ENVIRONMENTAL STATEMENT

OF

SAUNDA-D COLLIERY

FOR

2013-14

CENTRAL COALFIELDS LIMITED

JULY 2014

SAUNDA-D COLLIERY

BARKA-SAYAL AREA CCL

ENVIORONMENTAL STATEMENT

OF

SAUNDA-D COLLIERY

FOR THE YEAR 2013-14

CONTENTS

LIST OF ANEXURES

EXECUTIVE SUMMARY

E1.0 This Environmental statement report has been prepared as per gazette notification no G.S.R 329 (E) dated 13th march 1992 laid down by Ministry of Environment & forest . The Environmental Audit has been subsequently renamrd to environmental statement vide MOEF gazette notification no G.S.R.386 (E) dated 22nd April 1993.

E.2.10 Saunda-d project is operating in Barka-sayal area of central coal fields ltd . this project is located in south karanpura coal fields in Hazaribagh district of Jharkhand . the mine was taken over from M/S Bird & CO Ltd

E.3.0 Saunda-d project comprises of an activity undground mine . The total production of the mine in the year 2013-14 from U/G is 0.048 MTY of coal.

E.4.0 An integrated EMP of U/G of O/C has been made by RI-III of CMPDI in December 1992 and has obtained clearance from the ministry of Environment and forest Govt of India Vide Letter no :- J-11015 /17/93-1A.11 (m) DT 23.12.93 & G.M (Env & Forest) ccl Ranchi EMP /2155-2206 dt 7.7.95

E5.0 Quarterly environmental monitoring has been carried out regularly by CMDI for air ,water & noise parameter . The results of the four quarters of 2013-14 enclosed .

E.5.1 The concentration of so_2 and NOX in ambient air in core zone as well as in buffer zone is well within permissible limits.

E.5.2 At present there is no problem of water pollution from the mine . the water quality parameter are found to be with permissible limits .

E5.3 the nose level is also with in permissible limits .

E.6.0 The main raw material being used in explosive ,diesel & lubricants . The annual consumption of Explosive, diesels & lubricant . The annual consumption of Explosive is 29575 Kgs and POL 27786 lts.

CHAPTER ONE

1. Introduction

Saunda-D project has an underground mine and a newly started open cast mine. This is a taken over non coking coal mine of east while M/S Bird & CO .Ltd opened on 2nd july 1946

Saunda-D project is operating in Barka-Sayal Area of Central coalfields Ltd.This Project is loacated in south Karanpura coal fields in Hazaribagh district of Jharkhand. The mine was taken over from M/s.Bird &co.ltd.Saunda-DProject comprises of an active underground mine and newly started open cast mine. The total production of the mine in the year 2013-14 was 0.048 te MTY of coal from U/G and nil mn3 of O.B against the production capacity of 0.093 MTY of coal from u/g.

Location

It lies in barka sayal are of central coalfields Ltd . and falls with in latitude 23 ^{0} 39 10 N and 23 40 20 N and longitudes 85 20 40 in the survey of india. Topo Sheet no 73 E/6 . it is located in Partratu development block of Hazaribagh distict in the state Jharkhand and forms a part of south Karanpura coal fields.

Communication

The nearest Railway Station is Patratu on Dehri –on sone – Barka-kana – gomoh broad guage loop of the Eastern Railway . The state High way from Ranchi to Ramgarh via patratu and Bhurkunda passaes through The Block.

TOPOGRAPHY & GEOLOGY

They are is very gently undulating from RL 381 M in the northern part to RL 342 M At nakari nalla at in the south east .

Nakari nalla skirts around the southern and eastern boarder of saunda-D colliery and provides immediate drainage out of large area including saunda-D into Damodarriver. The HFL of Nakari –Naaala as recorded is 344.33m .The upper group of eight seam ,Saunda to lower Balkudra were suitable to opencast mining and economical compared to U/G mining .it was thus envisaged to carry out open cast mining with in the existing Saunda-D colliery leasehold to improve the overall economy of the project as such a new opencast mine was started in 1994-95.

MINNING METHOD

U/G MINNING IS BEING DONE BY BOARD AND PILLAR METHOD . AN ASSESSSMENT MADE BY MINERAL Exploration Corporation LtD . revaled that therwere substatantial coal reserve to carry out OC minning . Thus Keeping in view the market need of economically viable mineable resrevs.open cast minning with in the lease hold of existing saunda-D colliery was started from 1994-95

ENVIRONMENTAL STATEMENT

PART –A

(I **) Name and address of the project** :-

Name : saunda-D colliery

Adress:

Place :- saunda-D colliery

Distt :- Ramgarh

State :- Jharkhand

Phone :- 06553- 89334

(ii) Industry category :- Primary

(iii) production capacity :- 0.093 MT

(iV) date of last Environmental

Statement report submitted :- July 2013

PERT –B

WATER AND RAW MATERIAL CONSUMPITION

(I) Water consumption (CUM/D) :- 160

Mining :- NIL

(a) Haul road dust suppression :- NIL

(b) work shop :-

(c) Fire fighting :-

(d) other (survice building etc : - 20

Domestic :- 140

Arboriculture :- NIL

Name of the product	**Water consumption per unit of product cum/te of coal**	
	2013-14	2012-13
Coal	1.22	0.97

(ii) **RAW MATERIAL CONSUMPTION**

Name of Raw material	Consumption of Raw material (per unit of coal produced)	
	2013-14	2012-13
POL(Lts / te	0.44	0.46
Explosive (Kg /t)	0.48	0.49

PART –C

POLLUTION GENERATED

Pollutants	Quantity of pollutant Generated	% of variations from prescribed standards with reasons
Water		
(a) Discharging from mine	2430 M^3 /day	The water quality from the project is being monitored regularly and placed as Annexure -1 (a-d)
(b) Workshop effluent	-------	NIL
(c) Domestic discharge	40 m^3 / day	Not applicable
Air		
The SPM ,$SO_2$and $NO_x$are generated from coal mining Project	The concentration of air pollutant are Measureable	The Ambient air quality monitoring is being carried out By CMPDI .The results indicate that the pollution are under prescribed limit.
Noise		
	The noise Level is measure able	The noise level in the project is within the tolerance limits.

PART-D

HAZARDOUS WASTE

(as specified under Hazardous waste Management & Handling rules ,!989)

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

PART –E

SOLID WASTES

	Total quantity of solid waste generated (M m^3)	
	2013-14	2012-13
(a) From Process (i) Top soil	NIL	NIL
(i) O.B	NIL	NIL
(b) From pollution control facilities	NIL	NIL
(C) quantity recycled or reutilized	Not applicable	

PART –F

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

1.0 **Characteristics of Hazardous and solid waste and their Disposal Practice**.

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

PART –G

Impact of pollution control measure on conservation of natural resources and consequently on cost of production.

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

1.0 Anti air pollution measures

During the year 2013-14 there was no problem regarding Air pollution. For all the other three quarters the SPM value was found to be prescribed limits.

Following measure were under taken of air pollution.

a. Regular monitoring for SO2, NOX & SPM was carried out.
b. Spraying of water is also being carried out.

2.0 Anti water pollution measures

During the year 2013-14 the mine water was analyzed and there was no problem regarding water pollution. The following measure are being implemented:

The waste water generated is being treated with bleaching powder & Alum.

3.0 Anti noise pollution Measure

At present there is no noise pollution being generated in this area. The noise values are within the prescribed limits (Annexure –iii)

4.0 Disposal waste

No top soils being generated at present. (The O.B is not generated.)

PART –H

Additional investment proposal for Environmental protection including

Abatement of pollution.

The project will continue to carry regular environmental monitoring of air, water and noise pollution..In the year 2011 a forestation work was carried out on about 8.50 Haof land .Further, additional investment for environmental protection and pollution abatement in the project under consideration.

PART-1

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

1.0 The following action s shall be taken at the earliest for the up gradation of environment in the project.

(i) Suggestion made by different statutory agencies shall be implemented from time to time in the Project.

(ii) More forestation work shall be carried out.

TEST REPORT

Job No. : 094313025 Date of Issue: 31/05/13
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 : 17/05/13 Date of performance of Test: 17/05/13 to 31/05/13

TEST RESULT

The sample has been tested with the following results:-

Area : ***Barka-Sayal*** **Year** 2013
Project : ***Saunda D*** **Quarter Ending June '2013**

Name of the Sampling Station *Officers Colony*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
06/05/2013 - 07/05/2013	322	118	<10	39	

Name of the Sampling Station *New Sayal Incline*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
07/05/2013 - 08/05/2013	205	91	11	43	

Name of the Sampling Station *Workers Quarter*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
07/05/2013 - 08/05/2013	315	107	10	41	

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

Note: 1) This Report refers to the values obtained at the time of testing and results related to the items tested
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TEST REPORT

Job No. : 094313025 Date of Issue: 17/05/13
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 : 17/05/13 Date of performance of Test: -

TEST RESULT

The sample has been tested with the following results:-

Area : ***Barka-Sayal*** **Year** 2013
Project : ***Saunda D*** **Quarter Ending June '2013**

Sampling Stations
1 Officers Colony
2 Workers Quarter

Station Name	Date of Sampling	Noise Level
Officers Colony	06/05/2013	47.1
Workers Quarter	07/05/2013	48.2

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

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

Checked By

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

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TEST REPORT

Job No. : 094313025 Date of Issue: 29/05/13
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 : 17/05/13 Date of performance of Test: 17/05/13 to 29/05/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Barka-Sayal** **Year** 2013
Project : **Saunda D** **Quarter Ending June '2013**

Sampling Stations 1 Banshgara Incline Water 15-May-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	22			5.00	100.0	
3	pH value	8.18			0.01	5.5 to 9.0	
4	Temperature (^{o}C)	28.7			-	Shall not exceed 5 C above the receiving temp.	
	Oil & Grease	BDL			1.00	10.0	
6	Total Residual Chlorine	BDL			0.04	1.0	
7	Ammonical Nitrogen	0.12			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^{o}C)	1.00			1.00	30.0	
11	COD	30			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	BDL			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	0.44			0.05	2.0	
21	Dissolved Phosphate	0.12			0.01	5.0	
22	Sulphide	0.03			0.01	2.0	
23	Phenolic Compounds	BDL			0.001	1.0	
24	Manganese	BDL			0.05	2.0	
25	Iron	0.02			0.05	3.0	
26	Nitrate Nitrogen	1.7			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: 29/05/13
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 : 17/05/13 Date of performance of Test: 17/05/13 to 29/05/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Barka-Sayal** **Year** 2013
Project : **Saunda D** **Quarter Ending June '2013**

Sampling Stations 1 Nakari River U/S 15-May-13
2 Nakari River D/S 15-May-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	14	16		1.00	300	
2	Total Suspended Solids	144	158		5.00	$	
3	Disolved Oxygen	5.10	5.00		0.10	4	
4	pH value	7.75	7.88		0.01	6.5-8.5	
5	Iron	BDL	BDL		0.05	5	
6	Chlorides	24	26		0.25	600	
7	BOD (3 days 27^{o}C)	2.40	2.60		1.00	3	
8	Total Dissolved Solids	204	214		1.00	1500	
9	Copper	BDL	BDL		0.02	1.5	
10	Sulphate	42	44		1.00	400	
11	Nitrate	6.64	7.08		0.01	50	
12	Fluoride	0.40	0.44		0.05	1.5	
13	Selenium	BDL	BDL		0.01	0.05	
14	Arsenic	BDL	BDL		0.01	0.2	
15	Lead	BDL	BDL		0.05	0.1	
16	Zinc	BDL	BDL		0.02	15	
17	Hexavalent Chromium	BDL	BDL		0.01	0.05	
18	Phenolics	BDL	BDL		0.001	0.005	

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

Analysed By **Checked By**

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

TEST REPORT

Job No. : 094313025 Date of Issue: 30/08/13
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 : 19/08/13 Date of performance of Test: 19/08/13 to 30/08/13

TEST RESULT

The sample has been tested with the following results:-

Area : ***Barka-Sayal*** **Year** 2013
Project : ***Saunda D*** **Quarter Ending Sept. '2013**

Name of the Sampling Station *Officers Colony*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
08/08/2013 - 09/08/2013	73	53	<25	22	

Name of the Sampling Station *New Sayal Incline*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
10/08/2013 - 11/08/2013	117	39	<25	25	

Name of the Sampling Station *Workers Quarter*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
10/08/2013 - 11/08/2013	66	49	<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: 19/08/13
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 : 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 : 19/08/13 Date of performance of Test: -

TEST RESULT

The sample has been tested with the following results:-

Area : ***Barka-Sayal*** **Year** 2013
Project : ***Saunda D*** **Quarter Ending Sept. '2013**

Sampling Stations
1 Officers Colony
2 Workers Quarter

Station Name	Date of Sampling	Noise Level
Officers Colony	08/08/2013	46.9
Workers Quarter	10/08/2013	47.5

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)*

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TEST REPORT

Job No. : 094313025 Date of Issue: 28/08/13
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 : 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 : 19/08/13 Date of performance of Test: 19/08/13 to 28/08/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Barka-Sayal** **Year** 2013
Project : **Saunda D** **Quarter Ending Sept. '2013**

Sampling Stations 1 Banshgara Incline Water 16-Aug-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	28			25.00	100.0	
3	pH value	8.12			0.01	5.5 to 9.0	
4	Temperature (^{o}C)	26.5			-	Shall not exceed 5 C above the receiving temp.	
5	Oil & Grease	2.00			2.00	10.0	
6	Total Residual Chlorine	0.02			0.02	1.0	
7	Ammonical Nitrogen	0.22			0.01	50.0	
8	Total Kjeldahl Nitrogen	2.34			1.00	100.0	
9	Free Ammonia	0.01			0.01	5.0	
10	B.O.D (3 days 27^{o}C)	2.00			2.00	30.0	
11	COD	35			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	0.38			0.02	2.0	
22	Dissolved Phosphate	0.27			0.30	5.0	
23	Sulphide	BDL			0.005	2.0	
24	Phenolic Compounds	BDL			0.002	1.0	
25	Manganese	BDL			0.02	2.0	
26	Iron	BDL			0.06	3.0	
27	Nitrate Nitrogen	2.0			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: 28/08/13
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 : 19/08/13 Date of performance of Test: 19/08/13 to 28/08/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Barka-Sayal** **Year** 2013
Project : **Saunda D** **Quarter Ending Sept. '2013**

Sampling Stations 1 Nakari River U/S 16-Aug-13
2 Nakari River D/S 16-Aug-13

All parameter are in mg/l unless specified *BDL - Below Detectable Limit*

Sl.No.	Parameter	Sampling Stations			Below Detection Limit	IS : 2296 INLAND SURFACE WATER [1982] Class 'C'	Remarks
		1	2	3			
1	Colour, Hazen unit,Max	18	20		5.0	300	
2	Total Suspended Solids	112	124		25.00	$	
3	Disolved Oxygen	4.80	4.40		0.10	4	
4	pH value	7.92	8.10		0.01	6.5-8.5	
5	Iron	BDL	BDL		0.06	5	
6	Chlorides	24	30		2.00	600	
7	BOD (3 days 27^{o}C)	2.40	2.80		2.00	3	
8	Total Dissolved Solids	210	220		25.00	1500	
9	Copper	BDL	BDL		0.03	1.5	
10	Sulphate	38	40		2.00	400	
11	Nitrate	4.87	5.31		0.50	50	
12	Fluoride	0.40	0.45		0.02	1.5	
13	Cadmium	BDL	BDL		0.0005	0.01	
14	Selenium	BDL	BDL		0.005	0.05	
15	Arsenic	BDL	BDL		0.005	0.2	
16	Lead	BDL	BDL		5.00	0.1	
17	Zinc	BDL	BDL		0.01	15	
18	Hexavalent Chromium	BDL	0.01		0.01	0.05	
19	Phenolics	BDL	BDL		0.002	0.005	

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

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: 18/11/13
Name of the Customer : CCL

Customer Letter Ref. No. (if any): CCL/DGM-HOD(E&F)/2013/1570 Dt. 22/11/13
Sample Description : Air
Product Specification (BIS) : Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
Test Required : As per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000
Date of receipt of sample : 01/11/13 Date of performance of Test: 01/11/13 to 18/11/13

TEST RESULT

The sample has been tested with the following results:-

Area : ***Barka-Sayal*** **Year** 2013
Project : ***Saunda D*** **Quarter Ending Dec. '2013**

All parameters are in µg/m^3

Name of the Sampling Station *Officers Colony*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
25/10/2013 - 26/10/2013	78	46	<25	19	

Name of the Sampling Station *New Sayal Incline*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
29/10/2013 - 30/10/2013	62	45	<25	23	

Name of the Sampling Station *Workers Quarter*

Date of Sampling	SPM	RPM	SO2	NOx	Remarks
28/10/2013 - 29/10/2013	137	54	<25	19	

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

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TEST REPORT

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

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

TEST RESULT

The sample has been tested with the following results:-

Area : ***Barka-Sayal*** **Year** 2013
Project : ***Saunda D*** **Quarter Ending Dec. '2013**

Sampling Stations
1 Officers Colony
2 Workers Quarter

Station Name	Date of Sampling	Noise Level
Officers Colony	25/10/2013	47.1
Workers Quarter	28/10/2013	48.0

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

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

Checked By

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

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TEST REPORT

Job No. : 094313025 Date of Issue: 15/11/13
Name of the Customer : CCL

Customer Letter Ref. No. (if any): CCL/DGM-HOD(E&F)/2013/1570 Dt. 22/11/13
Sample Description : Effluent Water
Product Specification (BIS) : MoEF Sch VI Class 'a' std.
Test Required : 27 items as per MoEF Sch VI Class 'a' std.
Date of receipt of sample : 01/11/13 Date of performance of Test: 01/11/13 to 15/11/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Barka-Sayal** **Year** 2013
Project : **Saunda D** **Quarter Ending Dec. '2013**

Sampling Stations 1 Banshgara Incline Water 30-Oct-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, 22nd Edition IS 3025 /05:1983	Pt.Cobalt Physical, Qualitative
2	Total Suspended Solids	40			25.00	100.0	IS-3025/17:1984	Gravimetric
3	pH value	7.94			0.01	5.5 to 9.0	IS-3025/11:1983	Electrometric
4	Temperature (^{o}C)	22.2			5.0	Shall not exceed 5 C above the receiving temp.	IS-3025/09:1984	Thermometeric
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, 22nd Edition	DPD
7	Ammonical Nitrogen	0.32			0.01	50.0	IS:3025/34:1988	Nesseler's
8	Total Kjeldahl Nitrogen	2.35			1.00	100.0	IS:3025/34:1988	Nesseler's
9	Free Ammonia	0.01			0.01	5.0	IS:3025/34:1988	Nesseler's
10	B.O.D (3 days 27^{o}C)	2.00			2.00	30.0	IS-3025/44:1993	3 day incubation at 27°C
11	COD	45			4.00	250.0	IS-3025/58:2006	Titration
12	Arsenic	BDL			0.005	0.2	APHA, 22nd Edition	AAS-GTA
13	Lead	BDL			0.005	0.1	APHA, 22nd Edition	AAS-GTA
14	Cadmium	BDL			0.0005	2.0	APHA, 22nd Edition	AAS-GTA
15	Hexavalent Chromium	0.01			0.01	0.1	APHA, 22nd 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, 22nd Edition	AAS-GTA
20	Nickel	BDL			0.10	3.0	IS-3025/54:2003	AAS-Flame
21	Fluoride	0.37			0.02	2.0	APHA, 22nd Edition	SPADNS
22	Dissolved Phosphate	BDL			0.30	5.0	APHA, 22nd Edition	Molybdovanadate
23	Sulphide	BDL			0.005	2.0	APHA, 22nd Edition	Methylene Blue
24	Phenolic Compounds	0.002			0.002	1.0	APHA, 22nd Edition	4-Amino Antipyrine
25	Manganese	0.03			0.02	2.0	APHA, 22nd Edition	AAS-Flame
26	Iron	BDL			0.06	3.0	IS-3025/53:2003	AAS-Flame
27	Nitrate Nitrogen	1.7			0.50	10.0	APHA, 22nd Edition	UV Spectrphotometric

Analysed By **Checked By** **G.M (Chemist)**
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TEST REPORT

Job No. : 094313025 Date of Issue: 15/11/13
Name of the Customer : CCL

Customer Letter Ref. No. (if any): CCL/DGM-HOD(E&F)/2013/1570 Dt. 22/11/13
Sample Description : Surface Water
Product Specification (BIS) : IS: 2296 Inland Surface Water Class 'C'
Test Required : 19 items as per IS: 2296
Date of receipt of sample : 01/11/13 Date of performance of Test: 01/11/13 to 15/11/13

TEST RESULT

The sample has been tested with the following results:-

Area : **Barka-Sayal** **Year** 2013
Project : **Saunda D** **Quarter Ending Dec. '2013**

Sampling Stations 1 Nakari River U/S 30-Oct-13
2 Nakari River D/S 30-Oct-13

All parameter are in mg/l unless specified *BDL - Below Detectable Limit*

Sl.No	Parameter	Sampling Stations			Below Detection Limit	IS : 2296 INLAND SURFACE WATER [1982] Class C	BIS Standard	Method
		1	2	3				
1	Colour,Hazen unit,Max	12	14		5.0	300	APHA, 22nd Edition	Platinum Cobalt
2	Total Suspended Solids	80	92		25.00	$	IS-3025/17:1984	Gravimetric
3	Disolved Oxygen	5.10	4.90		0.10	4	IS-3025/38:1989	Winkler Azide
4	pH value	8.10	8.15		0.01	6.5-8.5	IS-3025/11:1983	Electrometric
5	Iron	BDL	BDL		0.06	5	IS-3025/53:2003	AAS-Flame
6	Chlorides	20	22		2.00	600	IS-3025/32:1988	Argentometric
7	BOD (3 days 27°C)	2.80	3.00		2.00	3	IS-3025/44:1993	3 day incubation at 27°C
8	Total Dissolved Solids	202	210		25.00	1500	IS-3025/16:1984	Gravimetric
9	Copper	BDL	BDL		0.03	1.5	IS-3025/42:1992	AAS-Flame
10	Sulphate	36	40		2.00	400	APHA, 22nd Edition	Turbidity
11	Nitrate	4.87	5.75		0.50	50	IS-3025/34:1988	Nesseler's
12	Fluoride	0.44	0.47		0.02	1.5	APHA, 22nd Edition	SPADNS
13	Cadmium	BDL	BDL		0.0005	0.01	APHA, 22nd Edition	AAS-GTA
14	Selenium	BDL	BDL		0.005	0.05	APHA, 22nd Edition	AAS-GTA
15	Arsenic	BDL	BDL		0.005	0.2	APHA, 22nd Edition	AAS-GTA
16	Lead	BDL	BDL		0.005	0.1	APHA, 22nd Edition	AAS-GTA
17	Zinc	BDL	BDL		0.01	15	IS-3025/49:1994	AAS-Flame
18	Hexavalent Chromium	0.01	0.01		0.01	0.05	APHA, 22nd Edition,	Diphenylcarbohydrazide
19	Phenolics	0.002	0.002		0.002	0.005	APHA, 22nd 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)**
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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:	05.02.14
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	05.02.14-18.02.14
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution	Date of Reporting:	18.02.14
Testing Protocol:	Gazette Notification no. G.S.R 742(E) dt.25th 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 : **Barka-Sayal** **Project:** **Saunda D**

Stations: **Date of Sampling:**

1. *Officers Colony* 22-23/01/2014
2. *New Sayal Incline* 22-23/01/2014
3. *Workers Quarter* 23-24/01/2014
4.

S.No	**Test Parameters**	**Units**	**Test Method**	**TEST RESULT**			
Stations:				**1**	**2**	**3**	**4**
5.	Total Particulate Matter (PM_{10}+ >PM_{10})	µg/m^3	Lab.SOP 4 based on – IS: 5182/23, 2006	174	230	338	
6.	Particulate Matter (PM_{10})	µg/m^3	IS: 5182/23 2006	108	128	257	
7.	Sulphur Dioxide (SO_2)	µg/m^3	IS: 5182 /02 2001 R-2006	<25	<25	<25	
8.	Nitrogen Oxides (as NO_x)	µg/m^3	IS: 5182 /02 1975 R-1998	20	21	20	

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)**
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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:	05.02.14
Mode of Receipt of Sample:	Jointly sampling with customer	Date of Analysis:	-
Testing Protocol:	Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000	Date of Reporting:	-
Remarks:			

TEST RESULT

The sample has been tested with the following results:-

Area : **Barka-Sayal** **Project:** **Saunda D**

Stations:

1. Officers Colony
2. Workers Quarter
3.
4.

Station Name	**Date of Sampling**	**Noise Level**
Officers Colony	22/01/2014	47.2
Workers Quarter	23/01/2014	47.3

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

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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:	05.02.14
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	05.02.14-22.02.14
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'A'**	Date of Reporting:	22.02.14
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 : **Barka-Sayal** **Project:** Central Saunda

Stations:

1. Banshgara Incline Water
2.

Date of Sampling: 29/01/2014

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	25			25.00	100.0	IS 3025/17:1984, R :1996, Gravimetric
2	pH value	8.43			0.01	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
3	Temperature (^{o}C)	22.5			5.0	Shall not exceed 5 C above the receiving temp.	IS-3025/09:1984, Thermometeric
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, 22nd Edition, DPD
6	Ammonical Nitrogen, mg/l, Max	0.12			0.01	50.0	IS 3025/34:1988, R : 2009, Nessler's
7	Total Kjeldahl Nitrogen, mg/l, Max	1.2			1.00	100.0	IS:3025/34:1988, Nesseler's
8	Free Ammonia, mg/l, Max	<0.01			0.01	5.0	IS:3025/34:1988, Nesseler's
9	B.O.D (3 days 27^{o}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	28			4.00	250.0	APHA, 22nd 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, 22nd Edition, AAS-GTA
13	Cadmium, mg/l, Max	<0.0005			0.0005	2.0	APHA, 22nd Edition, AAS-GTA
14	Hexavalent Chromium, mg/l, Max	<0.01			0.01	0.1	APHA, 22nd 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	<0.01			0.01	5.0	IS 3025 /49 : 1994, R : 2009, AAS-Flame
18	Selenium, mg/l, Max	<0.005			0.005	0.05	APHA, 22nd 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	0.75			0.02	2.0	APHA, 22nd Edition, SPADNS
21	Dissolved Phosphate, mg/l, Max	0.32			0.30	5.0	APHA, 22nd Edition Molybdovanadate
22	Sulphide, mg/l, Max	<0.005			0.005	2.0	APHA, 22nd Edition, Methylene Blue
23	Phenolic Compounds, mg/l, Max	<0.002			0.002	1.0	APHA, 22nd Edition 4-Amino Antipyrine
24	Manganese, mg/l, Max	0.16			0.02	2.0	IS-3025/59:2006, AAS-Flame
25	Iron, mg/l, Max	0.37			0.06	3.0	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
26	Nitrate Nitrogen, mg/l, Max	2.2			0.50	10.0	APHA, 22nd Edition, UV-Spectrphotometric

Analysed By **Checked By**

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TEST REPORT

Lab No. T-2187	**Job No. 094313025**	**Year**	**2013-14**
Type of Sample:	**Surface Water**	Quarter Ending	**March '14**
Customer / W. O. no. & Date:	CCL/DGM-HOD(E&F)/2013/ 1570 Dt. 22/11/13	Date of Receipt of Sample:	05.02.14
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	05.02.14-22.02.14
Testing Protocol:	-	Date of Reporting:	22.02.14
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 : **Barka-Sayal** **Project:** **Saunda D**

Stations:

1. Nakari River U/S
2. Nakari River D/S
3.

Date of Sampling:
29/01/2014
29/01/2014

Sl.No.	Parameter	Sampling Stations				Desirable Limits	BIS Standard & Method
		1	2	3	4		
1	Total Suspended Solids, mg/l, Max	30	38			25.00	IS 3025 /17:1984, R :1996, Gravimetric
2	Disolved Oxygen, min.	8.20	7.40			0.10	IS 3025/381989, R : 2003, Winkler Azide
3	pH value	7.98	8.05			0.01	IS-3025/11:1983, R-1996, Electrometric
4	Iron, mg/l, Max	0.31	0.49			0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
5	Chlorides, mg/l, Max	20	24			2.00	IS-3025/32:1988, R-2007, Argentometric
6	BOD (3 days 27^{o}C), mg/l, Max	<2.00	2.00			2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
7	Dissolved Solids, mg/l, Max	158	168			25.00	IS 3025 /16:1984 R : 2006, Gravimetric
8	Copper, mg/l, Max	<0.03	<0.03			0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
9	Sulphate, mg/l, Max	20	24			2.00	APHA, 22nd Edition Turbidity
10	Nitrate , mg/l, Max	5.75	6.20			0.50	APHA, 22nd Edition, UV-Spectrphotometric
11	Fluoride, mg/l, Max	0.48	0.50			0.02	APHA, 22nd Edition SPADNS
12	Cadmium, mg/l, Max	<0.0005	<0.0005			0.0005	APHA, 22nd Edition AAS-GTA
13	Selenium, mg/l, Max	<0.005	<0.005			0.005	APHA, 22nd Edition AAS-GTA
14	Arsenic, mg/l, Max	<0.005	<0.005			0.005	IS 3025/37:1988 R : 2003, AAS-VGA
15	Lead, mg/l, Max	<0.005	<0.005			0.005	APHA, 22nd Edition AAS-GTA
16	Zinc, mg/l, Max	1.52	0.54			0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame
17	Hexavalent Chromium, mg/l, Max	<0.01	<0.01			0.01	APHA, 22nd Edition, 1,5 - Diphenylcarbohydrazide
18	Phenolics, mg/l, Max	<0.002	<0.002			0.002	APHA, 22nd 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)
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