



# **ENVIRONMENTAL AUDIT STATEMENT**

**2022-23**

**For**

**SURAKACHHAR UNDERGROUND COAL MINE**

**Under**

**(KORBA AREA)**

**South Eastern Coalfields Limited**

*(A Mini Ratna Company)*

**Year of establishment – 1963**

**Capacity of Mine - 0.456 MTPA**

**Project Area - 1045.86 ha**

**Central Mine Planning & Design Institute Limited  
Regional Institute – V, CMPDI Complex, Seepat Road,  
BILASPUR (C.G.)**

**ENVIRONMENTAL AUDIT STATEMENT (2022 – 23)**  
**SURAKACHHAR UNDERGROUND COAL MINE**  
**CHAPTER-I**  
**TABLE-1.1**

<b>1.0</b>	<b>General Information</b>	:	Surakachhar underground mine is one of the two mines of Balgi-Surakachhar Sub Area of Korba Area of SECL. The mine has obtained CTO from CECB for annual coal production capacity of 0.456 MT. The mine is located in Katghora tehsil of Korba district in Chhattisgarh. Nearest railway station from the mine is Gevra Road.
<b>a)</b>	<b>Extractable Reserves (as on 01.04.2023)</b>	:	6.810365 MT
<b>b)</b>	<b>Target output &amp; grade of coal (2023-24)</b>	:	Production target – 130000 Tonne Grade ROM G7
<b>c)</b>	<b>Seams Worked</b>	:	G-III & G-I
<b>d)</b>	<b>Thickness of Seam Worked (in metres.)</b>	:	G-III: 1.5 to 3.0m G-I: 1.5 to 3.20m
<b>e)</b>	<b>Depth of Seams from the surface</b> Minimum : Maximum:	:	G-III: 27 to 185 m, G-I: 40 to 265 m G-III: 27m, G-I: 40m G-III: 185m, G-I: 265m
<b>f)</b>	<b>Av. Stripping ratio mining purpose</b>	:	N.A.
<b>g)</b>	<b>No. of villages/ families</b>	:	13 villages inside lease area, no villages have been shifted
<b>h)</b>	<b>(i) Mining area (in Ha.)</b>	:	1045.86 (including Surakachhar Main incline and Surakachhar 3&4 incline)
	<b>(ii) Leasehold area other than mining purpose (in Ha.)</b>	:	Nil
	<b>(iii) Total Leasehold Area (in Ha.)</b>	:	1045.86 ha

<b>1.1</b>	<b>Brief Geology of Mine</b>	:	There are four seams encountered in the area. Out of these seams only two seam, i.e., G-I and G-III are workable. A major up-throw fault having a throw of 47m is encountered and it runs from north-west to east side of the property.02 other faults are also existing parallel to the north-east mine boundary causing disturbance in the working of G-III seam. Thickness of both seams varies from 1.6 to 3.0 m and consisting of numerous slips/ fractured roof. Seepage of water with shiny/ gritty appearance has been found in G-III seam.
<b>1.2</b>	<b>Mining Method Description</b>	:	Mining is being done by conventional Bord & Pillar method. Depillaring is done by caving and stowing method and coal transportation from face to surface bunker through series of belts.
<b>1.3</b>	<b>Present Status of the mine</b>	:	The mine is operational. Production figures of the last five years and target for 2023-24 are as provided below:

<b>Year</b>	<b>Coal Production (in Tonne)</b>
2018-19	255888
2019-20	287533
2020-21	232925
2021-22	167629
2022-23	56156
<b>2023-24 (Target)</b>	<b>130000</b>

<b>2.</b>	<b>No. of Inclines (Running)</b>	:	02 nos.
<b>3.</b>	<b>Shafts</b>	:	01
<b>4.</b>	<b>No. of quarries</b>	:	Not applicable
<b>5.</b>	<b>Overburden</b>	:	Not applicable
<b>6.</b>	<b>Main Consumers</b>	:	Bhilai Steel Plant, Chandrapur Power plant, KRPH ( Koradih,Khaparkheda), Birsinghpur Power Plant
<b>7.</b>	<b>Mode of dispatch</b>	:	By road to Surakachhar railway siding and by rail to consumers

## CHAPTER-II

### FORM-V (See rule 14)

#### Environmental Statement for the Financial Year ending

31<sup>st</sup> March 2023

#### PART-A

(i)	<b>Name and address of the mine</b>	:	O/o the Sub-Area Manager, Balgi-Surakachhar Sub-Area, Surakachhar u/g mine, SECL, Korba Area P.O. Bhairotal, via Kusmunda Tehsil Katghora, Korba - 495454
(ii)	<b>Industry category Primary (SIC Code) or Secondary (SIC Code)</b>	:	Primary
(iii)	<b>Production capacity units</b>	:	0.456 MTP CTO sanctioned capacity
(iv)	<b>Year of establishment</b>	:	1963
(v)	<b>Date of the last environmental Statement Submitted</b>	:	30.09.2022

## PART-B

### Water and Raw Materials Consumption

**(i) Water Consumption (KLD or cum/day)**

Total mine discharge (pumped out water) – 7714 cum/day  
 Mine water used for meeting industrial needs – 400 cum/day  
 (including dust suppression, fire-fighting, plantation watering, pipeline losses)  
 Treated mine water supply for domestic use to project colony – 220 cum/day  
 Treated mine water supply for domestic use to nearby villages – 832 cum/day  
 Balance mine water to natural water course – 6262 cum/day  
 (Above figures are yearly average values as per the groundwater NOC)

Name of Products	Process water consumption per product output	
	During the previous financial year 2021-22	During the current financial year 2022-23
Coal	No process water is required in coal production in underground mine	

**(ii) Raw materials consumption**

*Name of raw materials	Name of products	Consumption of raw material per unit of output	
		During the previous financial year 2021-22	During the current financial year 2022-23
Explosive	Coal	0.343 kg/tonne	0.605 kg/tonne
P.O.L	Coal	0.007 lit/tonne	0.4191 lit/tonne

\*Industry may use codes if disclosing details of raw materials would violate contractual obligations, otherwise all industries have to name the raw materials used.

## PART-C

### POLLUTANT DISCHARGED TO ENVIRONMENT/ UNIT OF OUTPUT (Parameters as specified in the consent issued)

Pollutants (Including mine & colony discharge of water)	Quantity of pollutants discharged (mass/day)	Concentrations of pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons
(a) Air	Quantity of fugitive dust emissions from various mining operation cannot be specified	Environment Monitoring Reports Enclosed.	Environment Monitoring Reports

<b>(b) Water</b>	On average 7714 kl mine water is pumped out per day, therefore: Suspended solids – less than 25 mg/l i.e. less than 193 kg/day COD- less than 4 mg/l i.e. less than 31 kg/day Oil & Grease – less than 2 mg/l i.e. less than 16 kg/day		Enclosed.
<b>(b) Noise</b>	Not Applicable		

**PART-D  
HAZARDOUS WASTES**

**(As specified under Hazardous Wastes/ Management Handling Rule, 1989)**

Hazardous Wastes	Total quantity	
	During the previous financial year 2021-22	During the current financial year 2022-23
<b>From Process</b>	i) Burnt oil (Category. 5.1) – 1.2kl ii) Waste/residue containing oil (Cat. 5.2) - 25 kg	Burnt oil (Category. 5.1) – 1.01kl ii) Waste/residue containing oil (Cat. 5.2) - 23 kg
<b>From Pollution control facilities</b>	Nil	

Neither liquid nor solid hazardous wastes are generated during underground coal mining.

**PART-E  
SOLID WASTES**

Removal of overburden	Total quantity	
	During the previous financial year 2021-22	During the current financial year 2022-23
<b>Total O.B.</b>	Not applicable for u/g mine	
<b>Total O.B. For back filling</b>		
<b>Total O.B. disposed</b>		

**PART-F**

Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Description	Qty. MT / Year (22-23)	Collection Method
<b>Steel Scrap</b>	Metal waste is not generated in significant quantities	-
<b>Copper Scrap</b>		-
<b>Aluminum Scrap</b>		-
<b>Used Oil</b>	1.01 kl	Used oil is auctioned to authorized recyclers

### **PART-G**

#### **Impact of the pollution abatement measure taken on conservation of natural resources and on the cost of production.**

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Pollution control measures contribute towards restoration of the quality of natural resources like water, soil & flora. Dense plantation around the mine premises helps prevent soil erosion and absorbs pollutants from air. The following environmental measures add to the overall cost of coal production from the mine.

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- Dust suppression on mine roads through tanker
  - Running and maintenance cost of settling tank and water filter plant
  - Routine environmental monitoring by CMPDIL
  - Construction of SLRM centre for safe and proper handling and disposal of municipal solid waste
- 

### **PART-H**

#### **Additional measures/ investment proposals for environmental protection including abatement of pollution, prevention of pollution.**

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The following additional measures are being taken up for environmental protection including abatement of pollution:

- Proposal for construction of rainwater harvesting structures is in process.
  - Proposal for construction of piezometers around the workshop, for monitoring of hazardous waste leaching, is in process.
  - Proposal for establishing wind barrier sheet at the railway siding is in process.
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### **PART-I**

#### **Any other particulars for improving the quality of the environment.**

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Thick green belt has been developed around the mine area over the years. Internal mine roads have been black-topped to prevent dust generation. Good housekeeping practices are maintained in the mine premises to ensure overall safety and for improving quality of the environment.

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# **ENVIRONMENTAL MONITORING REPORT**



**CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED**

Environment Laboratory, Regional Institute-V,  
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A Mini Ratna Company

AIR QUALITY REPORT

Month	JANUARY	Area	KORBA	Report No	BSP/2023/01/01
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Name of the Customer	South Eastern Coalfields Ltd, Bilaspur	Date of Issue	16.02.2023
Name of the Project	Surakkachhar UG	Sample Reference No.	18-20,132 & 134-137

Limit (in $\mu\text{g}/\text{m}^3$ )-24 hrs	Parameter			PM <sub>100</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	Remarks
	Industrial Zone -(G.S.R. 742(E), dated 25.9.2000)	A-O		600	300	-	120	120	
		A-N		500	250	-	120	120	
	Residential Zone-(G.S.R. 826(E), dated 16.11.2009 and GSR 176 (E), 02.04.1996)	B		200	100	60	80	80	
Method of analysis				IS-5182 PART 4:2005	IS-5182 PART 23:2006	USEPA CFR 40, Appendix L to Part 50	IS-5182 PART 2:2001	IS-5182 PART 6:2006	
Uncertainty Range (in $\mu\text{g}/\text{m}^3$ )					±19.04		±0.0687	±0.4420	
Station Name (Code)	Station category	Date of sampling	Date of analysis						
53. SAM Office	A-O	12.01.2023	18.01.2023	482	237	67	38	41	
		18.01.2023	27.01.2023	509	240	72	33	37	
54. Surakkachhar Basti	B	12.01.2023	18.01.2023	176	76	36	24	28	
		19.01.2023	27.01.2023	169	74	35	23	27	
55. 3& 4 Incline	A-O	10.01.2023	18.01.2023	459	223	63	35	38	
		19.01.2023	27.01.2023	466	225	65	36	40	
56.Gajra village	B	10.01.2023	18.01.2023	178	80	38	30	34	
		16.01.2023	27.01.2023	166	76	36	27	33	
57.Ghordeva village	B	10.01.2023	18.01.2023	164	72	36	26	30	
		17.01.2023	27.01.2023	169	73	39	30	35	
58.Purena Village	B	11.01.2023	18.01.2023	146	65	32	23	26	
		20.01.2023	27.01.2023	159	70	36	28	32	
59.Sendri Dafai	B	11.01.2023	18.01.2023	175	76	37	29	34	
		20.01.2023	27.01.2023	169	77	36	30	32	
60.Pankhadafai	B	10.01.2023	18.01.2023	176	75	43	26	29	
		17.01.2023	27.01.2023	171	72	42	27	33	

*mlb*  
Analyzed by

*Manoj*  
Checked by

*C. K. Vel*  
Manager-Environment

Note: 1) The results above relate to the samples tested.

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**NOISE QUALITY REPORT**

Month	JANUARY	Area	KORBA	Report No	BSP/2023/01/01
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Name of the Customer	South Eastern Coalfields Ltd, Bilaspur	Date of Issue	16.02.2023
Name of the Project	Surakkachhar UG	Sample Reference No.	N19 – N21

Parameter			The Noise Pollution (R & C) rules, 2000		Remarks
Limit (in dB(A)Leq	Industrial area	A	Day Time	Night Time	
	Commercial area	B	75	70	
	Residential Area	C	65	55	
	Silence Zone	D	55	45	
Method of analysis			CPCB Protocol For Ambient Level Noise Monitoring		
Station (Code) Station Name	Station category	Date of measurement	Value in dB(A)	Value in dB(A)	
19-SAM Office	A	06.01.2023	42.4	58.5	
		19.01.2023	58.0	58.5	
20-Surakkachhar Basti	C	06.01.2023	40.6	37.4	
		19.01.2023	45.6	37.1	
21-3&4 Incline	A	06.01.2023	49.4	58.6	
		19.01.2023	58.7	59.4	

*mlb*  
Analyzed by

*[Signature]*  
Checked by

*C. K. Vel.*  
Manager-Environment

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**TEST & SAMPLING REPORT OF (EFFLUENT WATER FORTNIGHTLY)**

<b>Unique Report No.</b>	22347	<b>Report Issue Date</b>	06-02-2023
<b>Customer Name</b>	South Estern Coal Field Ltd Bilaspur	<b>Address &amp; Contact Details</b>	SEEPAT ROAD BILASPUR 7752241927
<b>Sampling By</b>	INDRA	<b>Date of Sampling</b>	06-01-2023
<b>Sampling Location</b>	Mine discharge water (Output after settling tank) Surakkachhar UG	<b>Sampling Plan</b>	AS PER MONTHLY PLAN
<b>Sample Condition</b>	APPROPRIATE	<b>Date of Receipt of Sample</b>	09-01-2023
		<b>Sample ID</b>	15422
		<b>Sampling Method</b>	CMPDIL/BSP/LSOP
		<b>Date of Analysis</b>	From 09-01-2023 To 12-01-2023

Sr. No	Parameter	Test At	Method of Analysis	Range	Permissible Limit*	Observed Value	UOM (at 95% C.L&k=1.96)
1	C.O.D mg/l	Main	APHA, 23rd Edition, 2017, 5220C	8.0 - 500.0	250	BDL	±6.209 at 247.427
2	Oil & Grease mg/l	Main	IS 3025 (Part 39):1991,(RA : 2003)	4.0 - 100.0	10	BDL	±1.8109 @ 9.95
3	pH Value Unitless	Main	IS 3025 (Part 11):1983, R : 2012	1.00 - 14.00	5.5-9.0	6.69	±0.1272 at 7.0074
4	Total suspended Solids mg/l	Main	IS 3025 (Part 17):1984, (RA: 1996)	10.0 - 5000.0	100	BDL	±0.445 @ 24.429

----- END OF THE REPORT -----

**Reported By**  
Deepanwita Bin

**Reviewed and Approved**  
M. Reagan  
Manager (Env)  
Date&Time :06-02-2023 05:25:43

JSA

Note:

- \* This is computer generated report and does not require signature
- \* General Standards for Discharge of Environmental Pollution(Part A:Effluent) as per Schedule VI,Environment (Protection) Rules
  - a. The results relate only to the item sampled and tested.
  - b. This report shall not be reproduced except in full without approval of the laboratory.



**TEST & SAMPLING REPORT OF (EFFLUENT WATER FORTNIGHTLY)**

<b>Unique Report No.</b>	22636	<b>Report Issue Date</b>	20-02-2023		
<b>Customer Name</b>	South Estern Coal Field Ltd Bilaspur	<b>Address &amp; Contact Details</b>	SEEPAT ROAD BILASPUR 7752241927		
<b>Sampling By</b>	Ajay Singh	<b>Date of Sampling</b>	21-01-2023	<b>Sample ID</b>	15666
<b>Sampling Location</b>	Mine discharge water (Output after settling tank) Surakkachhar UG	<b>Sampling Plan</b>	As per fortnightly plan	<b>Sampling Method</b>	CMPDI/BSP/LSOP
<b>Sample Condition</b>	APPROPRIATE	<b>Date of Receipt of Sample</b>	23-01-2023	<b>Date of Analysis</b>	From 23-01-2023 To 25-01-2023

Sr. No	Parameter	Test At	Method of Analysis	Range	Permissible Limit*	Observed Value	UOM (at 95% C.L&k=1.96)
1	C.O.D mg/l	Main	APHA, 23rd Edition, 2017, 5220C	8.0 - 500.0	250	BDL	±6.209 at 247.427
2	Oil & Grease mg/l	Main	IS 3025 (Part 39):1991,(RA : 2003)	4.0 - 100.0	10	BDL	±1.8109 @ 9.95
3	pH Value Unitless	Main	IS 3025 (Part 11):1983, R : 2012	1.00 - 14.00	5.5-9.0	6.85	±0.1272 at 7.0074
4	Total suspended Solids mg/l	Main	IS 3025 (Part 17):1984, (RA: 1996)	10.0 - 5000.0	100	26.00	±0.445 @ 24.429

----- END OF THE REPORT -----

Reported By  
Manojkumar Baghel

Reviewed and Approved  
M. Reagan  
Manager (Env)  
Date&Time :20-02-2023 10:50:05

JSA

Note:

- \* This is computer generated report and does not require signature
- \* General Standards for Discharge of Environmental Pollution(Part A:Effluent) as per Schedule VI,Environment (Protection) Rules
  - a. The results relate only to the item sampled and tested.
  - b. This report shall not be reproduced except in full without approval of the laboratory.

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AIR QUALITY REPORT

Month	FEBRUARY	Area	KORBA	Report No	BSP/2023/01/02
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Name of the Customer	South Eastern Coalfields Ltd, Bilaspur	Date of Issue	10.03.2023
Name of the Project	Surakkachhar UG	Sample Reference No.	18-20,132 & 134-137

Limit (in $\mu\text{g}/\text{m}^3$ )-24 hrs	Parameter			PM <sub>100</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	Remarks
	Industrial Zone -(G.S.R. 742(E), dated 25.9.2000)	A-O		600	300	-	120	120	
		A-N		500	250	-	120	120	
	Residential Zone-(G.S.R. 826(E), dated 16.11.2009 and GSR 176 (E), 02.04.1996)	B		200	100	60	80	80	
Method of analysis				IS-5182 PART 4:2005	IS-5182 PART 23:2006	USEPA CFR 40, Appendix L to Part 50	IS-5182 PART 2:2001	IS-5182 PART 6:2006	
Uncertainty Range (in $\mu\text{g}/\text{m}^3$ )					±19.04		±0.0687	±0.4420	
Station Name (Code)	Station category	Date of sampling	Date of analysis						
53. SAM Office	A-O	10.02.2023	16.02.2023	486	239	68	39	42	
		24.02.2023	01.03.2023	512	242	73	34	39	
54. Surakkachhar Basti	B	11.02.2023	16.02.2023	178	77	37	25	29	
		25.02.2023	01.03.2023	172	75	36	24	28	
55. 3&4 Incline	A-O	11.02.2023	16.02.2023	448	220	60	32	36	
		23.02.2023	01.03.2023	459	225	64	35	39	
56.Gajra village	B	02.02.2023	16.02.2023	174	79	37	31	35	
		22.02.2023	01.03.2023	170	77	34	29	33	
57.Ghordeva village	B	02.02.2023	16.02.2023	162	71	35	27	30	
		25.02.2023	01.03.2023	167	72	38	30	34	
58.Purena Village	B	11.02.2023	16.02.2023	142	63	31	22	25	
		25.02.2023	01.03.2023	161	71	37	29	33	
59.Sendri Dafai	B	11.02.2023	16.02.2023	178	78	38	30	35	
		25.02.2023	01.03.2023	169	77	36	30	32	
60.Pankhadafai	B	10.02.2023	16.02.2023	176	75	43	26	29	
		23.02.2023	01.03.2023	171	72	42	27	33	

*mceb*  
Analyzed by

*Mangin*  
Checked by

*C.K. Vel*  
Manager-Environment

Note: 1) The results above relate to the samples tested.

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**NOISE QUALITY REPORT**

Month	<b>FEBRUARY</b>	Area	<b>KORBA</b>	Report No	<b>BSP/2023/02/01</b>
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Name of the Customer	<b>South Eastern Coalfields Ltd, Bilaspur</b>	Date of Issue	13.03.2023
Name of the Project	<b>Banki UG</b>	Sample Reference No.	<b>N-17-N-19</b>

Parameter			The Noise Pollution (R & C) rules, 2000		Remarks
			Day Time	Night Time	
Limit (in dB(A) Leq	Industrial area	A	75	70	
	Commercial area	B	65	55	
	Residential Area	C	55	45	
	Silence Zone	D	50	40	
Method of analysis	CPCB Protocol For Ambient Level Noise Monitoring				
Station (Code) Station Name	Station category	Date of measurement	Value in dB(A)	Value in dB(A)	
<b>17-Mine Manager Office</b>	<b>A</b>	06.02.2023	60.5	57.3	
		16.02.2023	60.3	57.1	
<b>18-5&amp;6 Incline</b>	<b>A</b>	06.02.2023	59.6	55.7	
		16.02.2023	61.2	53.2	
<b>19-Colony</b>	<b>C</b>	06.02.2023	54.0	37.5	
		16.02.2023	54.2	37.1	



Sampled by \_\_\_\_\_



Checked by \_\_\_\_\_



Manager-Environment

Note: 1) The results above relate to the samples tested.

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**TEST & SAMPLING REPORT OF (EFFLUENT WATER FORTNIGHTLY)**

<b>Unique Report No.</b>	22762	<b>Report Issue Date</b>	09-02-2023
<b>Customer Name</b>	South Estern Coal Field Ltd Bilaspur	<b>Address &amp; Contact Details</b>	SEEPAT ROAD BILASPUR 7752241927
<b>Sampling By</b>	Nitesh	<b>Date of Sampling</b>	05-02-2023
<b>Sampling Location</b>	Mine discharge water (Output after settling tank) Surakkachhar UG	<b>Sampling Plan</b>	As per fortnightly plan
<b>Sample Condition</b>	APPROPRIATE	<b>Date of Receipt of Sample</b>	06-02-2023
		<b>Sample ID</b>	15752
		<b>Sampling Method</b>	CMPDI/BSP/LSOP
		<b>Date of Analysis</b>	From 06-02-2023 To 07-02-2023

Sr. No	Parameter	Test At	Method of Analysis	Range	Permissible Limit*	Observed Value	UOM (at 95% C.L&k=1.96)
1	C.O.D mg/l	Main	APHA, 23rd Edition, 2017, 5220C	8.0 - 500.0	250	BDL	±6.209 at 247.427
2	Oil & Grease mg/l	Main	IS 3025 (Part 39):1991,(RA : 2003)	4.0 - 100.0	10	4.00	±1.8109 @ 9.95
3	pH Value Unitless	Main	IS 3025 (Part 11):1983, R : 2012	1.00 - 14.00	5.5-9.0	7.04	±0.1272 at 7.0074
4	Total suspended Solids mg/l	Main	IS 3025 (Part 17):1984, (RA: 1996)	10.0 - 5000.0	100	16.00	±0.445 @ 24.429

----- END OF THE REPORT -----

Reported By  
Panna Lal Kashyap

Reviewed and Approved  
M. Reagan  
Manager (Env)  
Date&Time :09-02-2023 10:12:20

JSA

Note:

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**TEST & SAMPLING REPORT OF (EFFLUENT WATER FORTNIGHTLY)**

<b>Unique Report No.</b>	24202	<b>Report Issue Date</b>	27-02-2023		
<b>Customer Name</b>	South Estern Coal Field Ltd Bilaspur	<b>Address &amp; Contact Details</b>	SEEPAT ROAD BILASPUR 7752241927		
<b>Sampling By</b>	L Tataiya	<b>Date of Sampling</b>	19-02-2023	<b>Sample ID</b>	16031
<b>Sampling Location</b>	Mine discharge water (Output after settling tank) Surakkachhar UG	<b>Sampling Plan</b>	As per fortnightly plan	<b>Sampling Method</b>	CMPDI/BSP/LSOP
<b>Sample Condition</b>	APPROPRIATE	<b>Date of Receipt of Sample</b>	21-02-2023	<b>Date of Analysis</b>	From 21-02-2023 To 25-02-2023

Sr. No	Parameter	Test At	Method of Analysis	Range	Permissible Limit*	Observed Value	UOM (at 95% C.L&k=1.96)
1	C.O.D mg/l	Main	APHA, 23rd Edition, 2017, 5220C	8.0 - 500.0	250	BDL	±6.209 at 247.427
2	Oil & Grease mg/l	Main	IS 3025 (Part 39):1991,(RA : 2003)	4.0 - 100.0	10	BDL	±1.8109 @ 9.95
3	pH Value Unitless	Main	IS 3025 (Part 11):1983, R : 2012	1.00 - 14.00	5.5-9.0	6.88	±0.1272 at 7.0074
4	Total suspended Solids mg/l	Main	IS 3025 (Part 17):1984, (RA: 1996)	10.0 - 5000.0	100	BDL	±0.445 @ 24.429

----- END OF THE REPORT -----

Reported By  
Panna Lal Kashyap

Reviewed and Approved  
M. Reagan  
Manager (Env)  
Date&Time :27-02-2023 10:18:34

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**CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED**

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A Mini Ratna Company

AIR QUALITY REPORT

Month	MARCH	Area	KORBA	Report No	BSP/2023/01/03
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Name of the Customer	South Eastern Coalfields Ltd, Bilaspur	Date of Issue	02.04.2023
Name of the Project	Surakkachhar UG	Sample Reference No.	18-20,132 & 134-137

Limit (in $\mu\text{g}/\text{m}^3$ )-24 hrs	Parameter			PM <sub>100</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	Remarks	
	Industrial Zone -(G.S.R. 742(E), dated 25.9.2000)			A-O	600	300	-	120		120
				A-N	500	250	-	120		120
	Residential Zone-(G.S.R. 826(E), dated 16.11.2009 and GSR 176 (E), 02.04.1996)			B	200	100	60	80	80	
Method of analysis				IS-5182 PART 4:2005	IS-5182 PART 23:2006	USEPA CFR 40, Appendix L to Part 50	IS-5182 PART 2:2001	IS-5182 PART 6:2006		
Uncertainty Range (in $\mu\text{g}/\text{m}^3$ )					±19.04		±0.0687	±0.4420		
Station Name (Code)	Station category	Date of sampling	Date of analysis							
53. SAM Office	A-O	13.03.2023	20.03.2023	491	242	70	41	44		
		30.03.2023	03.04.2023	508	244	72	38	43		
54. Surakkachhar Basti	B	13.03.2023	20.03.2023	182	79	39	28	31		
		24.03.2023	03.04.2023	174	76	37	25	29		
55. 3&4 Incline	A-O	14.03.2023	20.03.2023	452	223	62	33	37		
		30.03.2023	03.04.2023	465	229	66	37	41		
56.Gajra village	B	10.03.2023	20.03.2023	171	78	36	30	33		
		22.03.2023	31.03.2023	168	75	32	31	34		
57.Ghordeva village	B	11.03.2023	20.03.2023	163	70	34	28	33		
		22.03.2023	31.03.2023	167	73	38	30	35		
58.Purena Village	B	14.03.2023	20.03.2023	148	66	33	24	29		
		24.03.2023	31.03.2023	155	69	35	27	32		
59.Sendri Dafai	B	14.03.2023	20.03.2023	171	75	35	29	33		
		24.03.2023	31.03.2023	168	76	35	31	33		
60.Pankhadafai	B	11.03.2023	20.03.2023	172	73	41	25	28		
		23.03.2023	31.03.2023	177	76	44	28	33		

*mllb*  
Analyzed by

*Manjiv*  
Checked by

*C.K. Vel*  
Manager-Environment

Note: 1) The results above relate to the samples tested.

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**CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED**

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**NOISE QUALITY REPORT**

Month	MARCH	Area	KORBA	Report No	BSP/2023/01/03
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Name of the Customer	South Eastern Coalfields Ltd, Bilaspur	Date of Issue	02.04.2023
Name of the Project	Surakkachhar UG	Sample Reference No.	N19 – N21

Parameter			The Noise Pollution (R & C) rules, 2000		Remarks
Limit (in dB(A)Leq	Industrial area	A	Day Time	Night Time	
	Commercial area	B	75	70	
	Residential Area	C	65	55	
	Silence Zone	D	55	45	
Method of analysis			CPCB Protocol For Ambient Level Noise Monitoring		
Station (Code) Station Name	Station category	Date of measurement	Value in dB(A)	Value in dB(A)	
19-SAM Office	A	04.03.2023	61.2	57.4	
		21.03.2023	59.1	57.5	
20-Surakkachhar Basti	C	04.03.2023	46.0	37.4	
		21.03.2023	42.0	36.3	
21-3&4 Incline	A	04.03.2023	59.0	58.5	
		21.03.2023	61.8	56.0	

Analyzed by

Checked by

Manager-Environment

Note: 1) The results above relate to the samples tested.

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**TEST & SAMPLING REPORT OF (EFFLUENT WATER FORTNIGHTLY)**

<b>Unique Report No.</b>		22762		<b>Report Issue Date</b>		09-02-2023	
<b>Customer Name</b>		South Estern Coal Field Ltd Bilaspur		<b>Address &amp; Contact Details</b>		SEEPAT ROAD BILASPUR 7752241927	
<b>Sampling By</b>	Nitesh	<b>Date of Sampling</b>	05-02-2023	<b>Sample ID</b>	15752		
<b>Sampling Location</b>	Mine discharge water (Output after settling tank) Surakkachhar UG		<b>Sampling Plan</b>	As per fortnightly plan	<b>Sampling Method</b>	CMPDI/BSP/LSOP	
<b>Sample Condition</b>	APPROPRIATE		<b>Date of Receipt of Sample</b>	06-02-2023	<b>Date of Analysis</b>	From 06-02-2023 To 07-02-2023	

Sr. No	Parameter	Test At	Method of Analysis	Range	Permissible Limit*	Observed Value	UOM (at 95% C.L&k=1.96)
1	C.O.D mg/l	Main	APHA, 23rd Edition, 2017, 5220C	8.0 - 500.0	250	BDL	±6.209 at 247.427
2	Oil & Grease mg/l	Main	IS 3025 (Part 39):1991,(RA : 2003)	4.0 - 100.0	10	4.00	±1.8109 @ 9.95
3	pH Value Unitless	Main	IS 3025 (Part 11):1983, R : 2012	1.00 - 14.00	5.5-9.0	7.04	±0.1272 at 7.0074
4	Total suspended Solids mg/l	Main	IS 3025 (Part 17):1984, (RA: 1996)	10.0 - 5000.0	100	16.00	±0.445 @ 24.429

----- END OF THE REPORT -----

Reported By  
Panna Lal Kashyap

Reviewed and Approved  
C. Kumaravel  
Manager (Env)  
Date&Time :09-02-2023 10:12:20

JSA

Note:

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**TEST & SAMPLING REPORT OF (EFFLUENT WATER FORTNIGHTLY)**

<b>Unique Report No.</b>	28715	<b>Report Issue Date</b>	27-03-2023		
<b>Customer Name</b>	South Estern Coal Field Ltd Bilaspur	<b>Address &amp; Contact Details</b>	SEEPAT ROAD BILASPUR 7752241927		
<b>Sampling By</b>	Sibu	<b>Date of Sampling</b>	17-03-2023	<b>Sample ID</b>	16400
<b>Sampling Location</b>	Mine discharge water (Output after settling tank) Surakkachhar UG	<b>Sampling Plan</b>	As per fortnightly plan	<b>Sampling Method</b>	CMPDI/BSP/LSOP
<b>Sample Condition</b>	APPROPRIATE	<b>Date of Receipt of Sample</b>	19-03-2023	<b>Date of Analysis</b>	From 10-03-2023 To 22-03-2023

Sr. No	Parameter	Test At	Method of Analysis	Range	Permissible Limit*	Observed Value	UOM (at 95% C.L&k=1.96)
1	C.O.D mg/l	Main	APHA, 23rd Edition, 2017, 5220C	8.0 - 500.0	250	BDL	±6.209 at 247.427
2	Oil & Grease mg/l	Main	IS 3025 (Part 39):1991,(RA : 2003)	4.0 - 100.0	10	BDL	±1.8109 @ 9.95
3	pH Value Unitless	Main	IS 3025 (Part 11):1983, R : 2012	1.00 - 14.00	5.5-9.0	7.61	±0.1272 at 7.0074
4	Total suspended Solids mg/l	Main	IS 3025 (Part 17):1984, (RA: 1996)	10.0 - 5000.0	100	BDL	±0.445 @ 24.429

----- END OF THE REPORT -----

Reported By  
R.K Thakur

Reviewed and Approved  
C. Kumaravel  
Manager (Env)  
Date&Time :27-03-2023 03:49:43

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**TEST & SAMPLING REPORT OF (DRINKING WATER)**

<b>Unique Report No.</b>		22324		<b>Report Issue Date</b>		20-02-2023	
<b>Customer Name</b>		South Estern Coal Field Ltd Bilaspur		<b>Address &amp; Contact Details</b>		SEEPAT ROAD BILASPUR 7752241927	
<b>Sampling By</b>	NITESH	<b>Date of Sampling</b>	07-01-2023	<b>Sample ID</b>	15383		
<b>Sampling Location</b>	Drinking water Ghordewa Water filter plant Surakkachhar Surakkachhar UG		<b>Sampling Plan</b>	AS PER MONTHLY PLAN	<b>Sampling Method</b>	CMPDIL/BSP/LSOP	
<b>Sample Condition</b>	APPROPRIATE		<b>Date of Receipt of Sample</b>	09-01-2023	<b>Date of Analysis</b>	From 09-01-2023 To 18-01-2023	

Sr. No	Parameter	Test At	Method of Analysis	Range of Testing	IS 10500:2012		Observed Value	UOM (at 95% C.L&K=1.96)
					Acceptable Limit	Permissible Limit		
1	Alkalinity mg/l as CaCO3	Main	IS 3025(Part 23):1986,R 2003	5.0 - 1000.0	200	1000	130.00	±0.19696@10.0
2	Arsenic mg/l	Main	IS 3025 (Part 37):1988,R 2003	0.002 - 0.040	0.01	0.05	BDL	±0.0081@0.018
3	Boron mg/l	Main	APHA, 23rd Edition,2017, 4500-B	0.5 - 14.0	0.5	1	BDL	±0.310@5.16
4	Calcium mg/l	Main	IS 3025 (Part 40): 1991, R : 2009	5.0 - 500.0	75	200	35.270	±2.512@99.8
5	Chlorides mg/l	Main	IS 3025(Part 32):1988 , R : 2007	5.0 - 1000.0	250	1000	32.99	±6.551@253.5
6	Colour Hazen	Main	APHA, 23rd Edition,2017, 2120. C	1.0 - 500	5	15	4.92	±1.05@ 49.86
7	Copper mg/l	Main	IS 3025 (Part 42) : 1992 R : 2009	0.03 - 10.0	0.05	1.5	BDL	±0.13@4.90
8	Fluoride mg/l	Main	APHA, 23rd Edition,2017, 4500, F- D	0.1 - 5.0	1.0	1.5	0.57	±0.014@0.98
9	Iron mg/l	Main	IS 3025 (Part 53) :2003, R:2009	0.05 - 15.0	0.3	No Relaxation	BDL	±0.0782@7.95
10	Lead mg/l	Main	APHA, 23rd Edition,2017, 3113B	0.0050 - 0.1000	0.01	No relaxation	BDL	±0.000266@0.005
11	Manganese mg/l	Main	IS 3025 (Part 59) : 2006	0.05 - 5.0	0.1	0.3	0.06	±0.026@2.44
12	Nitrate mg/l	Main	APHA, 23rd Edition,2017, 4500, B	0.5 - 45	45	No Relaxation	0.62	±0.528@20.41
13	Odour none	Main	IS 3025 (Part 5):1983	-	Agreeable	Agreeable	Agreeable	Not applicable
14	pH Value none	Main	IS 3025 (Part 11):1983, R : 2012	4.00 - 10.00	6.5 - 8.5	No Relaxation	7.05	±0.127@7.01
15	Phenolic compounds mg/l	Main	APHA, 23rd Edition,2017, 5530. C	0.001 - 0.2	0.001	0.002	BDL	±0.0204 at 0.1004
16	Residual Free Chlorine mg/l	Main	APHA, 23rd Edition,2017, 4500G	0.1 - 10.0	0.2	1	BDL	±0.0082@0.1
17	Selenium mg/l	Main	IS 3025 (Part 56):2003	0.001 - 0.040	0.01	No Relaxation	BDL	±0.000938@0.001
18	Sulphate mg/l	Main	APHA, 23rd Edition,2017, 4500-SO42- E	2.0 - 40.0	200	400	17.37	±0.640@19.88
19	Total Chromium mg/l	Main	IS 3025 ( Part 52 ) : 2003	0.05 - 15.0	0.05	No relaxation	BDL	±0.004@0.05
20	Total Coliform MPN/100 ml	Main	APHA, 23rd Edition, 9221 B	-	Null	No Relaxation	BDL	Not specified
21	Total Dissolved Solids mg/l	Main	IS 3025 (Part 16):1984 R : 2006	30.0 - 2000.0	500	2000	315.00	±4.473@592.0
22	Total Hardness mg/l as CaCO3	Main	IS 3025 (Part 21):2009	4.0 - 2000.0	200	600	129.65	±11.545@612.8
23	Turbidity NTU	Main	IS 3025 (Part 10):1984, R : 2006	1.0 - 100.0	1	5	2.42	±0.855@41.58
24	Zinc mg/l	Main	IS 3025 ( Part 49 ) : 1994, R : 2009	0.01 - 2.0	5	15	0.07	±0.0013@0.01

----- END OF THE REPORT -----

**Reported By**  
Manojkumar Baghel      Deepanwita Bin

**Reviewed and Approved**  
M. Reagan  
Manager (Env)  
Date&Time :20-02-2023 10:50:03

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**TEST & SAMPLING REPORT OF (DRINKING WATER)**

<b>Unique Report No.</b>	24250	<b>Report Issue Date</b>	10-03-2023
<b>Customer Name</b>	South Estern Coal Field Ltd Bilaspur	<b>Address &amp; Contact Details</b>	SEEPAT ROAD BILASPUR 7752241927
<b>Sampling By</b>	Nitesh	<b>Date of Sampling</b>	05-02-2023
<b>Sampling Location</b>	Drinking water Ghordewa Water filter plant Surakkachhar Surakkachhar UG	<b>Sampling Plan</b>	As per monthly plan
<b>Sample Condition</b>	APPROPRIATE	<b>Date of Receipt of Sample</b>	06-02-2023
		<b>Sample ID</b>	15785
		<b>Sampling Method</b>	CMPDI/BSP/LSOP
		<b>Date of Analysis</b>	From 06-01-2023 To 10-03-2023

Sr. No	Parameter	Test At	Method of Analysis	Range of Testing	IS 10500:2012		Observed Value	UOM (at 95% C.L&K=1.96)
					Acceptable Limit	Permissible Limit		
1	Alkalinity mg/l as CaCO <sub>3</sub>	Main	IS 3025(Part 23):1986,R 2003	5.0 - 1000.0	200	1000	95.00	±0.19696@10.0
2	Arsenic mg/l	Main	IS 3025 (Part 37):1988,R 2003	0.002 - 0.040	0.01	0.05	BDL	±0.0081@0.018
3	Boron mg/l	Main	APHA, 23rd Edition,2017, 4500-B	0.5 - 14.0	0.5	1	BDL	±0.310@5.16
4	Calcium mg/l	Main	IS 3025 (Part 40): 1991, R : 2009	5.0 - 500.0	75	200	43.286	±2.512@99.8
5	Chlorides mg/l	Main	IS 3025(Part 32):1988 , R : 2007	5.0 - 1000.0	250	1000	32.49	±6.551@253.5
6	Colour Hazen	Main	APHA, 23rd Edition,2017, 2120. C	1.0 - 500	5	15	3.38	±1.05@ 49.86
7	Copper mg/l	Main	IS 3025 (Part 42) : 1992 R : 2009	0.03 - 10.0	0.05	1.5	BDL	±0.13@4.90
8	Fluoride mg/l	Main	APHA, 23rd Edition,2017, 4500, F- D	0.1 - 5.0	1.0	1.5	0.13	±0.014@0.98
9	Iron mg/l	Main	IS 3025 (Part 53) :2003, R:2009	0.05 - 15.0	0.3	No Relaxation	BDL	±0.0782@7.95
10	Lead mg/l	Main	APHA, 23rd Edition,2017, 3113B	0.0050 - 0.1000	0.01	No relaxation	BDL	±0.000266@0.005
11	Manganese mg/l	Main	IS 3025 (Part 59) : 2006	0.05 - 5.0	0.1	0.3	BDL	±0.026@2.44
12	Nitrate mg/l	Main	APHA, 23rd Edition,2017, 4500, B	0.5 - 45	45	No Relaxation	0.65	±0.528@20.41
13	Odour none	Main	IS 3025 (Part 5):1983	-	Agreeable	Agreeable	Agreeable	Not applicable
14	pH Value none	Main	IS 3025 (Part 11):1983, R : 2012	4.00 - 10.00	6.5 - 8.5	No Relaxation	7.15	±0.127@7.01
15	Phenolic compounds mg/l	Main	APHA, 23rd Edition,2017, 5530. C	0.001 - 0.2	0.001	0.002	BDL	±0.0204 at 0.1004
16	Residual Free Chlorine mg/l	Main	APHA, 23rd Edition,2017, 4500G	0.1 - 10.0	0.2	1	NIL	±0.0082@0.1
17	Selenium mg/l	Main	IS 3025 (Part 56):2003	0.001 - 0.040	0.01	No Relaxation	BDL	±0.000938@0.001
18	Sulphate mg/l	Main	APHA, 23rd Edition,2017, 4500-SO42- E	2.0 - 40.0	200	400	17.27	±0.640@19.88
19	Total Chromium mg/l	Main	IS 3025 ( Part 52 ) : 2003	0.05 - 15.0	0.05	No relaxation	BDL	±0.004@0.05
20	Total Coliform MPN/100 ml	Main	APHA, 23rd Edition, 9221 B	-	Nil	No Relaxation	BDL	Not specified
21	Total Dissolved Solids mg/l	Main	IS 3025 (Part 16):1984 R : 2006	30.0 - 2000.0	500	2000	280.00	±4.473@592.0
22	Total Hardness mg/l as CaCO <sub>3</sub>	Main	IS 3025 (Part 21):2009	4.0 - 2000.0	200	600	158.63	±11.545@612.8
23	Turbidity NTU	Main	IS 3025 (Part 10):1984, R : 2006	1.0 - 100.0	1	5	3.57	±0.855@41.58
24	Zinc mg/l	Main	IS 3025 ( Part 49 ) : 1994, R : 2009	0.01 - 2.0	5	15	0.15	±0.0013@0.01

----- END OF THE REPORT -----

**Reported By**  
Manojkumar Baghel      Santosh Kumar Singh

**Reviewed and Approved**  
M. Reagan  
Manager (Env)  
Date&Time :10-03-2023 11:23:40

**JSA**

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**TEST & SAMPLING REPORT OF (DRINKING WATER)**

<b>Unique Report No.</b>	27322	<b>Report Issue Date</b>	27-03-2023		
<b>Customer Name</b>	South Estern Coal Field Ltd Bilaspur	<b>Address &amp; Contact Details</b>	SEEPAT ROAD BILASPUR 7752241927		
<b>Sampling By</b>	Bharat Kumar, Sunil Kumar	<b>Date of Sampling</b>	04-03-2023	<b>Sample ID</b>	16175
<b>Sampling Location</b>	Drinking water Ghordewa Water filter plant Surakkachhar Surakkachhar UG	<b>Sampling Plan</b>	As per monthly plan	<b>Sampling Method</b>	CMPDI/BSP/LSOP
<b>Sample Condition</b>	APPROPRIATE	<b>Date of Receipt of Sample</b>	06-03-2023	<b>Date of Analysis</b>	From 07-03-2023 To 20-03-2023

Sr. No	Parameter	Test At	Method of Analysis	Range of Testing	IS 10500:2012		Observed Value	UOM (at 95% C.L&K=1.96)
					Acceptable Limit	Permissible Limit		
1	Alkalinity mg/l as CaCO3	Main	IS 3025(Part 23):1986,R 2003	5.0 - 1000.0	200	1000	115.00	±0.19696@10.0
2	Arsenic mg/l	Main	IS 3025 (Part 37):1988,R 2003	0.002 - 0.040	0.01	0.05	BDL	±0.0081@0.018
3	Boron mg/l	Main	APHA, 23rd Edition,2017, 4500-B	0.5 - 14.0	0.5	1	BDL	±0.310@5.16
4	Calcium mg/l	Main	IS 3025 (Part 40): 1991, R : 2009	5.0 - 500.0	75	200	34.056	±2.512@99.8
5	Chlorides mg/l	Main	IS 3025(Part 32):1988 , R : 2007	5.0 - 1000.0	250	1000	30.37	±6.551@253.5
6	Colour Hazen	Main	APHA, 23rd Edition,2017, 2120. C	1.0 - 500	5	15	4.92	±1.05@ 49.86
7	Copper mg/l	Main	IS 3025 (Part 42) : 1992 R : 2009	0.03 - 10.0	0.05	1.5	BDL	±0.13@4.90
8	Fluoride mg/l	Main	APHA, 23rd Edition,2017, 4500, F- D	0.1 - 5.0	1.0	1.5	0.33	±0.014@0.98
9	Iron mg/l	Main	IS 3025 (Part 53) :2003, R:2009	0.05 - 15.0	0.3	No Relaxation	BDL	±0.0782@7.95
10	Lead mg/l	Main	APHA, 23rd Edition,2017, 3113B	0.0050 - 0.1000	0.01	No relaxation	BDL	±0.000266@0.005
11	Manganese mg/l	Main	IS 3025 (Part 59) : 2006	0.05 - 5.0	0.1	0.3	BDL	±0.026@2.44
12	Nitrate mg/l	Main	APHA, 23rd Edition,2017, 4500, B	0.5 - 45	45	No Relaxation	0.78	±0.528@20.41
13	Odour none	Main	IS 3025 (Part 5):1983	-	Agreeable	Agreeable	Agreeable	Not applicable
14	pH Value none	Main	IS 3025 (Part 11):1983, R : 2012	4.00 - 10.00	6.5 - 8.5	No Relaxation	7.09	±0.127@7.01
15	Phenolic compounds mg/l	Main	APHA, 23rd Edition,2017, 5530. C	0.001 - 0.2	0.001	0.002	BDL	±0.0204 at 0.1004
16	Residual Free Chlorine mg/l	Main	APHA, 23rd Edition,2017, 4500G	0.1 - 10.0	0.2	1	BDL	±0.0082@0.1
17	Selenium mg/l	Main	IS 3025 (Part 56):2003	0.001 - 0.040	0.01	No Relaxation	BDL	±0.000938@0.001
18	Sulphate mg/l	Main	APHA, 23rd Edition,2017, 4500-SO42- E	2.0 - 40.0	200	400	44.04	±0.640@19.88
19	Total Chromium mg/l	Main	IS 3025 ( Part 52 ) : 2003	0.05 - 15.0	0.05	No relaxation	BDL	±0.004@0.05
20	Total Coliform MPN/100 ml	Main	APHA, 23rd Edition, 9221 B	-	Nil	No Relaxation	BDL	Not specified
21	Total Dissolved Solids mg/l	Main	IS 3025 (Part 16):1984 R : 2006	30.0 - 2000.0	500	2000	224.00	±4.473@592.0
22	Total Hardness mg/l as CaCO3	Main	IS 3025 (Part 21):2009	4.0 - 2000.0	200	600	144.58	±11.545@612.8
23	Turbidity NTU	Main	IS 3025 (Part 10):1984, R : 2006	1.0 - 100.0	1	5	1.92	±0.855@41.58
24	Zinc mg/l	Main	IS 3025 ( Part 49 ) : 1994, R : 2009	0.01 - 2.0	5	15	0.01	±0.0013@0.01

----- END OF THE REPORT -----

**Reported By**  
D.Dayakar Santosh Kumar Singh

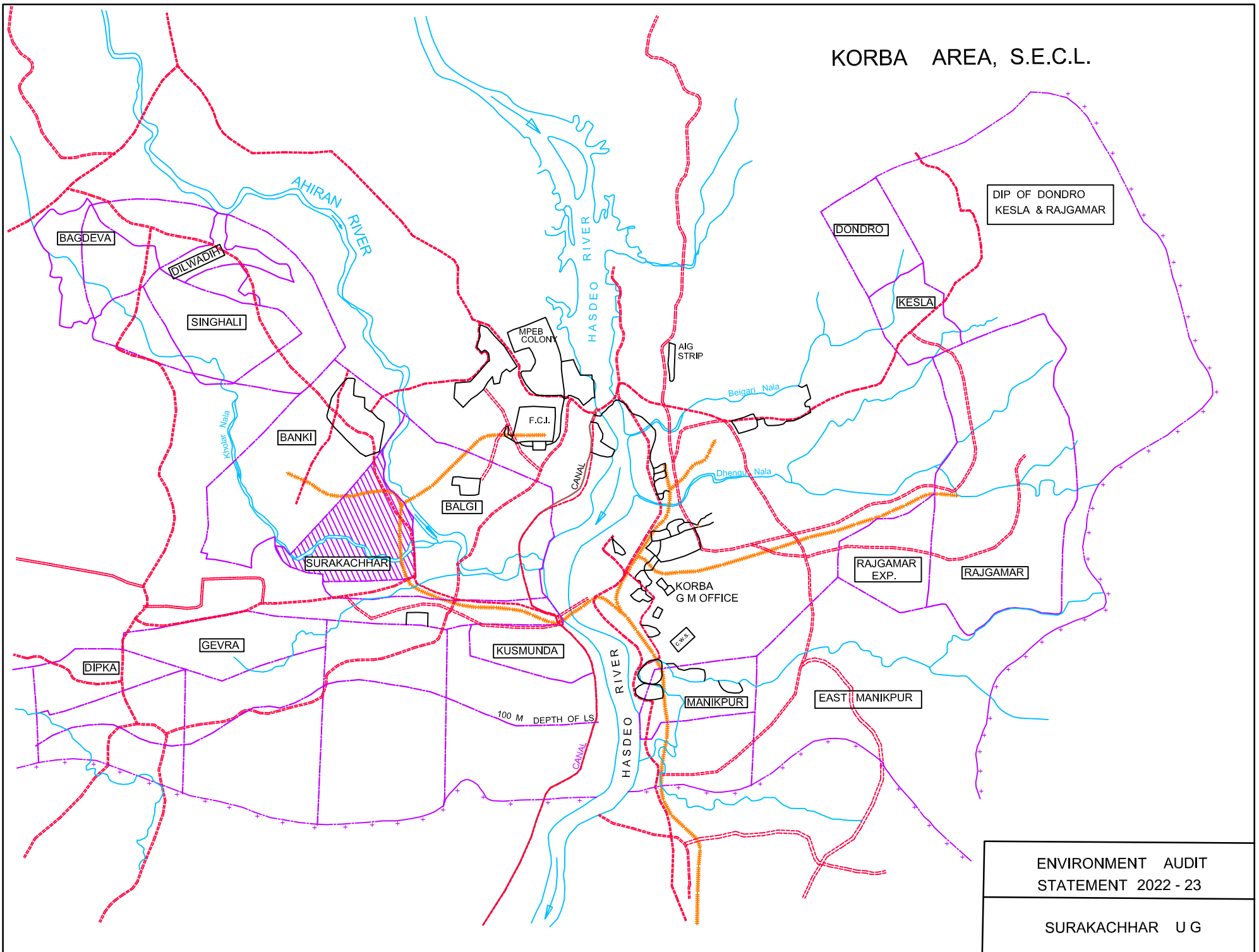
**Reviewed and Approved**  
C. Kumaravel  
Manager (Env)  
Date&Time :27-03-2023 03:49:40

JSA

Note:

- \* This is computer generated report and does not require signature
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- b. This report shall not be reproduced except in full without approval of the laboratory.

KORBA AREA, S.E.C.L.



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