NIL	NIL
(b) From pollution control facilities	NIL	NIL
(c) Quantity recycled or reutilised	Not applicable as it is an UG mine	

**PART - F
CHARACTERISTICS OF HAZARDOUS AND SOLID WASTE AND
THEIR DISPOSAL PRACTICE**

Hazardous wastes are not being produced or released either from mining operation or pollution control facilities.

PART – G

**IMPACT OF POLLUTION CONTROL MEASURES ON
CONSERVATION OF NATURAL RESOURCES AND
CONSEQUENTLY ON COST OF PRODUCTION**

The main pollution control measures applied in the project have been summarised in the Tables 1.4 to 1.6.

AIR POLLUTION CONTROL MEASURES

Argada UG has only small underground workings and no opencast working .Its mining operation has negligible impact on ambient Air.



TABLE 1.5
WATER POLLUTION CONTROL MEASURES

Sl.No.	Measures Suggested	Status Provided or To be provided	Remarks
1	Mine water is to be pumped into sedimentation lagoon created naturally in the dip side of mine. This water is then passed to natural drains through sedimentation lagoon.	Provided	

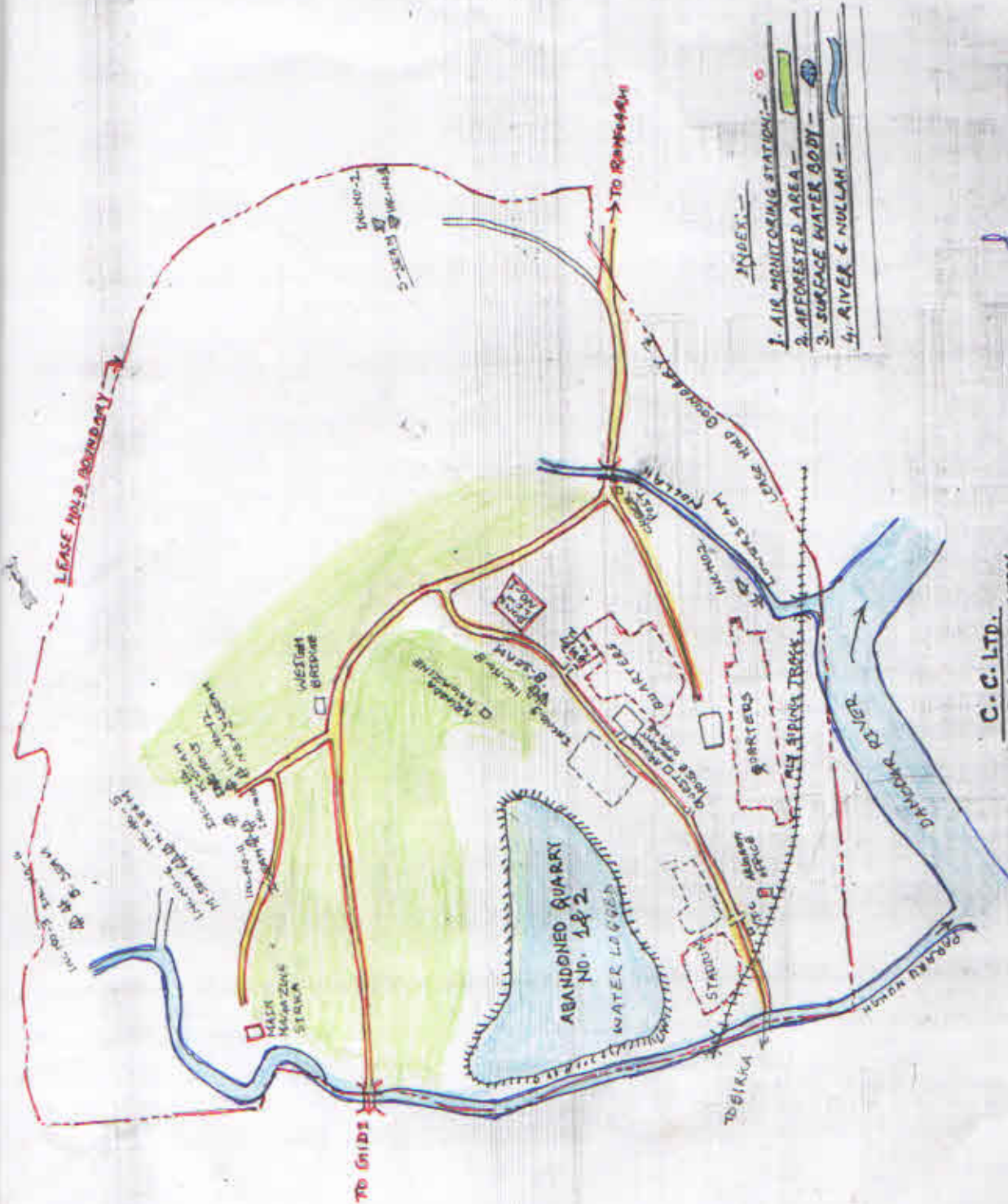
PART - H
ADDITIONAL INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION

1. The Project will continue to carry regular environmental monitoring for air, water and noise pollutants as per the guidelines of Ministry of Environment & Forest.
 2. The Environmental Statement Report will be prepared for each assessment year as per the guidelines of Ministry of Environment & Forest.
 3. The project will continue to take Air & Water consent from State Pollution Control Board for each year.
 4. Water consumption for the project for each year is submitted to State Pollution Control Board in Water Cess Return Format.
- The other proposal for additional investment for environmental protection and pollution abatement in the project is under consideration.

PART - I
ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF ENVIRONMENT

The suggestions made by different statutory agency time to time e.g. Ministry of Environment & Forest, Central Pollution Control Board and State Pollution Control Board etc. are being implemented.





- INDEX:-
- 1. AIR MONITORING STATION - ○
 - 2. AFFORESTED AREA - [Green Box]
 - 3. SURFACE WATER BODY - [Blue Wavy Line]
 - 4. RIVER & NULLAH - [Blue Solid Line]

C. C. LTD.
ARGADA COLLIERY
 ENVIRONMENTAL SURFACE PLAN
 NOT TO SCALE

[Signature]
 MANAGER

[Signature]
 SURVEYOR

TEST REPORT

Job No. : 094313025 Date of Issue: 10/05/13
 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.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 02/05/13 Date of performance of Test: 02/05/13 to 10/05/13

TEST RESULT

The sample has been tested with the following results:-

Area : *Argada* **Year** **2013**
Project : *Argada UG* **Quarter Ending June** **'2013**

Name of the Sampling Station *Manager Office*

Date of Sampling	SPM	RPM	SO ₂	NO _x	Remarks
25/04/2013 - 26/04/2013	335	145	10	38	

Analysed By

Checked By

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

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- Note:
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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.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th 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 : *Argada* Year **2013**
 Project : *Argada UG* Quarter Ending June **'2013**

Sampling Stations 1 Manager Office

Station Name	Date of Sampling	Noise Level
Manager Office	25/04/2013	50.3

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

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

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: 20/05/13

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 : 02/05/13 Date of performance of Test: 02/05/13 to 20/05/13

TEST RESULT

The sample has been tested with the following results:-

Area : Argada **Year** : 2013
Project : Argada UG **Quarter Ending June** : '2013

Sampling Station : 1. Mine water 30-April-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	110			5.00	100.0	
3	pH value	7.88			0.01	5.5 to 9.0	
4	Temperature (°C)	28.9			-	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	2.40			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	95			5.00	250.0	
13	Arsenic	BDL			0.01	0.2	
13	Lead	BDL			0.05	0.1	
14	Hexavalent Chromium	BDL			0.01	0.1	
15	Total Chromium	0.19			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	0.37			0.05	2.0	
21	Dissolved Phosphate	0.20			0.01	5.0	
22	Sulphide	0.04			0.01	2.0	
23	Phenolic Compounds	BDL			0.001	1.0	
24	Manganese	0.05			0.05	2.0	
25	Iron	0.07			0.05	3.0	
26	Nitrate Nitrogen	2.2			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: 06/08/13
 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.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 31/07/13 Date of performance of Test: 31/07/13 to 06/08/13

TEST RESULT

The sample has been tested with the following results:-

Area : Argada Year 2013
 Project : Argada UG Quarter Ending Sept. '2013

Name of the Sampling Station *Manager Office*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
23/07/2013 - 24/07/2013	163	107	<25	23	

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.25th Sept.'2000

Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th 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 : **Argada** Year **2013**
 Project : **Argada UG** Quarter Ending Sept. **'2013**

Sampling Stations 1 Manager Office

Station Name	Date of Sampling	Noise Level
Manager Office	23/07/2013	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)

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TEST REPORT

Job No. : 094313025
 Name of the Customer : CCL

Date of Issue: 07/08/13

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 07/08/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Argada**
Project : **Argada UG**

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

Sampling Station : 1. Mine water

26-Jul-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	94			25.00	100.0	
3	pH value	8.08			0.01	5.5 to 9.0	
4	Temperature (°C)	26.6			-	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	0.24			0.01	50.0	
8	Total Kjeldahl Nitrogen	2.25			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	85			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	0.35			0.02	2.0	
22	Dissolved Phosphate	0.24			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	1.4			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: 08/01/14
 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.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 03/01/14 Date of performance of Test: 03/01/14 to 08/01/14

TEST RESULT

The sample has been tested with the following results:-

Area : *Argada* **Year** **2013**
Project : *Argada UG* **Quarter Ending Dec.** **'2013**

All parameters are in µg/m³

Name of the Sampling Station <i>Manager Office</i>					
Date of Sampling	SPM	RPM	SO2	NOx	Remarks
23/12/2013 - 24/12/2013	188	151	<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: 03/01/14
 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.25th Sept.'2000
 Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
 Date of receipt of sample : 03/01/14 Date of performance of Test: -

TEST RESULT

The sample has been tested with the following results:-

Area : *Argada* **Year** **2013**
Project : *Argada UG* **Quarter Ending Dec.** **'2013**

Sampling Stations 1 Manager Office

Station Name	Date of Sampling	Noise Level
Manager Office	23/12/2013	50.2

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

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TEST REPORT

Job No. : 094313025
Name of the Customer : CCL

Date of Issue: 10/01/14

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 : 03/01/14

Date of performance of Test: 03/01/14 to 10/01/14

TEST RESULT

The sample has been tested with the following results:-

Area : Argada
Project : Argada UG

Year : 2013
Quarter Ending Dec. : '2013

Sampling Station : 1. Mine water

28-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 nd Edition IS 3025 /05:1983	Pt.Cobalt Physical, Qualitative
2	Total Suspended Solids	64			25.00	100.0	IS-3025/17:1984	Gravimetric
3	pH value	8.14			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 nd Edition	DPD
7	Ammonical Nitrogen	0.22			0.01	50.0	IS:3025/34:1988	Nessler's
8	Total Kjeldahl Nitrogen	2.10			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	70			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	BDL			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	BDL			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	0.33			0.02	2.0	APHA, 22 nd Edition	SPADNS
22	Dissolved Phosphate	BDL			0.30	5.0	APHA, 22 nd Edition	Molybdovanadate
23	Sulphide	BDL			0.005	2.0	APHA, 22 nd Edition	Methylene Blue
24	Phenolic Compounds	BDL			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	2.0			0.50	10.0	APHA, 22 nd Edition	UV Spectrophotometric

Analysed By

Checked By

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

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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:	07.03.14
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	07.03.14-17.03.14
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution	Date of Reporting:	17.03.14
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 : **Argada** **Project:** **Argada UG**

Stations: **1. Manager Office** **Date of Sampling:** **27-27/02/2014**
 2.
 3.
 4.

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	365			
2	Particulate Matter (PM ₁₀)	µg/m ³	IS: 5182/23 2006	304			
3	Sulphur Dioxide (SO ₂)	µg/m ³	IS: 5182 /02 2001 R-2006	<25			
4	Nitrogen Oxides (as NO _x)	µg/m ³	IS: 5182 /02 1975 R-1998	22			

Note: Gazette Notification no. G.S.R 742(E) dt.25th 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

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:	07/03/14
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 : Argada **Project:** Argada UG
Stations:

1. Manager Office
- 2.
- 3.
- 4.

Station Name	Date of Sampling	Noise Level
Manager Office	27/02/2014	49.6

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)

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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:	07.03.14
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	07.03.14-15.03.14
Testing Protocol:	MOEF -SCH-VI STANDARDS, Class 'A'	Date of Reporting:	15.03.14
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 :	Argada	Project:	Argada UG
Stations:	1. Mine Water 2. 3.		Date of Sampling: 04/03/2014

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	28			25.00	100.0	IS 3025/17:1984, R :1996, Gravimetric
2	pH value	8.22			0.01	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
3	Temperature (°C)	23.8			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	0.16			0.01	50.0	IS 3025/34:1988, R : 2009, Nessler's
7	Total Kjeldahl Nitrogen, mg/l, Max	1.10			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	<0.06			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	<0.03			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	0.45			0.02	2.0	APHA, 22 nd Edition, SPADNS
21	Dissolved Phosphate, mg/l, Max	0.34			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	2.4			0.50	10.0	APHA, 22 nd Edition, UV-Spectrophotometric

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