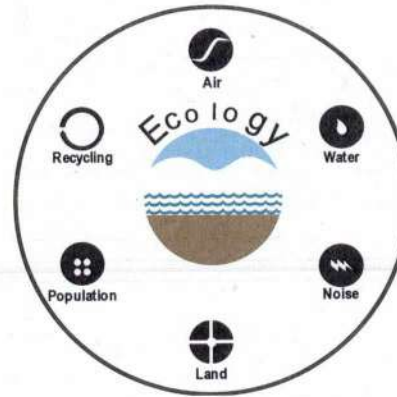


**Environmental Monitoring Report
Of
Ib Valley Area
For
November-2023**

Ib Valley Coalfield



Mahanadi Coalfields Limited



Central Mine Planning & Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)

Regional Institute-VII, Samantpuri, P.O : RRL, Bhubaneswar-751013 (Odisha)
[Assistance from Environment Division, CMPDI(HQs), Ranchi]

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Test Report

AMBIENT AIR QUALITY DATA

Area : **Ib Valley** (Compliance Station)

Project : **Lajkura OCP** (conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
06-Nov-23	Near South Coal Stock	252	154	56	11.20	12.82	Mining Activities, Coal Transportation	About 500m
06-Nov-23	Near Project Office	238	148	49	14.76	15.94	Domestic, OCP, Transportation	About 500m
22-Nov-23	Near South Coal Stock	266	166	63	14.75	17.71	Mining Activities, Coal Transportation	About 500m
22-Nov-23	Near Project Office	252	152	55	15.37	15.59	Domestic, OCP, Transportation	About 500m

Project : **Samleswari OCP** (conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
07-Nov-23	West of the Mine	256	162	58	16.08	13.31	Distance From 'y' Curve Railway Siding	About 450m
07-Nov-23	South of the Mine	235	142	48	12.91	17.54	Mine Haul Roads	About 400m
07-Nov-23	South East of the Mine	250	152	55	15.47	13.51	Coal Transportation Road	About 500m
07-Nov-23	East of the Mine	244	148	52	10.49	10.63	Coal Transportation Road	About 500m
29-Nov-23	West of the Mine	246	146	53	13.52	15.73	Distance From 'y' Curve Railway Siding	About 450m
29-Nov-23	South of the Mine	252	155	56	14.65	12.92	Mine Haul Roads	About 400m
30-Nov-23	South East of the Mine	246	144	52	10.94	10.86	Coal Transportation Road	About 500m
30-Nov-23	East of the Mine	243	140	50	10.92	13.59	Coal Transportation Road	About 500m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Ib Valley

(Reference Station)

Project :

Samleswari OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
01-Nov-23	Rampur Sub Area(Reported Only)	182	83	34	14.76	10.63	Coal Stock And CT Road	About 1000m
01-Nov-23	Khokelmal (Reported only)	182	85	33	13.44	12.75	Railway siding	About 1000m
02-Nov-23	Khokelmal (Reported only)	212	95	46	15.61	13.63	Railway siding	About 1000m
02-Nov-23	Rampur Sub Area(Reported Only)	205	73	42	17.12	15.97	Coal Stock And CT Road	About 1000m
09-Nov-23	Khokelmal (Reported only)	188	86	37	11.08	13.51	Railway siding	About 1000m
09-Nov-23	Rampur Sub Area(Reported Only)	194	88	38	12.47	15.20	Coal Stock And CT Road	About 1000m
10-Nov-23	Khokelmal (Reported only)	176	82	30	13.12	17.01	Railway siding	About 1000m
10-Nov-23	Rampur Sub Area(Reported Only)	180	85	33	15.47	19.10	Coal Stock And CT Road	About 1000m
16-Nov-23	Khokelmal (Reported only)	172	80	30	13.69	13.38	Railway siding	About 1000m
16-Nov-23	Rampur Sub Area(Reported Only)	183	88	36	15.30	14.62	Coal Stock And CT Road	About 1000m
17-Nov-23	Khokelmal (Reported only)	166	76	28	16.94	13.53	Railway siding	About 1000m
17-Nov-23	Rampur Sub Area(Reported Only)	173	84	32	17.34	16.15	Coal Stock And CT Road	About 1000m
24-Nov-23	Rampur Sub Area(Reported Only)	171	81	30	16.17	19.25	Coal Stock And CT Road	About 1000m
24-Nov-23	Khokelmal (Reported only)	174	83	32	16.05	16.28	Railway siding	About 1000m
25-Nov-23	Khokelmal (Reported only)	178	86	35	19.65	18.62	Railway siding	About 1000m
25-Nov-23	Rampur Sub Area(Reported Only)	183	88	36	14.14	21.10	Coal Stock And CT Road	About 1000m
29-Nov-23	Khokelmal (Reported only)	165	75	28	14.21	18.72	Railway siding	About 1000m

*NAAQS,2009

100	60	80	80
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Ib Valley

(Reference Station)

29-Nov-23	Rampur Sub Area(Reported Only)	178	85	34	15.07	16.28	Coal Stock And CT Road	About 1000m
30-Nov-23	Rampur Sub Area(Reported Only)	182	87	35	17.07	12.06	Coal Stock And CT Road	About 1000m
30-Nov-23	Khokelmal (Reported only)	170	81	30	12.64	14.77	Railway siding	About 1000m

*NAAQS,2009		100	60	80	80
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Ib Valley

(Reference Station)

Project :

Lajkura OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
01-Nov-23	Khokelmal	182	85	33	13.44	12.75	Railway siding	About 1000m
01-Nov-23	Chuakani	185	85	36	16.20	19.10	Transportation	About 300m
01-Nov-23	VIP Guest House IB Valley	195	88	40	11.82	12.06	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
02-Nov-23	VIP Guest House IB Valley	185	84	36	15.22	16.44	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
02-Nov-23	Khokelmal	212	95	46	15.61	13.63	Railway siding	About 1000m
02-Nov-23	Chuakani	192	88	38	11.96	10.33	Transportation	About 300m
09-Nov-23	VIP Guest House IB Valley	184	82	32	13.83	14.95	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
09-Nov-23	Khokelmal	188	86	37	11.08	13.51	Railway siding	About 1000m
09-Nov-23	Chuakani	182	86	34	12.97	12.11	Transportation	About 300m
10-Nov-23	VIP Guest House IB Valley	196	92	41	10.49	16.01	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
10-Nov-23	Khokelmal	176	82	30	13.12	17.01	Railway siding	About 1000m
10-Nov-23	Chuakani	193	86	38	13.67	11.69	Transportation	About 300m
16-Nov-23	VIP Guest House IB Valley	172	82	31	15.91	15.08	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
16-Nov-23	Chuakani	168	78	29	13.91	12.27	Transportation	About 300m
16-Nov-23	Khokelmal	172	80	30	13.69	13.38	Railway siding	About 1000m
17-Nov-23	VIP Guest House IB Valley	166	78	29	13.01	15.40	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
17-Nov-23	Khokelmal	166	76	28	16.94	13.53	Railway siding	About 1000m

*NAAQS, 2009

100	60	80	80
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Ib Valley

(Reference Station)

17-Nov-23	Chuakani	172	82	31	17.04	17.71	Transportation	About 300m
24-Nov-23	Khokelmal	174	83	32	16.05	16.28	Railway siding	About 1000m
24-Nov-23	Chuakani	171	83	30	15.71	15.79	Transportation	About 300m
24-Nov-23	VIP Guest House IB Valley	176	85	34	17.89	16.57	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
25-Nov-23	VIP Guest House IB Valley	162	74	27	16.79	11.11	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
25-Nov-23	Khokelmal	178	86	35	19.65	18.62	Railway siding	About 1000m
25-Nov-23	Chuakani	180	88	36	16.10	15.56	Transportation	About 300m
29-Nov-23	Khokelmal	165	75	28	14.21	18.72	Railway siding	About 1000m
29-Nov-23	Chuakani	192	91	39	15.84	13.56	Transportation	About 300m
30-Nov-23	Chuakani	198	94	42	14.21	16.60	Transportation	About 300m
30-Nov-23	Khokelmal	170	81	30	12.64	14.77	Railway siding	About 1000m

*NAAQS, 2009		100	60	80	80
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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: IB Valley

Project	Lajkura OCP							
Monitoring Station	VIP Guest House, IB Valley							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(μg/m ³)	(μg/m ³)	(μg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(μg/m ³)
01-Nov-2023	<20.0	4.22	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	4.68	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
10-Nov-2023	<20.0	5.38	<0.1	<1.0	<1.0	1	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	7.45	<0.1	<1.0	<1.0	1.1	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	6.31	<0.1	<1.0	<1.0	1.4	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	5.05	<0.1	<1.0	<1.0	1.2	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	7.06	<0.1	<1.0	<1.0	1.3	BQL(Q L=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: IB Valley

Project	Lajkura OCP							
Monitoring Station	Chukani							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(µg/m ³)
01-Nov-2023	<20.0	5.55	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	5.06	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
10-Nov-2023	<20.0	5.38	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	5.39	<0.1	<1.0	<1.0	1.1	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	8.64	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	4.68	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
29-Nov-2023	<20.0	7.60	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
30-Nov-2023	<20.0	5.67	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: IB Valley

Project	Lajkura OCP							
Monitoring Station	Khokelmal							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(μg/m ³)	(μg/m ³)	(μg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(μg/m ³)
01-Nov-2023	<20.0	5.62	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	6.65	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	5.87	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
10-Nov-2023	<20.0	7.25	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	6.39	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	4.57	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	5.02	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	5.98	<0.1	<1.0	<1.0	1	BQL(Q L=0.7)	BQL
29-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
30-Nov-2023	<20.0	6.84	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: IB Valley

Project	Samleswari OCP							
Monitoring Station	Rampur Sub Area (Reported Only)							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(μg/m ³)	(μg/m ³)	(μg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(μg/m ³)
01-Nov-2023	<20.0	5.64	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
02-Nov-2023	<20.0	5.24	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
09-Nov-2023	<20.0	8.47	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
10-Nov-2023	<20.0	5.68	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
16-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
17-Nov-2023	<20.0	5.30	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
24-Nov-2023	<20.0	5.69	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
25-Nov-2023	<20.0	4.60	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
29-Nov-2023	<20.0	8.68	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
30-Nov-2023	<20.0	4.57	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: IB Valley

Project	Samaleswari OCP							
Monitoring Station	Khokelmal (Reported Only)							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzen e
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(µg/m ³)
01-Nov-2023	<20.0	5.62	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	6.65	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	5.87	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
10-Nov-2023	<20.0	7.25	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	6.39	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	4.57	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	5.02	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	5.98	<0.1	<1.0	<1.0	1	BQL(Q L=0.7)	BQL
29-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
30-Nov-2023	<20.0	6.84	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
Standard	400(24h ours)	180(ho ur)	1.0(24ho urs)	6.0(An nual)	20(Ann ual)	04(1h ours)	01(ann ual)	05(ann ual)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Ib Valley

PROJECT :

Samleswari OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
08-Nov-23	South of the Mine	68.2	62.1
08-Nov-23	South-East of the Mine	68.4	62.4
08-Nov-23	East of the Mine	64.8	58.3
08-Nov-23	West of the Mine	67.6	64.3
08-Nov-23	Rampur Sub Area	53.6	43.2
08-Nov-23	Khokelmal (Reported Only)	55.8	47.6
27-Nov-23	South-East of the Mine	62.4	60.8
27-Nov-23	South of the Mine	68.3	65.1
27-Nov-23	West of the Mine	63.7	59.4
27-Nov-23	East of the Mine	64.9	62.7
27-Nov-23	Khokelmal (Reported Only)	51.6	43.9
27-Nov-23	Rampur Sub Area	53.4	42.8

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Ib Valley

PROJECT :

Lajkura OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
08-Nov-23	Near South Coal Stock	64.4	63.8
08-Nov-23	Near Project Office	68.2	62.4
08-Nov-23	Khokelmal	55.8	47.6
08-Nov-23	Chuakani	57.2	42.1
08-Nov-23	VIP Guest House, IB Valley	53.2	42.7
27-Nov-23	Near Project Office	68.7	65.2
27-Nov-23	Near South Coal Stock	70.9	66.4
27-Nov-23	Chuakani	54.2	44.4
27-Nov-23	Khokelmal	51.6	43.9
27-Nov-23	VIP Guest House, IB Valley	54.3	42.7

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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TABLE--

EFFLUENT QUALITY DATA

Area :

IB Valley

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Lajkura OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
13-Nov-23	Mine Sump Water	7.23	<4.0	20	8	-	-	-	
13-Nov-23	Inlet of MDTP	7.26	<4.0	54	36	-	-	-	
13-Nov-23	Outlet of ETP	7.69	<4.0	34	24	-	-	-	
13-Nov-23	Inlet of ETP	7.43	<4.0	58	40	-	-	-	
13-Nov-23	Outlet of MDTP	7.49	<4.0	42	20	-	-	-	
21-Nov-23	Outlet of MDTP	7.69	<4.0	30	28	-	-	-	

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MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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TABLE--

EFFLUENT QUALITY DATA

Area :

IB Valley

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Lajkura OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	MPN/100mL
14-Nov-23	STP Outlet	6.95	-	48	-	<2	-	-	70
21-Nov-23	STP Outlet	6.81	-	28	-	<2	-	-	84

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G.S.R. 126 5(E) Effluent discharge standards (applicable to all mode of disposal), Sewage Treatment Plants (STPs)	6.5-9.5	-	<100	-	30	-	<1000
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TABLE--

EFFLUENT QUALITY DATA

Area :

IB Valley

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Samaleswari OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
13-Nov-23	Outlet of ETP	6.79	<4.0	22	16	-	-	-	
13-Nov-23	Inlet of ETP	6.67	<4.0	38	32	-	-	-	
13-Nov-23	Mine Sump Water	7.18	<4.0	16	12	-	-	-	

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MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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TABLE--

EFFLUENT QUALITY DATA

Area :

IB Valley

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Samaleswari OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	MPN/100mL
13-Nov-23	STP Outlet	7.62	-	28	-	<2	-	-	49
20-Nov-23	STP Outlet	7.89	-	36	-	<2	-	-	46

<i>G.S.R. 126 5(E) Effluent discharge standards (applicable to all mode of disposal), Sewage Treatment Plants (STPs)</i>	6.5-9.5	-	<100	-	30	-	<1000
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TABLE--

EFFLUENT QUALITY DATA

Area :

IB Valley I

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Central Hospital

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
13-Nov-23	Discharge of Hospital	6.83	<4.0	26	24	<2	-	-	

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MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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Effluent Quality (all Parameter): - Ib Valley Area

Project (OCP / UG)	Smleswari OCP		MoEF-Sch-VI Standards
	Discharge point of Mine sump water	Mine Sump Water	
NAME OF THE STATION	20-Nov-2023	20-Nov-2023	
Date of Sampling	20-Nov-2023	20-Nov-2023	
Odour	Unobjectionable	Unobjectionable	-
Colour(Hazen)	3	2	-
Temperature(^o C)	27	26	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.82	0.49	50
Total Kjeldhal Nitrogen, mg/l (As N)	3.33	2.22	100
Sulphide (mg/L)	<0.1	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	<2	30
Fluoride(mg/L)	0.33	0.36	2
Copper(mg/L)	0.05	0.07	3
Manganese(mg/L)	<0.04	<0.04	2
Iron(mg/L)	0.6	0.12	3
Zinc(mg/L)	0.1	0.13	5
Lead, mg/l	<0.005	<0.005	0.1
Cadmium, mg/l	<0.001	<0.001	2
Total Chromium(mg/L)	<0.01	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	<0.05	0.1
Nickel(mg/L)	<0.1	<0.1	3
Arsenic, mg/l	<0.005	<0.005	0.2
Selenium (mg/L)	<0.005	<0.005	0.05
Disolved Phosphate(mg/L)	<4	<4	5
Phenolics (mg/L)	<0.001	<0.001	1


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Effluent Quality (all Parameter): - Ib Valley Area

Project (OCP / UG)	Lajkura OCP		MoEF-Sch-VI Standards
	Outlet of MDTP	Mine Sump Water	
NAME OF THE STATION	Outlet of MDTP	Mine Sump Water	MoEF-Sch-VI Standards
Date of Sampling	20-Nov-2023	20-Nov-2023	
Odour	Unobjectionable	Unobjectionable	-
Colour(Hazen)	1	3	-
Temperature(^o C)	28	23	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	10
Ammonical Nitrogen , mg/l (As N)	1.26	1.54	50
Total Kjeldhal Nitrogen, mg/l (As N)	4.44	4.44	100
Sulphide (mg/L)	<0.1	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	<2	30
Fluoride(mg/L)	0.41	0.34	2
Copper(mg/L)	0.09	0.03	3
Manganese(mg/L)	7.45	6.91	2
Iron(mg/L)	<0.1	<0.1	3
Zinc(mg/L)	1.48	1.04	5
Lead, mg/l	<0.005	<0.005	0.1
Cadmium, mg/l	<0.001	<0.001	2
Total Chromium(mg/L)	<0.01	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	<0.05	0.1
Nickel(mg/L)	1.32	0.97	3
Arsenic, mg/l	<0.005	<0.005	0.2
Selenium (mg/L)	<0.005	<0.005	0.05
Disolved Phosphate(mg/L)	<4	<4	5
Phenolics (mg/L)	<0.001	<0.001	1

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Surface Water Quality Data IB Valley Area

Project/OCP	Samaleswari OCP			IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Pandren Nallah near Global Washery	Pandren Nallah Before Confluence Point with Lilari Nallah	Lajkura Pond Water	
Date of sampling	27-Nov-23	27-Nov-23	27-Nov-23	
pH	7.54	7.69	7.78	6.5-8.5
Color (Hazen unit)	3	2	3	300
Dissolved Oxygen(mg/L)	5.3	6.8	5.9	4
BOD (3 days 27oc)(mg/L)	<2	<2	<2	3
Chlorides(mg/L)	15.55	17.5	36.94	600
Sulphate(mg/L)	47.80	46.59	127.32	400
Nitrate(mg/L)	<2.0	<2.0	<2.0	50
Fluoride(mg/L)	0.38	0.41	0.33	1.5
Total Hardness(mg/L)	100.81	116.94	274.20	-
Total dissolved solids (mg/L)	168	174	382	1500
TSS(mg/L)	28	32	38	-
Copper(mg/L)	<0.03	<0.03	<0.03	1.5
Iron(mg/L)	<0.1	<0.1	<0.1	50
Zinc(mg/L)	0.04	0.06	0.11	15
Lead(mg/L)	<0.005	<0.005	<0.005	0.1
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.01
Total Chromium (mg/L)	<0.01	<0.01	<0.01	-
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.2
Selenium(mg/L)	<0.005	<0.005	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	<0.05	<0.05	-
Phenolics(mg/L)	<0.001	<0.001	<0.001	0.005
Oil & Grease (mg/L)	<4.0	<4.0	<4.0	0.1
MPN (Index/100 ml)	25	26	21	-


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Surface Water Quality Data IB Valley Area

Project/OCP	Lajkura OCP		IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	U/S of Baghmara Nala at Discharge Point	D/S of Baghmara Nala at Discharge Point	
Date of sampling	27-Nov-23	27-Nov-23	
pH	7.59	7.71	6.5-8.5
Color (Hazen unit)	1	2	300
Dissolved Oxygen(mg/L)	6.4	6.2	4
BOD (3 days 27oc)(mg/L)	<2	<2	3
Chlorides(mg/L)	9.72	11.66	600
Sulphate(mg/L)	13.78	11.83	400
Nitrate(mg/L)	<2.0	<2.0	50
Fluoride(mg/L)	0.36	0.93	1.5
Total Hardness(mg/L)	84.68	104.84	-
Total dissolved solids (mg/L)	128	148	1500
TSS(mg/L)	36	44	-
Copper(mg/L)	<0.03	<0.03	1.5
Iron(mg/L)	<0.1	<0.1	50
Zinc(mg/L)	0.06	0.07	15
Lead(mg/L)	<0.005	<0.005	0.1
Cadmium(mg/L)	<0.001	<0.001	0.01
Total Chromium (mg/L)	<0.01	<0.01	-
Arsenic(mg/L)	<0.005	<0.005	0.2
Selenium(mg/L)	<0.005	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	<0.05	-
Phenolics(mg/L)	<0.001	<0.001	0.005
Oil & Grease (mg/L)	<4.0	<4.0	0.1
MPN (Index/100 ml)	12	17	-


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TABLE--

Well Water Level Monitoring Data

Area :

Ib Valley

Project


Lajkura OCP

Date of sampling	Name of the Station	Depth to Water Level (in m. bgl)
20-Nov-23	Adarsh Nagar Colony Well Water	3.5
20-Nov-23	Chauliberna Village Well Water	3

Project

Samleswari OCP

Date of sampling	Name of the Station	Depth to Water Level (in m. bgl)
20-Nov-23	Well of Lajkura (Reported)	3
20-Nov-23	Well of Kudopali	2.27


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Drinking Water Quality Data IB Valley Area

Project / OCP	Samleswari OCP		Indian Drinking Standards (IS-10500):2012	
	Water from IWSS, IB Valley Area	Well Water From Lajkura		
Monitoring Station				
Date of Sampling	8-Nov-2023	8-Nov-2023	Acceptable	Permissible
Colour(Hazen)	1	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	1	5
pH	8.10	8.15	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	118.3	110.2	200	600
Chloride(mg/L)	23.33	21.38	250	1000
Sulphate(mg/L)	3.3	2.3	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO ₃)(mg/L)	104.84	129.04	200	600
Calcium(mg/L)	25.86	29.09	75	200
Fluoride(mg/L)	0.45	0.34	1	1.5
Total Dissolve Solid(mg/L)	206	204	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.10	0.14	5	15
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	<1.8	-	-

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Drinking Water Quality Data IB Valley Area

Project / OCP	Samaleswari OCP		Indian Drinking Standards (IS-10500):2012	
	Well Water From Kudopali	Tap Water From Samaleswari OCP Colony		
Monitoring Station				
Date of Sampling	8-Nov-2023	8-Nov-2023	Acceptable	Permissible
Colour(Hazen)	1	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	2	1	5
pH	7.82	8.04	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	118.3	110.2	200	600
Chloride(mg/L)	21.38	21.38	250	1000
Sulphate(mg/L)	2.07	3.5	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO₃)(mg/L)	96.78	137.10	200	600
Calcium(mg/L)	29.09	22.63	75	200
Fluoride(mg/L)	0.33	0.38	1	1.5
Total Dissolve Solid(mg/L)	198	218	500	2000
Copper(mg/L)	<0.04	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.04	0.08	5	15
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation
Total Chromium(mg/L)	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	<1.8	-	-

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Drinking Water Quality Data IB Valley Area

Project / OCP	Lajkura OCP		Indian Drinking Standards (IS-10500):2012	
	Monitoring Station			
	Chhualibera Village Well Water	VIP Guest House Tap Water		
Date of Sampling	8-Nov-2023	8-Nov-2023	Acceptable	Permissible
Colour(Hazen)	2	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	1	5
pH	8.23	8.07	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	126.5	61.2	200	600
Chloride(mg/L)	29.16	15.55	250	1000
Sulphate(mg/L)	3.05	23.66	200	400
Nitrate(mg/L)	18.20	<2.0	45	No relaxation
Total Hardness (Ca CO ₃)(mg/L)	133.07	104.84	200	600
Calcium(mg/L)	22.63	19.39	75	200
Fluoride(mg/L)	0.40	0.31	1	1.5
Total Dissolve Solid(mg/L)	236	174	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.25	0.09	5	15
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	<1.8	-	-

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Drinking Water Quality Data IB Valley Area

Project / OCP	Lajkura OCP		Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Madhuban Nagar Well Water	Adarsh Nagar Colony Well Water	Acceptable
Date of Sampling	8-Nov-2023	8-Nov-2023	Acceptable	Permissible
Colour(Hazen)	3	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	2	1	5
pH	8.18	8.31	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	122.4	122.4	200	600
Chloride(mg/L)	40.80	38.88	250	1000
Sulphate(mg/L)	30.0	30.85	200	400
Nitrate(mg/L)	19.12	<2.0	45	No relaxation
Total Hardness (Ca CO ₃)(mg/L)	165.33	161.30	200	600
Calcium(mg/L)	59.80	56.56	75	200
Fluoride(mg/L)	0.30	0.31	1	1.5
Total Dissolve Solid(mg/L)	306	314	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.08	0.22	5	15
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	<1.8	-	-

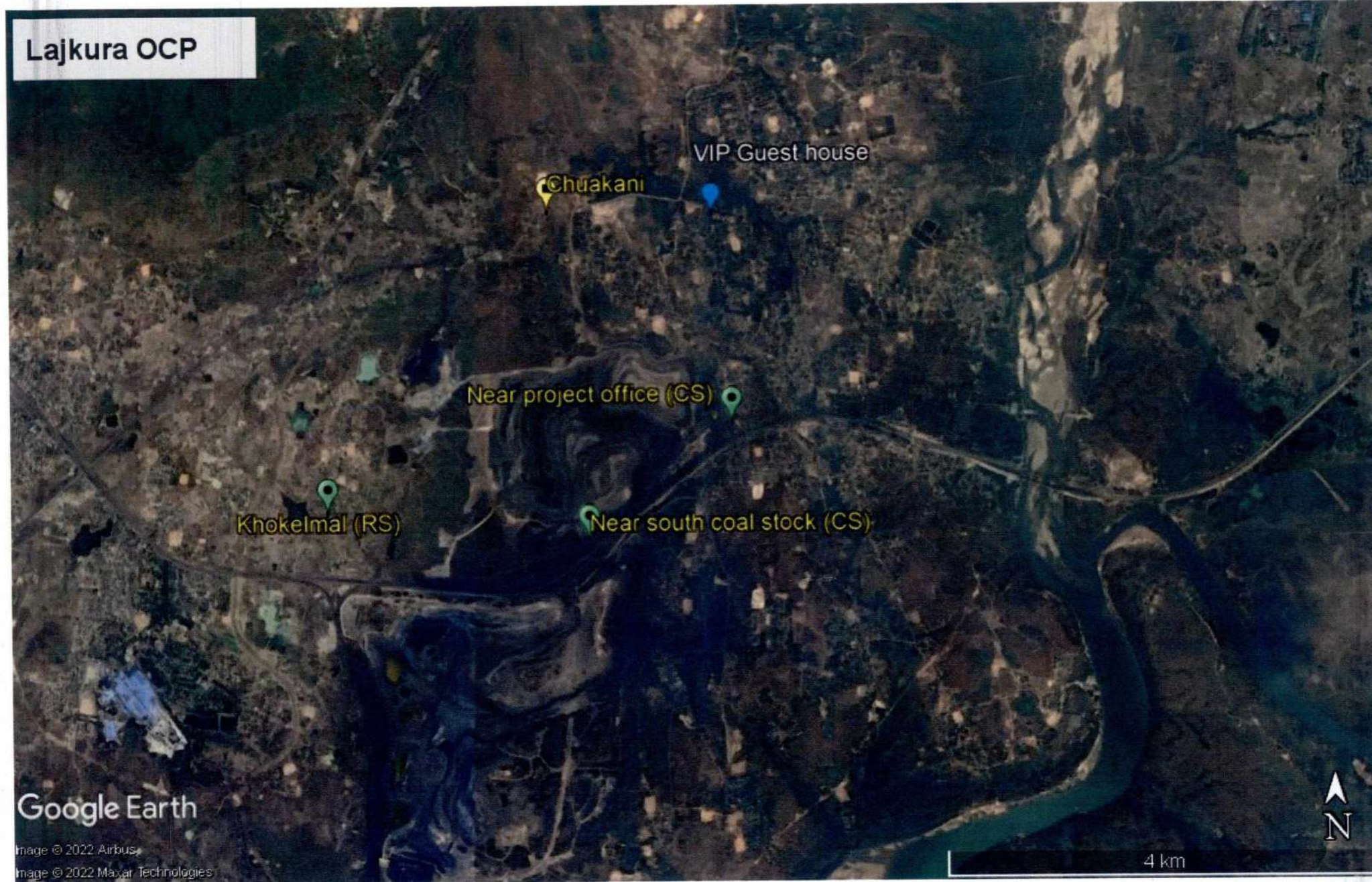
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Lajkura OCP



Google Earth

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4 km

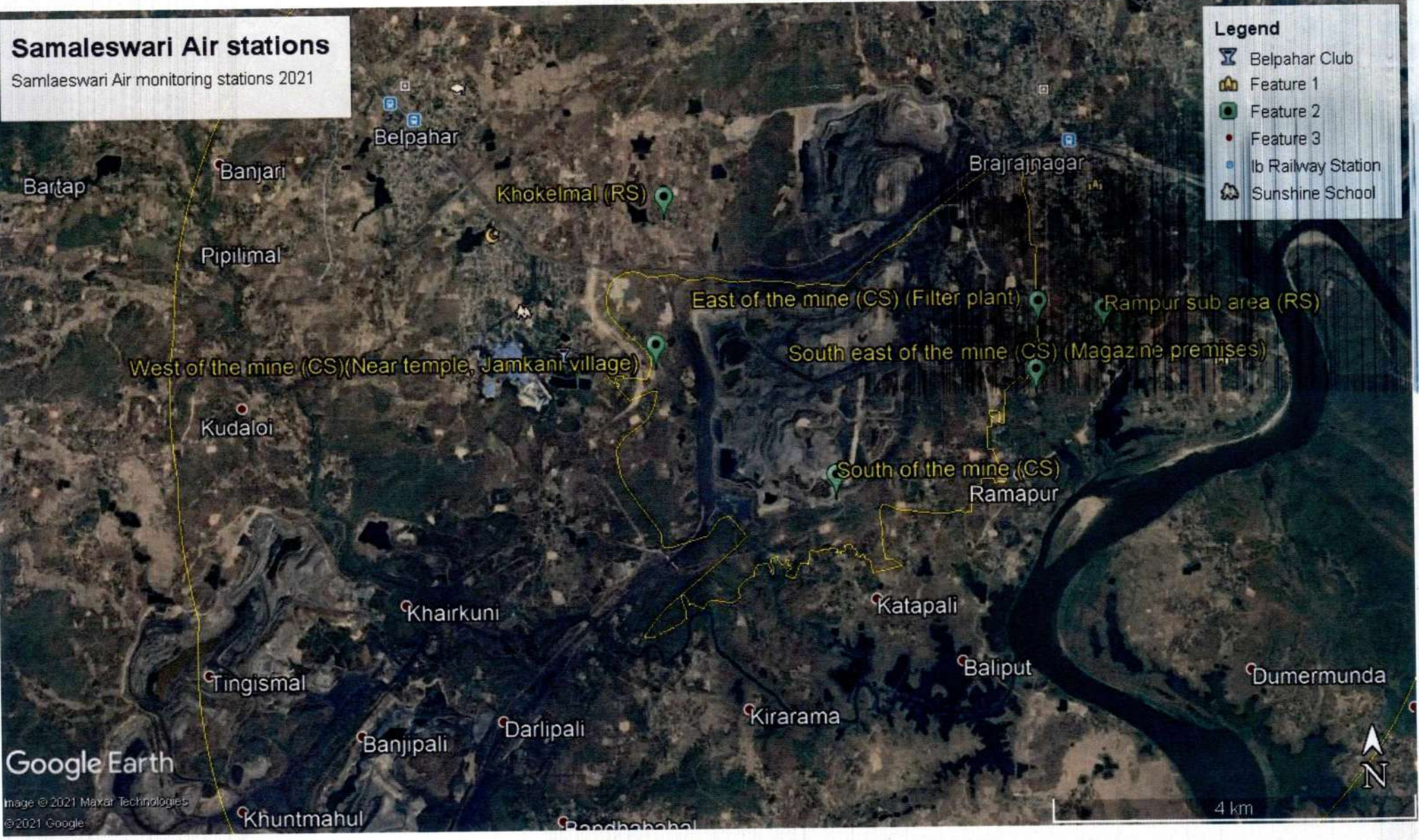
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Samaleswari Air stations

Samlaeswari Air monitoring stations 2021

Legend

- Belpahar Club
- Feature 1
- Feature 2
- Feature 3
- Ib Railway Station
- Sunshine School



Google Earth

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4 km

**Environmental Monitoring Report
Of
Lakhanpur Area
For
November-2023
Ib Valley Coalfield**



Mahanadi Coalfields Limited



Central Mine Planning & Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)

Regional Institute-VII, Samantpuri, P.O : RRL, Bhubaneswar-751013 (Odisha)
[Assistance from Environment Division, CMPDI(HQs), Ranchi]

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Test Report

AMBIENT AIR QUALITY DATA

Area : **Lakhanpur** **(Compliance Station)**

Project : **Belpahar OCP** **(conc. in µg/cu.m.)**

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
06-Nov-23	Near Magazine House	264	161	60	15.49	15.07	Mining Activities	About 500m
06-Nov-23	Near Central Workshop	254	154	56	19.69	18.72	Mining Activities	About 500m
22-Nov-23	Near Magazine House	270	170	64	10.28	11.40	Mining Activities	About 500m
22-Nov-23	Near Central Workshop	260	155	58	13.84	14.96	Mining Activities	About 500m

Project : **Lakhanpur OCP** **(conc. in µg/cu.m.)**

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
06-Nov-23	Near Quarry 3	246	142	48	14.91	14.64	Coal Stockyard, Surface Bunker, Coal Transport	About 500m
06-Nov-23	Near Lilari Nallah Pump House	255	155	54	11.45	12.69	Mining Activities	About 500m
22-Nov-23	Near Quarry 3	265	166	63	13.76	11.77	Coal Stockyard, Surface Bunker, Coal Transport	About 500m
22-Nov-23	Near Lilari Nallah Pump House	262	158	60	15.89	22.61	Mining Activities	About 500m

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Env. Lab
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Bhubaneswar

<i>MoEF Standards Notification dated 25th September, 2000</i>	500	250		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area : **Lakhanpur** (Compliance Station)

Project : **Lilari OCP** (conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
06-Nov-23	Near Lilari Magazine House	232	142	45	17.04	17.00	Coal Transportation	About 500m
22-Nov-23	Near Lilari Magazine House	243	144	52	16.67	17.59	Coal Transportation	About 500m

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MoEF Standards Notification dated 25th September, 2000	600	300		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area : **Lakhanpur**

(Reference Station)

Project :

Lakhanpur OCP

(conc. in $\mu\text{g}/\text{cu.m.}$)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
01-Nov-23	South West of Quarry 5	198	93	41	16.27	12.41	Mining Related Activities	About 500m
01-Nov-23	South of Quarry 6	172	78	30	15.38	15.95	Mining Activities	About 500m
02-Nov-23	South of Quarry 6	180	82	34	12.55	14.28	Mining Activities	About 500m
02-Nov-23	South West of Quarry 5	170	76	28	11.71	14.88	Mining Related Activities	About 500m
09-Nov-23	South West of Quarry 5	185	85	36	13.19	12.96	Mining Related Activities	About 500m
09-Nov-23	South of Quarry 6	187	85	36	18.29	12.64	Mining Activities	About 500m
10-Nov-23	South of Quarry 6	194	89	38	14.67	15.06	Mining Activities	About 500m
10-Nov-23	South West of Quarry 5	178	82	32	15.02	12.09	Mining Related Activities	About 500m
16-Nov-23	South West of Quarry 5	169	79	30	14.71	18.93	Mining Related Activities	About 500m
16-Nov-23	South of Quarry 6	164	76	28	14.22	13.58	Mining Activities	About 500m
17-Nov-23	South of Quarry 6	175	84	33	18.03	20.23	Mining Activities	About 500m
17-Nov-23	South West of Quarry 5	180	86	35	22.98	18.52	Mining Related Activities	About 500m
24-Nov-23	South of Quarry 6	178	88	35	19.06	19.34	Mining Activities	About 500m
24-Nov-23	South West of Quarry 5	166	78	29	11.03	16.75	Mining Related Activities	About 500m
25-Nov-23	South West of Quarry 5	184	88	37	15.23	10.08	Mining Related Activities	About 500m
25-Nov-23	South of Quarry 6	172	82	31	13.73	16.96	Mining Activities	About 500m

*NAAQS,2009

100	60	80	80
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Air Monitoring Company

Test Report

AMBIENT AIR QUALITY DATA

Area :

Lakhanpur

(Reference Station)

Project :

Belpahar OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
01-Nov-23	East of the Mine	190	86	38	13.43	17.27	Mining Activities	About 500m
01-Nov-23	South of the Mine	188	88	36	10.69	15.93	Mining Activities, Coal Transportation	About 500m
02-Nov-23	South of the Mine	194	92	39	12.45	14.54	Mining Activities, Coal Transportation	About 500m
02-Nov-23	East of the Mine	186	84	35	13.10	12.74	Mining Activities	About 500m
09-Nov-23	East of the Mine	172	78	29	11.48	17.43	Mining Activities	About 500m
09-Nov-23	South of the Mine	208	88	45	17.78	19.21	Mining Activities, Coal Transportation	About 500m
10-Nov-23	South of the Mine	175	78	30	13.43	15.63	Mining Activities, Coal Transportation	About 500m
10-Nov-23	East of the Mine	184	85	36	13.44	15.58	Mining Activities	About 500m
16-Nov-23	East of the Mine	168	78	29	17.38	14.17	Mining Activities	About 500m
16-Nov-23	South of the Mine	204	95	43	14.61	13.44	Mining Activities, Coal Transportation	About 500m
17-Nov-23	South of the Mine	186	89	38	16.64	11.53	Mining Activities, Coal Transportation	About 500m
17-Nov-23	East of the Mine	162	73	27	15.71	15.00	Mining Activities	About 500m
24-Nov-23	South of the Mine	174	84	32	15.91	11.21	Mining Activities, Coal Transportation	About 500m
24-Nov-23	East of the Mine	177	86	34	16.06	16.29	Mining Activities	About 500m
25-Nov-23	East of the Mine	185	88	37	16.20	12.90	Mining Activities	About 500m
25-Nov-23	South of the Mine	176	86	34	14.53	14.03	Mining Activities, Coal Transportation	About 500m

*NAAQS,2009		100	60	80	80
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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Lakhanpur

Project	Belpahar OCP
Monitoring Station	Near Central Workshop
Date of sampling	Carbon Monoxide (CO) mg/m ³
06-Nov-2023	1.3
22-Nov-2023	1.5
Standard	04(1 Hours)

Project	Belpahar OCP
Monitoring Station	Near Magazine House
Date of sampling	Carbon Monoxide (CO) mg/m ³
06-Nov-2023	1.3
22-Nov-2023	1.2
Standard	04(1 Hours)

Project	Lakhanpur OCP
Monitoring Station	Near Quarry 3
Date of sampling	Carbon Monoxide (CO) mg/m ³
06-Nov-2023	1.0
22-Nov-2023	1.1
Standard	04(1 Hours)

Project	Lakhanpur OCP
Monitoring Station	Near Lilari Nallah Pump House
Date of sampling	Carbon Monoxide (CO) mg/m ³
06-Nov-2023	0.9
22-Nov-2023	0.8
Standard	04(1 Hours)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Lakhanpur

Project	Lakhanpur OCP							
Monitoring Station	South of Quarry 6							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(µg/m ³)
01-Nov-2023	<20.0	4.32	<0.1	<1.0	<1.0	1.1	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	1.0	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	5.08	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
10-Nov-2023	<20.0	4.64	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	5.31	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	7.06	<0.1	<1.0	<1.0	1.0	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	5.46	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	5.97	<0.1	<1.0	<1.0	1.0	BQL(Q L=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Lakhanpur

Project	Lakhanpur OCP							
Monitoring Station	South West of Quarry 5							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(µg/m ³)
01-Nov-2023	<20.0	5.04	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
02-Nov-2023	<20.0	4.62	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
09-Nov-2023	<20.0	5.38	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
10-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
16-Nov-2023	<20.0	5.34	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
17-Nov-2023	<20.0	5.07	<0.1	<1.0	<1.0	1.0	BQL(QL=0.7)	BQL
24-Nov-2023	<20.0	6.31	<0.1	<1.0	<1.0	1.0	BQL(QL=0.7)	BQL
25-Nov-2023	<20.0	5.48	<0.1	<1.0	<1.0	1.0	BQL(QL=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)	04(1hours)	01(annual)	05(annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Lakhanpur

Project	Belpahar OCP							
Monitoring Station	East of the Mine							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(μg/m ³)	(μg/m ³)	(μg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(μg/m ³)
01-Nov-2023	<20.0	5.14	<0.1	<1.0	<1.0	1.3	BQL(Q _L =0.7)	BQL
02-Nov-2023	<20.0	5.31	<0.1	<1.0	<1.0	1.1	BQL(Q _L =0.7)	BQL
09-Nov-2023	<20.0	5.64	<0.1	<1.0	<1.0	1.1	BQL(Q _L =0.7)	BQL
10-Nov-2023	<20.0	7.25	<0.1	<1.0	<1.0	0.9	BQL(Q _L =0.7)	BQL
16-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.8	BQL(Q _L =0.7)	BQL
17-Nov-2023	<20.0	5.55	<0.1	<1.0	<1.0	1.3	BQL(Q _L =0.7)	BQL
24-Nov-2023	<20.0	8.47	<0.1	<1.0	<1.0	1.3	BQL(Q _L =0.7)	BQL
25-Nov-2023	<20.0	7.36	<0.1	<1.0	<1.0	1.1	BQL(Q _L =0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)


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 cmpdi <i>A Mini Ratna Company</i>	AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)	
	Area: Lakhanpur	

Project	Belpahar OCP							
Monitoring Station	South of the Mine							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzene
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(µg/m ³)
01-Nov-2023	<20.0	6.32	<0.1	<1.0	<1.0	1.3	BQL(Q L=0.7)	BDL
02-Nov-2023	<20.0	4.21	<0.1	<1.0	<1.0	1.2	BQL(Q L=0.7)	BDL
09-Nov-2023	<20.0	4.78	<0.1	<1.0	<1.0	1.0	BQL(Q L=0.7)	BDL
10-Nov-2023	<20.0	6.64	<0.1	<1.0	<1.0	1.0	BQL(Q L=0.7)	BDL
16-Nov-2023	<20.0	3.97	<0.1	<1.0	<1.0	1.1	BQL(Q L=0.7)	BDL
17-Nov-2023	<20.0	5.90	<0.1	<1.0	<1.0	1.5	BQL(Q L=0.7)	BDL
24-Nov-2023	<20.0	8.64	<0.1	<1.0	<1.0	1.3	BQL(Q L=0.7)	BDL
25-Nov-2023	<20.0	5.39	<0.1	<1.0	<1.0	1.3	BQL(Q L=0.7)	BDL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)


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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Lakhanpur

PROJECT :

Lakhanpur OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
09-Nov-23	Near Lilari Nallah Pump House	63.1	57.4
09-Nov-23	Near Quarry 3	62.7	58.2
09-Nov-23	South West of Quarry 5	54.9	46.4
09-Nov-23	South of Quarry 6	52.4	49.2
28-Nov-23	Near Lilari Nallah Pump House	63.6	60.2
28-Nov-23	Near Quarry 3	60.1	58.7
28-Nov-23	South West of Quarry 5	54.1	43.7
28-Nov-23	South of Quarry 6	52.9	45.2

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

Saswati
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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Lakhanpur

PROJECT :

Belpahar OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
09-Nov-23	Near Central Workshop	68.2	61.7
09-Nov-23	Near Magazine House	66.8	62.1
09-Nov-23	South of the Mine	53.2	42.6
09-Nov-23	East of the Mine	50.4	40.2
28-Nov-23	Near Central Workshop	70.6	66.4
28-Nov-23	Near Magazine House	66.3	64.8
28-Nov-23	South of the Mine	50.5	44.3
28-Nov-23	East of the Mine	53.6	42.2

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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 Bhubaneswar



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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Lakhanpur

PROJECT :

Lilari OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
09-Nov-23	Near Lilari Magazine House	66.4	62.1
28-Nov-23	Near Lilari Magazine House	65.8	63.7

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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 BHUBANESWAR

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 Bhubaneswar



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TABLE--

EFFLUENT QUALITY DATA

Area :

Lakhanpur

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Lakhanpur OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
14-Nov-23	Outlet of Secondary Sedimentation Tank	6.88	<4.0	56	44	-	-	-	
21-Nov-23	Outlet of Secondary Sedimentation Tank	7.13	<4.0	30	24	-	-	-	

Sanuati
 Authorized Signatory
 CMPDI, RI-VII, LAB
 BHUBANESWAR

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 Env. Lab
 CMPDI, RI-VII
 Bhubaneswar

MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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TABLE-

EFFLUENT QUALITY DATA

Area :

Lakhanpur

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Belpahar OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
13-Nov-23	Outlet of ETP	7.04	<4.0	68	48	-	-	-	
21-Nov-23	Outlet of ETP	7.31	<4.0	38	32	-	-	-	

Jasmati
 REGIONAL OFFICE
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MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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TABLE--

EFFLUENT QUALITY DATA

Area :

Lakhanpur

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Belpahar OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	MPN/100mL
14-Nov-23	Clear Water Tank of Sewage Treatment Plant	6.72	-	30	-	<2	-	-	33
21-Nov-23	Clear Water Tank of Sewage Treatment Plant	6.96	-	40	-	<2	-	-	46

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G.S.R. 126 5(E) Effluent discharge standards (applicable to all mode of disposal), Sewage Treatment Plants (STPs)	6.5-9.5	-	<100	-	30	-	<1000
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Effluent Quality (all Parameter): - Lakhanpur Area

Project (OCP / UG)	Lakhanpur OCP	MoEF-Sch-VI Standards
NAME OF THE STATION	Mine Sump Water	
Date of Sampling	21-Nov-2023	
Odour	Unobjectionable	-
Colour(Hazen)	2	-
Temperature(^o C)	22	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	0.51	10
Ammonical Nitrogen , mg/l (As N)	0.78	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	30
Fluoride(mg/L)	0.35	2
Copper(mg/L)	<0.03	3
Manganese(mg/L)	1.92	2
Iron(mg/L)	<0.1	3
Zinc(mg/L)	0.47	5
Lead, mg/l	<0.005	0.1
Cadmium, mg/l	<0.001	2
Total Chromium(mg/L)	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	0.1
Nickel(mg/L)	0.21	3
Arsenic, mg/l	<0.005	0.2
Selenium (mg/L)	<0.005	0.05
Disolved Phosphate(mg/L)	<4	5
Phenolics (mg/L)	<0.001	1

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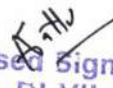
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Effluent Quality (all Parameter): - Lakhanpur Area

Project (OCP / UG)	Belpahar OCP	MoEF-Sch-VI Standards
NAME OF THE STATION	Mine Sump Water	
Date of Sampling	21-Nov-2023	
Odour	Unobjectionable	-
Colour(Hazen)	3	-
Temperature(^o C)	24	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.61	50
Total Kjeldhal Nitrogen, mg/l (As N)	3.33	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	30
Fluoride(mg/L)	0.40	2
Copper(mg/L)	0.08	3
Manganese(mg/L)	1.83	2
Iron(mg/L)	<0.1	3
Zinc(mg/L)	0.47	5
Lead, mg/l	<0.005	0.1
Cadmium, mg/l	<0.001	2
Total Chromium(mg/L)	<0.001	2
Hexavalent Chromium(mg/L)	<0.05	0.1
Nickel(mg/L)	0.22	3
Arsenic, mg/l	<0.005	0.2
Selenium (mg/L)	<0.005	0.05
Disolved Phosphate(mg/L)	<4	5
Phenolics (mg/L)	<0.001	1


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Effluent Quality (all Parameter): - Lakhanpur Area

Project (OCP / UG)	Lilari OCP	
NAME OF THE STATION	Mine Sump Water	MoEF-Sch-VI Standards
Date of Sampling	21-Nov-2023	
Odour	Unobjectionable	-
Colour(Hazen)	1	-
Temperature(^o C)	23	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.50	50
Total Kjeldhal Nitrogen, mg/l (As N)	4.44	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	30
Fluoride(mg/L)	0.33	2
Copper(mg/L)	<0.03	3
Manganese(mg/L)	1.86	2
Iron(mg/L)	<0.1	3
Zinc(mg/L)	0.43	5
Lead, mg/l	<0.005	0.1
Cadmium, mg/l	<0.001	2
Total Chromium(mg/L)	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	0.1
Nickel(mg/L)	0.21	3
Arsenic, mg/l	<0.005	0.2
Selenium (mg/L)	<0.005	0.05
Disolved Phosphate(mg/L)	<4	5
Phenolics (mg/L)	<0.001	1


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Surface Water Quality Data Lakhanpur Area

Project/OCP	Lakhanpur			IS:2296-1982 Tolerance for inland Surface water (Class C)
	Lilari Nallah Near Kudaloi Village as u/s of Lakhanpur OCP	Lilari Nallah Near Lilari Bridge as d/s of Lakhanpur OCP	Karlajori Pond	
NAME OF STATIONS				
Date of sampling	28-Nov-23	28-Nov-23	28-Nov-23	
pH	7.32	7.38	7.61	6.5-8.5
Color (Hazen unit)	2	4	2	300
Dissolved Oxygen(mg/L)	6.3	5.9	5.4	4
BOD (3 days 27oc(mg/L)	<2	<2	<2	3
Chlorides(mg/L)	9.72	13.61	7.78	600
Sulphate(mg/L)	63.29	130.12	8.05	400
Nitrate(mg/L)	<2.0	<2.0	<2.0	50
Fluoride(mg/L)	0.41	0.47	0.33	1.5
Total Hardness(mg/L)	125.00	262.11	56.45	-
Total dissolved solids (mg/L)	188	332	82	1500
TSS(mg/L)	30	42	30	-
Copper(mg/L)	<0.03	<0.03	<0.03	1.5
Iron(mg/L)	<0.1	<0.1	<0.1	50
Zinc(mg/L)	<0.04	0.04	<0.04	15
Lead(mg/L)	<0.005	<0.005	<0.005	0.1
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.01
Total Chromium (mg/L)	<0.01	<0.01	<0.01	-
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.2
Selenium(mg/L)	<0.005	<0.005	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	<0.05	<0.05	-
Phenolics(mg/L)	<0.001	<0.001	<0.001	0.005
Oil & Grease (mg/L)	<4.0	<4.0	<4.0	0.1
MPN (Index/100 ml)	26	32	31	-


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Surface Water Quality Data Lakhanpur Area

Project/OCP	Lakhanpur		IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Pulijhor Stream Near Tingismal Village as u/s for Lakhanpur OCP	Pulijhor stream Near Darlipalil Village before Confluence to Lilari Nallah as d/s Water of Lakhanpur OCP	
Date of Sampling	28-Nov-23	28-Nov-23	
pH	7.41	7.49	6.5-8.5
Color (Hazen unit)	2	1	300
Dissolved Oxygen(mg/L)	6.8	6.4	4
BOD (3 days 27oc)(mg/L)	<2	<2	3
Chlorides(mg/L)	9.72	11.66	600
Sulphate(mg/L)	63.17	136.34	400
Nitrate(mg/L)	<2.0	<2.0	50
Fluoride(mg/L)	0.35	0.43	1.5
Total Hardness(mg/L)	96.78	262.11	-
Total dissolved solids (mg/L)	162	348	1500
TSS(mg/L)	22	28	-
Copper(mg/L)	<0.03	<0.03	1.5
Iron(mg/L)	<0.1	<0.1	50
Zinc(mg/L)	0.05	0.05	15
Lead(mg/L)	<0.005	<0.005	0.1
Cadmium(mg/L)	<0.001	<0.001	0.01
Total Chromium (mg/L)	<0.01	<0.01	-
Arsenic(mg/L)	<0.005	<0.005	0.2
Selenium(mg/L)	<0.005	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	<0.05	
Phenolics(mg/L)	<0.001	<0.001	0.005
Oil & Grease (mg/L)	<4.0	<4.0	0.1
MPN (Index/100 ml)	10	17	-


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Surface Water Quality Data Lakhanpur Area

Project/OCP	Belpahar	IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Adhapada village	
Date of sampling	28-Nov-23	
pH	7.45	6.5-8.5
Color (Hazen unit)	1	300
Dissolved Oxygen(mg/L)	5.8	4
BOD (3 days 27oc)(mg/L)	<2	3
Chlorides(mg/L)	9.72	600
Sulphate(mg/L)	5.37	400
Nitrate(mg/L)	<2.0	50
Fluoride(mg/L)	0.31	1.5
Total Hardness(mg/L)	60.49	-
Total dissolved solids (mg/L)	88	1500
TSS(mg/L)	20	-
Copper(mg/L)	<0.03	1.5
Iron(mg/L)	<0.1	50
Zinc(mg/L)	<0.04	15
Lead(mg/L)	<0.005	0.1
Cadmium(mg/L)	<0.001	0.01
Total Chromium (mg/L)	<0.01	-
Arsenic(mg/L)	<0.005	0.2
Selenium(mg/L)	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	-
Phenolics(mg/L)	<0.001	0.005
Oil & Grease (mg/L)	<4.0	0.1
MPN (Index/100 ml)	32	-


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TABLE--

Well Water Level Monitoring Data

Area :

Lakhanpur

Project

Belpahar OCP

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth to Water Level (in m. bgl)</i>
21-Nov-23	Ubuda Village Well	5
21-Nov-23	Jurabaga Village Well	3.6

Project

Lakhanpur OCP

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth to Water Level (in m. bgl)</i>
21-Nov-23	Khairkuni Village Well	5.59
21-Nov-23	Kansar Village Well	2.59

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Test Report

GROUND WATER LEVEL MONITORING DATA

Area:

Lakhanpur

Project:

Belpahar OCP

Date of Sampling	Name of the Station	Ground Levels (in meter)
11/28/2023	Piezometer No MIP 07; Infront of DAV school Bandbahal, Inside colonysubstationLatitude 21.01800 N Longitude 85.13027 E	18
11/28/2023	Piezometer No MIP 08; Village Kusraloi, Inside the Premises of PrathamikVidyalaya Latitude 21.01800 N Longitude 85.13027 E	23.5

Project:

Lakhanpur OCP

Date of Sampling	Name of the Station	Ground Levels (in meter)
11/28/2023	Piezometer No MIP 10; Village Dahaldera; Inside the Premises of UP School. Latitude 21 ° 46 '51" N Longitude 83 ° 48'47" E	18.4
11/28/2023	Piezometer No MIP 09; Village Junion; Inside the Premises of State GovtHorticulture InstituteLatitude 21°45'49" N Longitude 83°47'42" E.	14.27

Project:

Lilari OCP

Date of Sampling	Name of the Station	Ground Levels (in meter)
11/28/2023	Piezometer No MIP 06; Infront of Lilari Mines Project Office. Latitude 21.77826 N Longitude 85.8580 E	42.5

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Drinking Water Quality Data Lakhanpur Area

Project / OCP	Belpahar OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	IWSS Outlet	Acceptable	Permissible
Date of Sampling	9-Nov-2023	Acceptable	Permissible
Colour(Hazen)	3	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	5
pH	7.94	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	53	200	600
Chloride(mg/L)	9.72	250	1000
Sulphate(mg/L)	50.73	200	400
Nitrate(mg/L)	<2.0	45	No relaxation
Total Hardness (Ca CO3)(mg/L)	84.68	200	600
Calcium(mg/L)	29.09	75	200
Fluoride(mg/L)	0.45	1	1.5
Total Dissolve Solid(mg/L)	178	500	2000
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Iron(mg/L)	<0.1	1.0	No relaxation
Zinc(mg/L)	0.05	5	15
Lead(mg/L)	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	-	-

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Drinking Water Quality Data Lakhanpur Area

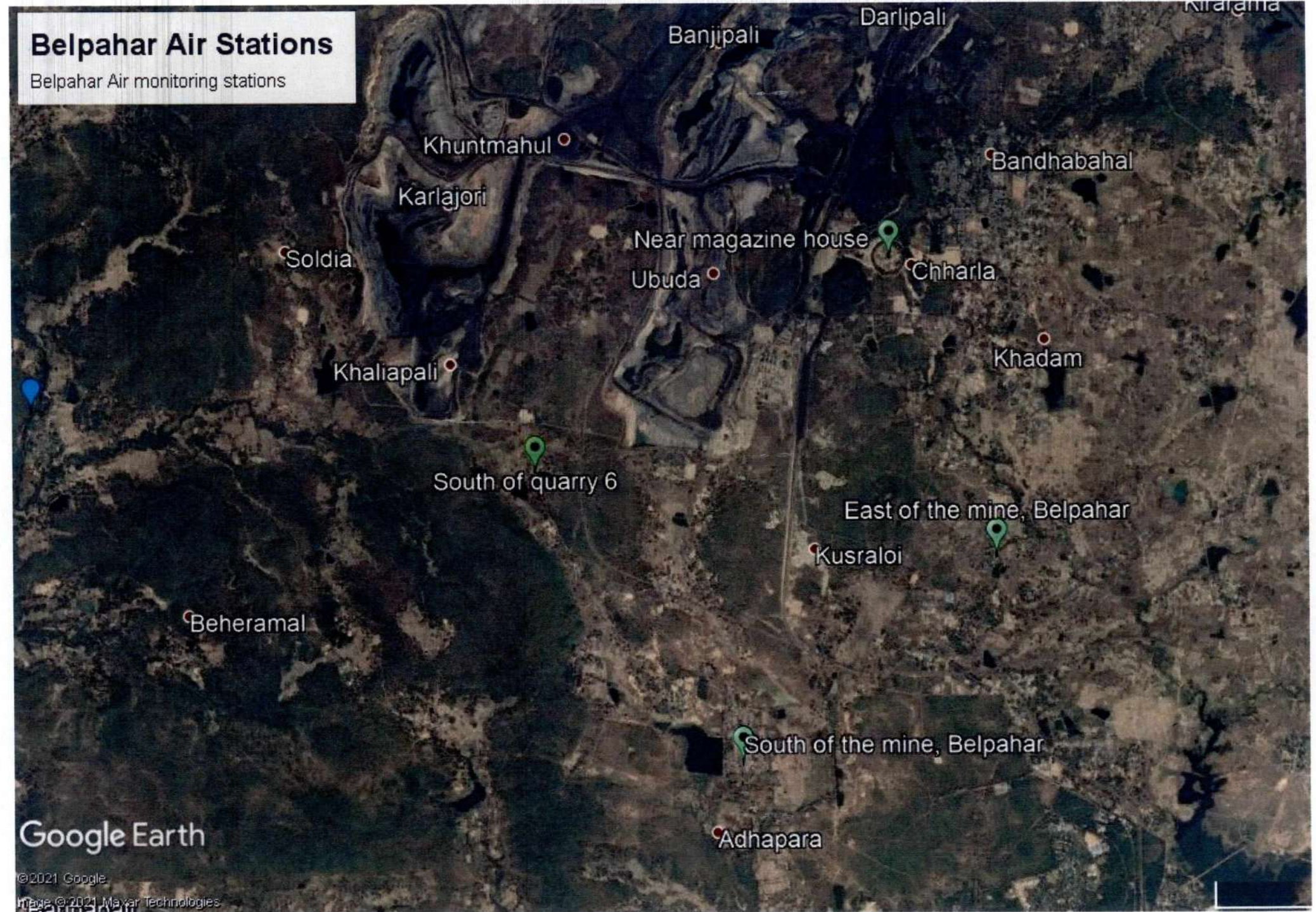
Project / OCP	Lakhanpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	LKP Canteen	Acceptable	Permissible
Date of Sampling	9-Nov-2023	Acceptable	Permissible
Colour(Hazen)	2	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	5
pH	7.89	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	53	200	600
Chloride(mg/L)	7.78	250	1000
Sulphate(mg/L)	13.54	200	400
Nitrate(mg/L)	18.32	45	No relaxation
Total Hardness (Ca CO ₃)(mg/L)	100.81	200	600
Calcium(mg/L)	21.01	75	200
Fluoride(mg/L)	0.38	1	1.5
Total Dissolve Solid(mg/L)	192	500	2000
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Iron(mg/L)	<0.1	1.0	No relaxation
Zinc(mg/L)	0.05	5	15
Lead(mg/L)	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	-	-

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Belpahar Air Stations

Belpahar Air monitoring stations



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Lakhanpur Air Station 2021

Lakhanpur Air monitoring station



Google Earth

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3 km

**Environmental Monitoring Report
Of
Mahalaxmi Area
For
November-2023**

Ib Valley Coalfield



Mahanadi Coalfields Limited



Central Mine Planning & Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)

Regional Institute-VII, Samantpuri, P.O : RRL, Bhubaneswar-751013 (Odisha)
[Assistance from Environment Division, CMPDI(HQs), Ranchi]

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Test Report

AMBIENT AIR QUALITY DATA

Area :

Mahalaxmi

(Compliance Station)

Project :

Basundhara (w) OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
11-Nov-23	West of Coal Stock, Near Golf Course	270	170	64	11.83	17.25	Mining Activities, OCP, Transportation	About 500m
11-Nov-23	South West of Working face Gopalpur Village, Near CMPDI Camp	256	159	58	15.26	14.73	Mining Activity	About 500m
11-Nov-23	North of the Sardega Railway Siding, Kulapada	265	166	62	14.60	16.12	Mining Activities, OCP, Coal Transportation	About 500m
18-Nov-23	West of Coal Stock, Near Golf Course	285	184	72	15.26	17.54	Mining Activities, OCP, Transportation	About 500m
18-Nov-23	South West of Working face Gopalpur Village, Near CMPDI Camp	258	156	58	16.05	15.57	Mining Activity	About 500m
18-Nov-23	North of the Sardega Railway Siding, Kulapada	274	172	65	11.89	13.84	Mining Activities, OCP, Coal Transportation	About 500m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Mahalaxmi

(Reference Station)

Project :

Basundhara (w) OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
03-Nov-23	Ratansara Village	192	88	37	19.38	18.43	Transportation	About 100m
03-Nov-23	Sarangijharia Community Centre	195	89	38	10.95	17.39	Domestic	About 500m
04-Nov-23	Sarangijharia Community Centre	178	83	32	18.04	11.61	Domestic	About 500m
04-Nov-23	Ratansara Village	196	90	40	13.06	12.70	Transportation	About 100m
07-Nov-23	Ratansara Village	176	83	31	13.49	18.95	Transportation	About 100m
07-Nov-23	Sarangijharia Community Centre	184	86	35	10.79	11.66	Domestic	About 500m
08-Nov-23	Sarangijharia Community Centre	174	79	30	11.98	12.63	Domestic	About 500m
08-Nov-23	Ratansara Village	186	86	35	13.60	15.05	Transportation	About 100m
13-Nov-23	Sarangijharia Community Centre	170	77	29	15.20	14.18	Domestic	About 500m
13-Nov-23	Ratansara Village	198	91	41	15.19	13.86	Transportation	About 100m
14-Nov-23	Ratansara Village	166	75	28	16.90	10.53	Transportation	About 100m
14-Nov-23	Sarangijharia Community Centre	176	81	33	13.41	12.88	Domestic	About 500m
20-Nov-23	Sarangijharia Community Centre	178	87	35	14.74	18.41	Domestic	About 500m
20-Nov-23	Ratansara Village	177	85	33	14.93	20.25	Transportation	About 100m
21-Nov-23	Sarangijharia Community Centre	174	84	32	18.36	15.72	Domestic	About 500m
21-Nov-23	Ratansara Village	172	82	31	14.63	14.19	Transportation	About 100m
27-Nov-23	Sarangijharia Community Centre	170	82	30	14.55	17.21	Domestic	About 500m

*NAAQS,2009

100	60	80	80
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AMBIENT AIR QUALITY DATA

Area :

Mahalaxmi

(Reference Station)

27-Nov-23	Ratansara Village	188	91	39	17.05	14.17	Transportation	About 100m
28-Nov-23	Ratansara Village	185	90	38	14.70	11.82	Transportation	About 100m
28-Nov-23	Sarangijharia Community Centre	186	90	38	18.92	15.86	Domestic	About 500m

Blank area for additional data or notes.

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*N/AOS.2009		100	60	80	80
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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Mahalaxmi


Project	Basundhara OCP
Monitoring Station	North of the Sardega Railway Siding
Date of sampling	Carbon Monoxide (CO) Mg/m ³
11-Nov-2023	0.6
-Nov-2023	0.5
Standard	04(1 Hours)

Project	BasundharaOCP
Monitoring Station	West of Coal Stock Near Golf course
Date of sampling	Carbon Monoxide (CO) Mg/m ³
11-Nov-2023	0.9
-Nov-2023	0.8
Standard	04(1 Hours)


Project	BasundharaOCP
Monitoring Station	South West of Working face Gopalpur Village, Near CMPDI Camp
Date of sampling	Carbon Monoxide (CO) Mg/m ³
11-Nov-2023	0.8
-Nov-2023	0.6
Standard	04(1 Hours)


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 cmpdi <i>A Mini Ratna Company</i>	AMBIENT AIR QUALITY DATA (NAAQS PARAMETER) Area: Mahalaxmi	

Project	Basundhara (W) OCP							
Monitoring Station	Sarangijharia Village							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzen e
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(µg/m ³)
03-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BDL
04-Nov-2023	<20.0	4.32	<0.1	<1.0	<1.0	1.7	BQL(Q L=0.7)	BDL
07-Nov-2023	<20.0	7.65	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BDL
08-Nov-2023	<20.0	4.63	<0.1	<1.0	<1.0	1.4	BQL(Q L=0.7)	BDL
13-Nov-2023	<20.0	5.87	<0.1	<1.0	<1.0	1.2	BQL(Q L=0.7)	BDL
14-Nov-2023	<20.0	5.77	<0.1	<1.0	<1.0	1.3	BQL(Q L=0.7)	BDL
20-Nov-2023	<20.0	4.63	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BDL
21-Nov-2023	<20.0	5.47	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BDL
27-Nov-2023	<20.0	5.88	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BDL
28-Nov-2023	<20.0	6.64	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BDL
Standard	400(24h ours)	180(h our)	1.0(24ho urs)	6.0(An nual)	20(An nual)	04(1ho urs)	01(ann ual)	05(ann ual)


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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Mahalaxmi

PROJECT :

Basundhara (W) OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
10-Nov-23	North of the Sardega Railway Siding ,Kulapada	64.8	59.2
10-Nov-23	South-West of Working Face -Gopalpur Village,Near CMPDIL Camp	63.6	59.2
10-Nov-23	West of Coal Stock , Near Golf Course	62.1	57.4
10-Nov-23	Sarangijharia Village	53.4	40.4
10-Nov-23	Ratansara Village	55.7	39.8
29-Nov-23	North of the Sardega Railway Siding ,Kulapada	68.9	65.4
29-Nov-23	South-West of Working Face -Gopalpur Village,Near CMPDIL Camp	67.8	64.3
29-Nov-23	West of Coal Stock , Near Golf Course	63.7	60.2
29-Nov-23	Ratansara Village	54.7	42.6
29-Nov-23	Sarangijharia Village	52.4	40.9

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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TABLE--

EFFLUENT QUALITY DATA

Area :

Mahalaxmi

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Basundhara (W) OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
15-Nov-23	Basundhara (W) OCP Mine Sump	7.19	<4.0	34	20	-	-	-	
15-Nov-23	M1-Basundhara (E) OCP's Sump	7.33	<4.0	28	16	-	-	-	
22-Nov-23	Basundhara (W) OCP Mine Sump	7.24	<4.0	36	24	-	-	-	
22-Nov-23	M1-Basundhara (E) OCP's Sump	7.29	<4.0	30	12	-	-	-	

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MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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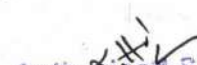


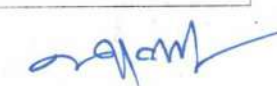
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Effluent Quality (All Parameter): - Mahalaxmi Area

Project (OCP / UG)	Basundhara OCP		MoEF-Sch-VI Standards
	M1- Basundhara (E) OCP Sump	Basundhara (W) OCP Mine Sump	
NAME OF THE STATION			
Date of Sampling	22-Nov-2023	22-Nov-2023	
Odour	Unobjectionable	Unobjectionable	-
Colour(Hazen)	4	4	-
Temperature(^o C)	24	23	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	3.33	3.35	10
Ammonical Nitrogen , mg/l (As N)	0.71	0.70	50
Total Kjeldhal Nitrogen, mg/l (As N)	3.33	4.44	100
Sulphide (mg/L)	<0.1	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	<2	30
Fluoride(mg/L)	0.45	0.36	2
Copper(mg/L)	0.07	0.05	3
Manganese(mg/L)	<0.04	0.63	2
Iron(mg/L)	<0.1	<0.1	3
Zinc(mg/L)	0.06	0.28	5
Lead, mg/l	<0.005	<0.005	0.1
Cadmium, mg/l	<0.001	<0.001	2
Total Chromium(mg/L)	<0.01	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	<0.05	0.1
Nickel(mg/L)	<0.1	<0.1	3
Arsenic, mg/l	<0.005	<0.005	0.2
Selenium (mg/L)	<0.005	<0.001	0.05
Disolved Phosphate(mg/L)	<4	<4	5
Phenolics (mg/L)	<0.001	<0.001	1


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Test Report

GROUND WATER LEVEL MONITORING DATA

Area:

Mahalaxmi

Project:

Basundhara (W) OCP

Date of Sampling	Name of the Station	Ground Levels (in meter)
11/28/2023	Piezometer No MIP 13; Village Tumlia; Inside the Campus of ManikeswarCollege.	Casing folded depth could not be measured.
11/29/2023	Piezometer No MIP 16; Village Kulhparha (new basti) on the road fromSardega to Gopalpur Latitude 22 °3'25" N Longitude 83 ° 42'36" E	58.87
11/29/2023	Piezometer No MIP 17; Village Gopalpur; CMPDI Exploration Camp. Latitude 22° 3' 15"N Longitude 83 ° 42'17" E	22.85
11/29/2023	Piezometer No MIP 15; Back Side of Sardega Primary School.Latitude 22 °4'8" N Longitude 83°43'19" E	Pump fitted,Depth could not be measured.


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TABLE--

Well Water Level Monitoring Data


Area :

Mahalaxmi

Project

Basundhara OCP

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth to Water Level (in m. bgl)</i>
22-Nov-23	Tiklipada Village Well	3.85
22-Nov-23	Sardega Village Well	1.8


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Drinking Water Quality Data Mahalaxmi Area

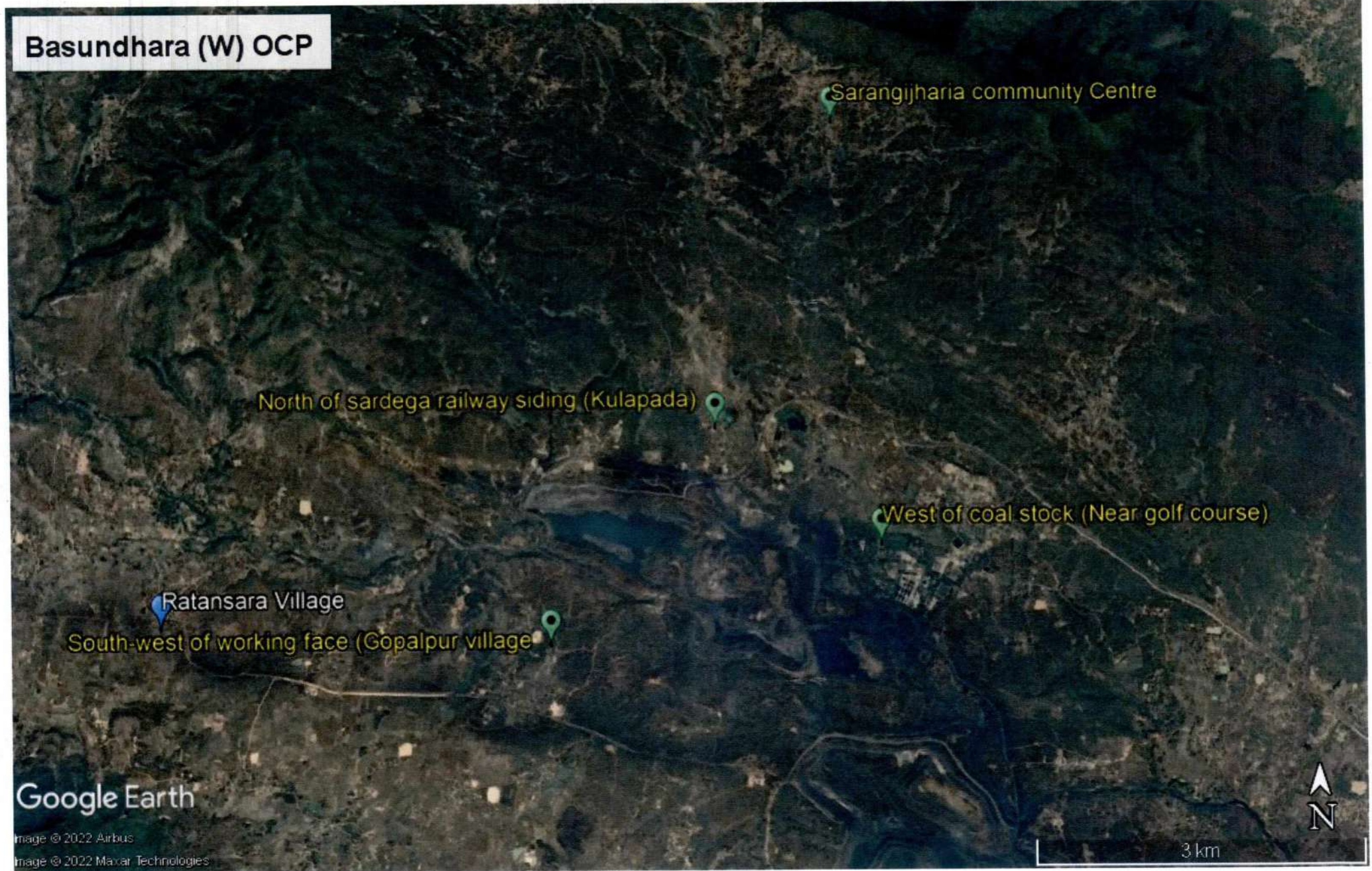
Project / OCP	Basundhara (W)	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Water Treatment Plant Clear Water reservoir	Acceptable	Permissible
Date of Sampling	10-Nov-2023	Acceptable	Permissible
Colour(Hazen)	1	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	5
pH	7.53	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	49.0	200	600
Chloride(mg/L)	7.78	250	1000
Sulphate(mg/L)	39.8	200	400
Nitrate(mg/L)	<2.0	45	No relaxation
Total Hardness (Ca CO ₃)(mg/L)	84.68	200	600
Calcium(mg/L)	25.86	75	200
Fluoride(mg/L)	0.43	1	1.5
Total Dissolve Solid(mg/L)	170	500	2000
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Iron(mg/L)	<0.1	1.0	No relaxation
Zinc(mg/L)	0.18	5	15
Lead(mg/L)	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	-	-

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Basundhara (W) OCP



Sarangijharia community Centre

North of sardega railway siding (Kulapada)

West of coal stock (Near golf course)

Ratansara Village

South-west of working face (Gopalpur village)

Google Earth

Image © 2022 Airbus
Image © 2022 Maxar Technologies

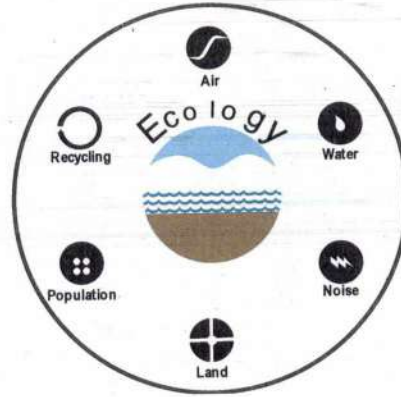
3 km



**Environmental Monitoring Report
Of
Basundhara Area
For
November-2023
Ib Valley Coalfield**



Mahanadi Coalfields Limited



Central Mine Planning & Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)

Regional Institute-VII, Samantpuri, P.O : RRL, Bhubaneswar-751013 (Odisha)
[Assistance from Environment Division, CMPDI(HQs), Ranchi]

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AMBIENT AIR QUALITY DATA

Area : **Basundhara** (Compliance Station)

Project : **Garjanbahal OCP** (conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
11-Nov-23	Karlikachar Village	265	165	62	12.95	12.08	External Coal Transportation Road	About 500m
11-Nov-23	KAN-1 Near Coal Sampling Lab	270	84	64	13.11	17.54	Railway Siding, Transportation	About 500m
11-Nov-23	Garjanbahal Village	275	175	68	16.71	15.04	External Coal Transportation Road	About 500m
18-Nov-23	Karlikachar Village	270	170	64	18.49	15.36	External Coal Transportation Road	About 500m
18-Nov-23	KAN-1 Near Coal Sampling Lab	290	190	74	17.36	19.11	Railway Siding, Transportation	About 500m
18-Nov-23	Garjanbahal Village	278	178	68	14.44	14.24	External Coal Transportation Road	About 500m

Project : **Kulda OCP** (conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
11-Nov-23	External CT Road, Barpali	253	162	55	11.99	18.41	Mining Activities, Coal Transportation	About 500m
18-Nov-23	External CT Road, Barpali	272	170	65	15.37	18.98	Mining Activities, Coal Transportation	About 500m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Basundhara

(Reference Station)

Project :

Garjanbahal OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
03-Nov-23	South-East of Working Face, Kutabaga Village	178	83	32	16.52	19.67	South-East of Working Face	About 1000m
03-Nov-23	West of working face, Bihaimunda	186	86	35	10.10	17.57	South-West of Working Face	About 500m
04-Nov-23	West of working face, Bihaimunda	180	83	32	13.03	14.78	South-West of Working Face	About 500m
04-Nov-23	South-East of Working Face, Kutabaga Village	204	93	42	14.96	14.14	South-East of Working Face	About 1000m
13-Nov-23	South-East of Working Face, Kutabaga Village	198	88	40	11.53	14.70	South-East of Working Face	About 1000m
13-Nov-23	West of working face, Bihaimunda	195	91	39	10.61	13.63	South-West of Working Face	About 500m
14-Nov-23	West of working face, Bihaimunda	182	88	34	13.12	17.55	South-West of Working Face	About 500m
14-Nov-23	South-East of Working Face, Kutabaga Village	166	76	28	10.13	17.66	South-East of Working Face	About 1000m
20-Nov-23	South-East of Working Face, Kutabaga Village	179	86	35	15.51	19.97	South-East of Working Face	About 1000m
20-Nov-23	West of working face, Bihaimunda	180	86	35	14.80	22.32	South-West of Working Face	About 500m
21-Nov-23	West of working face, Bihaimunda	176	84	33	15.93	15.45	South-West of Working Face	About 500m
21-Nov-23	South-East of Working Face, Kutabaga Village	190	92	39	14.89	17.27	South-East of Working Face	About 1000m
27-Nov-23	West of working face, Bihaimunda	188	90	38	17.82	15.54	South-West of Working Face	About 500m
27-Nov-23	South-East of Working Face, Kutabaga Village	170	82	30	12.25	16.66	South-East of Working Face	About 1000m
28-Nov-23	South-East of Working Face, Kutabaga Village	175	84	33	12.19	18.51	South-East of Working Face	About 1000m
28-Nov-23	West of working face, Bihaimunda	196	93	42	11.69	12.49	South-West of Working Face	About 500m

*NAAQS,2009

	100	60	80	80
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Basundhara

(Reference Station)

Project :

Kulda OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
03-Nov-23	South West of Working Face, Chakarpur	192	87	38	15.56	14.86	Village Road	About 500m
03-Nov-23	West of Working Face, Bilaimunda	204	93	42	12.82	22.31	Village Road	About 500m
03-Nov-23	North of CHP, Teleimal	192	76	37	16.31	15.74	Domestic, OCP, Transportation	About 500m
04-Nov-23	North of CHP, Teleimal	188	73	36	12.81	18.70	Domestic, OCP, Transportation	About 500m
04-Nov-23	South West of Working Face, Chakarpur	185	83	35	11.83	15.48	Village Road	About 500m
04-Nov-23	West of Working Face, Bilaimunda	175	66	30	16.16	18.19	Village Road	About 500m
13-Nov-23	West of Working Face, Bilaimunda	180	84	33	12.79	10.91	Village Road	About 500m
13-Nov-23	North of CHP, Teleimal	195	82	39	14.16	13.84	Domestic, OCP, Transportation	About 500m
13-Nov-23	South West of Working Face, Chakarpur	182	86	34	12.77	16.15	Village Road	About 500m
14-Nov-23	North of CHP, Teleimal	198	92	40	12.55	14.92	Domestic, OCP, Transportation	About 500m
14-Nov-23	South West of Working Face, Chakarpur	164	72	26	17.77	17.32	Village Road	About 500m
14-Nov-23	West of Working Face, Bilaimunda	188	88	37	12.97	11.34	Village Road	About 500m
20-Nov-23	South West of Working Face, Chakarpur	180	86	35	16.10	14.20	Village Road	About 500m
20-Nov-23	West of Working Face, Bilaimunda	168	79	29	19.83	23.80	Village Road	About 500m
20-Nov-23	North of CHP, Teleimal	167	78	29	15.74	16.26	Domestic, OCP, Transportation	About 500m
21-Nov-23	North of CHP, Teleimal	178	86	34	15.37	18.37	Domestic, OCP, Transportation	About 500m
21-Nov-23	South West of Working Face, Chakarpur	210	96	45	19.04	18.99	Village Road	About 500m

*NAAQS,2009		100	60	80	80
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AMBIENT AIR QUALITY DATA

Area :

Basundhara

(Reference Station)

21-Nov-23	West of Working Face, Bilaimunda	176	84	33	20.95	20.65	Village Road	About 500m
27-Nov-23	North of CHP, Teleimal	182	89	36	13.40	14.13	Domestic, OCP, Transportation	About 500m
27-Nov-23	South West of Working Face, Chakarpur	198	94	42	11.93	19.53	Village Road	About 500m
27-Nov-23	West of Working Face, Bilaimunda	182	87	36	15.73	11.33	Village Road	About 500m
28-Nov-23	West of Working Face, Bilaimunda	174	81	32	16.08	13.31	Village Road	About 500m
28-Nov-23	North of CHP, Teleimal	185	92	38	22.09	19.26	Domestic, OCP, Transportation	About 500m
28-Nov-23	South West of Working Face, Chakarpur	190	91	39	13.45	16.61	Village Road	About 500m

*NAAQS,2009		100	60	80	80
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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)


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Area: Basundhara

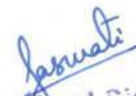
Project	KuldaOCP							
Monitoring Station	North of CHP							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzene
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(µg/m ³)
03-Nov-2023	<20.0	4.51	<0.1	<1.0	<1.0	0.8	BQL(Q _L =0.7)	BQL
04-Nov-2023	<20.0	5.23	<0.1	<1.0	<1.0	0.8	BQL(Q _L =0.7)	BQL
13-Nov-2023	<20.0	5.63	<0.1	<1.0	<1.0	0.7	BQL(Q _L =0.7)	BQL
14-Nov-2023	<20.0	6.31	<0.1	<1.0	<1.0	0.6	BQL(Q _L =0.7)	BQL
20-Nov-2023	<20.0	5.68	<0.1	<1.0	<1.0	0.7	BQL(Q _L =0.7)	BQL
21-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	1	BQL(Q _L =0.7)	BQL
27-Nov-2023	<20.0	5.05	<0.1	<1.0	<1.0	0.9	BQL(Q _L =0.7)	BQL
28-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.8	BQL(Q _L =0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)


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 cmpdi <i>A Mini Ratna Company</i>	AMBIENT AIR QUALITY DATA (NAAQS PARAMETER) Area: Basundhara
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Project	KuldaOCP							
Monitoring Station	South West of Working Face, Chakrapur							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzene
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(µg/m ³)
03-Nov-2023	<20.0	5.14	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
04-Nov-2023	<20.0	4.25	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	6.31	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	4.58	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	5.74	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
21-Nov-2023	<20.0	6.31	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	6.90	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	6.40	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)	04(1hours)	01(annual)	05(annual)


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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Basundhara

Project	KuldaOCP							
Monitoring Station	Bilaimunda Village							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(μg/m ³)	(μg/m ³)	(μg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(μg/m ³)
03-Nov-2023	<20.0	5.41	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
04-Nov-2023	<20.0	4.32	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	1	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	6.31	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	5.22	<0.1	<1.0	<1.0	1.2	BQL(QL=0.7)	BQL
21-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	1.3	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	6.47	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	6.05	<0.1	<1.0	<1.0	1	BQL(QL=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Basundhara

Project	Garjanbahal OCP							
Monitoring Station	Bihaimunda Village/ West of working face							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(μg/m ³)	(μg/m ³)	(μg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(μg/m ³)
03-Nov-2023	<20.0	5.47	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
04-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	1.2	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	5.02	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	5.78	<0.1	<1.0	<1.0	1.2	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	5.25	<0.1	<1.0	<1.0	1	BQL(QL=0.7)	BQL
21-Nov-2023	<20.0	3.97	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	4.65	<0.1	<1.0	<1.0	0.9	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	4.25	<0.1	<1.0	<1.0	1.2	BQL(QL=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)

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 cmpdi <i>A Mini Ratna Company</i>	AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)	
	Area: Basundhara	

Project	Garjanbahal OCP							
Monitoring Station	Kutabaga Village/ South East of Working Face							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(μg/m ³)	(μg/m ³)	(μg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(μg/m ³)
03-Nov-2023	<20.0	6.37	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
04-Nov-2023	<20.0	7.05	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
13-Nov-2023	<20.0	5.44	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
14-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
20-Nov-2023	<20.0	5.10	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
21-Nov-2023	<20.0	8.45	<0.1	<1.0	<1.0	1	BQL(Q L=0.7)	BQL
27-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
28-Nov-2023	<20.0	6.47	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)


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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Basundhara

PROJECT :

Garjanbahal OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
10-Nov-23	Garjhanbahal Village	44.6	41.2
10-Nov-23	Karlikachar Village	42.7	39.8
29-Nov-23	Garjhanbahal Village	51.9	44.4
29-Nov-23	Karlikachar Village	54.6	42.8

PROJECT :

Kulda OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
10-Nov-23	External CT Road	65.2	62.9
10-Nov-23	North of CHP	50.8	41.3
27-Nov-23	External CT Road	65.7	62.4
29-Nov-23	North of CHP	52.8	44.5

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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TABLE--

EFFLUENT QUALITY DATA

Area :

Basundhara

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Garjanbahal OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
15-Nov-23	Mine Sump Water	7.23	<4.0	26	12	-	-	-	
15-Nov-23	Outlet of Settling Tank (Kanika Siding)	7.48	<4.0	34	28	-	-	-	
15-Nov-23	Inlet of Settling Tank (Kanika Siding)	7.27	<4.0	54	44	-	-	-	
22-Nov-23	Inlet of Settling Tank (Kanika Siding)	7.39	<4.0	40	36	-	-	-	
22-Nov-23	Mine Sump Water	7.30	<4.0	28	20	-	-	-	
22-Nov-23	Outlet of Settling Tank (Kanika Siding)	7.53	<4.0	32	16	-	-	-	

Project :

Kulda OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
15-Nov-23	Mine Sump Water Near Kulda Nursery	7.46	<4.0	28	20	-	-	-	
15-Nov-23	Inlet of ETP	7.39	<4.0	62	52	-	-	-	
15-Nov-23	Final Outlet Of ETP	7.63	<4.0	38	32	-	-	-	
22-Nov-23	Mine Sump Water Near Kulda Nursery	7.58	<4.0	28	12	-	-	-	
22-Nov-23	Final Outlet Of ETP	7.69	<4.0	34	28	-	-	-	
22-Nov-23	Inlet of ETP	7.53	<4.0	46	40	-	-	-	

MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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Effluent Quality (All Parameter): - Basundhara Area

Project (OCP / UG)	Kulda OCP			MoEF-Sch-VI Standards
	Inlet of ETP	Final Outlet of ETP	Mine Sump Water near Kulda Nursery	
NAME OF THE STATION				
Date of Sampling	22-Nov-2023	22-Nov-2023	22-Nov-2023	
Odour	Unobjectionable	Unobjectionable	Unobjectionable	-
Colour(Hazen)	3	2	2	-
Temperature(°C)	27	26	25	Shall not exceed 5 °C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	0.79	0.90	3.37	10
Ammonical Nitrogen , mg/l (As N)	0.57	0.51	0.56	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	3.33	2.22	100
Sulphide (mg/L)	<0.1	<0.1	<0.1	2
BOD [3 days at 27°C] (mg/L)	<2	<2	<2	30
Fluoride(mg/L)	0.40	0.30	0.37	2
Copper(mg/L)	0.04	<0.03	<0.03	3
Manganese(mg/L)	0.25	0.09	0.08	2
Iron(mg/L)	<0.1	<0.1	<0.1	3
Zinc(mg/L)	0.08	0.08	0.15	5
Lead, mg/l	<0.005	<0.005	<0.005	0.1
Cadmium, mg/l	<0.001	<0.001	<0.001	2
Total Chromium(mg/L)	<0.01	<0.01	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	<0.05	<0.05	0.1
Nickel(mg/L)	<0.1	<0.1	<0.1	3
Arsenic, mg/l	<0.005	<0.005	<0.005	0.2
Selenium (mg/L)	<0.005	<0.005	<0.005	0.05
Disolved Phosphate(mg/L)	<4	<4	<4	5
Phenolics (mg/L)	<0.001	<0.001	<0.001	1

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Effluent Quality (All Parameter): - Basundhara Area

Project (OCP / UG)	Garjhanbahal OCP			MoEF-Sch-VI Standards
NAME OF THE STATION	Outlet of Settling tank (Kanika Siding)	Inlet of Settling tank (Kanika Siding)	Mine Sump Water	
Date of Sampling	22-Nov-2023	22-Nov-2023	22-Nov-2023	
Odour	Unobjectionable	Unobjectionable	Unobjectionable	-
Colour(Hazen)	3	1	2	-
Temperature(^o C)	26	26	23	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	3.29	10
Ammonical Nitrogen , mg/l (As N)	0.54	0.59	0.83	50
Total Kjeldhal Nitrogen, mg/l (As N)	3.33	4.44	2.22	100
Sulphide (mg/L)	<0.1	<0.1	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	<2	<2	30
Fluoride(mg/L)	0.37	0.39	0.43	2
Copper(mg/L)	<0.03	<0.03	0.05	3
Manganese(mg/L)	<0.04	0.08	0.06	2
Iron(mg/L)	<0.1	<0.1	<0.1	3
Zinc(mg/L)	0.1	<0.1	<0.04	5
Lead, mg/l	<0.005	<0.005	<0.005	0.1
Cadmium, mg/l	<0.001	<0.001	<0.001	2
Total Chromium(mg/L)	<0.01	<0.01	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	<0.05	<0.05	0.1
Nickel(mg/L)	<0.1	<0.1	<0.1	3
Arsenic, mg/l	<0.005	<0.005	<0.005	0.2
Selenium (mg/L)	<0.005	<0.005	<0.005	0.05
Disolved Phosphate(mg/L)	<4	<4	<4	5
Phenolics (mg/L)	<0.001	<0.001	<0.001	1

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Effluent Quality (All Parameter): - Basundhara Area

Project (OCP / UG)	Garjhanbahal OCP			MoEF-Sch-VI Standards
NAME OF THE STATION	Outlet of Settling tank (Kanika Siding)	Inlet of Settling tank (Kanika Siding)	Mine Sump Water	
Date of Sampling	22-Nov-2023	22-Nov-2023	22-Nov-2023	
Odour	Unobjectionable	Unobjectionable	Unobjectionable	-
Colour(Hazen)	3	1	2	-
Temperature(°C)	26	26	23	Shall not exceed 5 °C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	3.29	10
Ammonical Nitrogen , mg/l (As N)	0.54	0.59	0.83	50
Total Kjeldhal Nitrogen, mg/l (As N)	3.33	4.44	2.22	100
Sulphide (mg/L)	<0.1	<0.1	<0.1	2
BOD [3 days at 27°C] (mg/L)	<2	<2	<2	30
Fluoride(mg/L)	0.37	0.39	0.43	2
Copper(mg/L)	<0.03	<0.03	0.05	3
Manganese(mg/L)	<0.04	0.08	0.06	2
Iron(mg/L)	<0.1	<0.1	<0.1	3
Zinc(mg/L)	0.1	<0.1	<0.04	5
Lead, mg/l	<0.005	<0.005	<0.005	0.1
Cadmium, mg/l	<0.001	<0.001	<0.001	2
Total Chromium(mg/L)	<0.01	<0.01	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	<0.05	<0.05	0.1
Nickel(mg/L)	<0.1	<0.1	<0.1	3
Arsenic, mg/l	<0.005	<0.005	<0.005	0.2
Selenium (mg/L)	<0.005	<0.005	<0.005	0.05
Disolved Phosphate(mg/L)	<4	<4	<4	5
Phenolics (mg/L)	<0.001	<0.001	<0.001	1

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Surface Water Quality Data Basundhara Area

Project/OCP	Kulda OCP		IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Basundhara River near Bankibahal bridge as u/s water	Basundhara River near Barpali Village as d/s water	
Date of sampling	29-Nov-23	29-Nov-23	
pH	7.57	7.63	6.5-8.5
Color (Hazen unit)	2	1	300
Dissolved Oxygen(mg/L)	6.7	6.0	4
BOD (3 days 27oc)(mg/L)	<2	<2	3
Chlorides(mg/L)	7.78	9.72	600
Sulphate(mg/L)	13.66	16.83	400
Nitrate(mg/L)	<2.0	<2.0	50
Fluoride(mg/L)	0.39	0.46	1.5
Total Hardness(mg/L)	104.84	52.42	-
Total dissolved solids (mg/L)	128	92	1500
TSS(mg/L)	22	28	-
Copper(mg/L)	<0.03	<0.03	1.5
Iron(mg/L)	<0.1	<0.1	50
Zinc(mg/L)	<0.04	<0.04	15
Lead(mg/L)	<0.005	<0.005	0.1
Cadmium(mg/L)	<0.001	<0.001	0.01
Total Chromium (mg/L)	<0.01	<0.01	-
Arsenic(mg/L)	<0.005	<0.005	0.2
Selenium(mg/L)	<0.005	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	<0.05	-
Phenolics(mg/L)	<0.001	<0.001	0.005
Oil & Grease (mg/L)	<4.0	<4.0	0.1
MPN (Index/100 ml)	33	40	-


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Surface Water Quality Data Basundhara Area

Project/OCP	Kulda OCP			IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Chattanjhor near Tumulia village as u/s water	Chattanjhor near Siarmal chowk as d/s water	Kund pond water	
Date of sampling	29-Nov-23	29-Nov-23	29-Nov-23	
pH	7.48	7.55	7.43	6.5-8.5
Color (Hazen unit)	3	4	2	300
Dissolved Oxygen(mg/L)	6.3	5.8	6.0	4
BOD (3 days 27oc(mg/L)	<2	<2	<2	3
Chlorides(mg/L)	9.72	7.78	5.83	600
Sulphate(mg/L)	6.22	6.71	7.93	400
Nitrate(mg/L)	<2.0	<2.0	<2.0	50
Fluoride(mg/L)	0.37	0.44	0.37	1.5
Total Hardness(mg/L)	52.42	40.32	56.45	-
Total dissolved solids (mg/L)	88	76	80	1500
TSS(mg/L)	38	32	38	-
Copper(mg/L)	<0.03	<0.03	<0.03	1.5
Iron(mg/L)	<0.1	<0.1	<0.1	50
Zinc(mg/L)	<0.04	<0.04	<0.04	15
Lead(mg/L)	<0.005	<0.005	<0.005	0.1
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.01
Total Chromium (mg/L)	<0.01	<0.01	<0.01	-
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.2
Selenium(mg/L)	<0.005	<0.005	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	<0.05	<0.05	
Phenolics(mg/L)	<0.001	<0.001	<0.001	0.005
Oil & Grease (mg/L)	<4.0	<4.0	<4.0	0.1
MPN (Index/100 ml)	32	38	47	-

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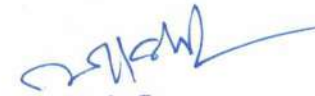
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Surface Water Quality Data Basundhara Area

Project/OCP	Garjanbahal	IS:2296-1982 Tolerance for Inland Surface Water (Class C)
NAME OF STATIONS	Basundhara River near Bandhpalli village as d/s water	
Date of sampling	29-Nov-23	
pH	7.54	6.5-8.5
Color (Hazen unit)	1	300
Dissolved Oxygen(mg/L)	6.7	4
BOD (3 days 27oc)(mg/L)	<2	3
Chlorides(mg/L)	7.78	600
Sulphate(mg/L)	5.98	400
Nitrate(mg/L)	<2.0	50
Fluoride(mg/L)	0.31	1.5
Total Hardness(mg/L)	48.39	-
Total dissolved solids (mg/L)	72	1500
TSS(mg/L)	30	-
Copper(mg/L)	<0.03	1.5
Iron(mg/L)	<0.1	50
Zinc(mg/L)	<0.04	15
Lead(mg/L)	<0.005	0.1
Cadmium(mg/L)	<0.001	0.01
Total Chromium (mg/L)	<0.01	-
Arsenic(mg/L)	<0.005	0.2
Selenium(mg/L)	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	
Phenolics(mg/L)	<0.001	0.005
Oil & Grease	<4.0	0.1
MPN (Index/100 ml)	39	-


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Test Report

GROUND WATER LEVEL MONITORING DATA

Area:

Basundhara

Project:

Garjanbahal OCP

Date of Sampling	Name of the Station	Ground Levels (in meter)
11/29/2023	Piezometer No MIP 11; Village Karlikachar; Infront of Primary School.(Reported only) Latitude 22.013755 N Longitude 83.745114 E	Pump fitted,Depth could not be
11/29/2023	Piezometer No MIP 01; Village Garjanbahal (Village School Campus)(Reported only) Latitude 22 °0'41" N Longitude 83 ° 45'52" E	28.5

Project:

Kulda OCP

Date of Sampling	Name of the Station	Ground Levels (in meter)
11/28/2023	Piezometer No MIP 01; Village Garjanbahal (Village School Campus)Latitude 22 °0'41" N Longitude 83 ° 45'52" E	28.5
11/29/2023	Piezometer No MIP 14; Village Kulda; Primary School Campus. Latitude 22 ° 1'55" N Longitude 83°43'47" E	69.5
11/29/2023	Piezometer No MIP 11; Village Karlikachar; Infront of Primary School. Latitude 22.013755 N Longitude 83.745114 E	Pump fitted, Depth could not be measured.
11/29/2023	Piezometer No MIP 12; Village Balinga; MCL Office. Latitude 22 ° 1'59 " N Longitude 83°45'15" E	14.6

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TABLE--

Well Water Level Monitoring Data

Area :

Basundhara

Project

Garjanbahal OCP

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth to Water Level (in m. bgl)</i>
22-Nov-23	Well at Garjanbahal Village	2.39
22-Nov-23	South West of Coal face	2.6

Project

Kulda OCP

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth to Water Level (in m. bgl)</i>
22-Nov-23	Well at Sahaspur	2.47
22-Nov-23	Well at Teleimal	4

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Drinking Water Quality Data Basundhara Area

Project / OCP	Garjanbahal OCP		Indian Drinking Standards (IS-10500):2012	
	Well at Garjanbahal Village	South West of Coalface, Bihaimunda	Acceptable	Permissible
Date of Sampling	10-Nov-2023	10-Nov-2023		
Colour(Hazen)	1	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	3	1	5
pH	8.04	8.28	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	32.6	244.8	200	600
Chloride(mg/L)	68.04	149.67	250	1000
Sulphate(mg/L)	32.80	23.29	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO ₃)(mg/L)	116.94	342.75	200	600
Calcium(mg/L)	40.40	103.43	75	200
Fluoride(mg/L)	0.35	0.4	1	1.5
Total Dissolve Solid(mg/L)	234	538	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	0.23	<0.04	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.33	0.10	5	15
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	<1.8	-	-

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Drinking Water Quality Data Basundhara Area

Project / OCP	Kulda		Indian Drinking Standards (IS-10500):2012	
	Well at Sahaspur	Well at Teleimal		
Monitoring Station				
Date of Sampling	10-Nov-2023	10-Nov-2023	Acceptable	Permissible
Colour(Hazen)	1	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	2	1	5
pH	8.17	8.29	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	130.6	167.3	200	600
Chloride(mg/L)	52.49	42.77	250	1000
Sulphate(mg/L)	43.3	38.9	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO₃)(mg/L)	206.65	270.17	200	600
Calcium(mg/L)	56.56	93.73	75	200
Fluoride(mg/L)	0.35	0.31	1	1.5
Total Dissolve Solid(mg/L)	348	386	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.07	0.11	5	15
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	<1.8	-	-

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Garjanbahal OCP

Garjanbahal Village

Karikachar Village

West of Working Face, Bihaimunda

S-E of Working Face, Kutabaga

Google Earth

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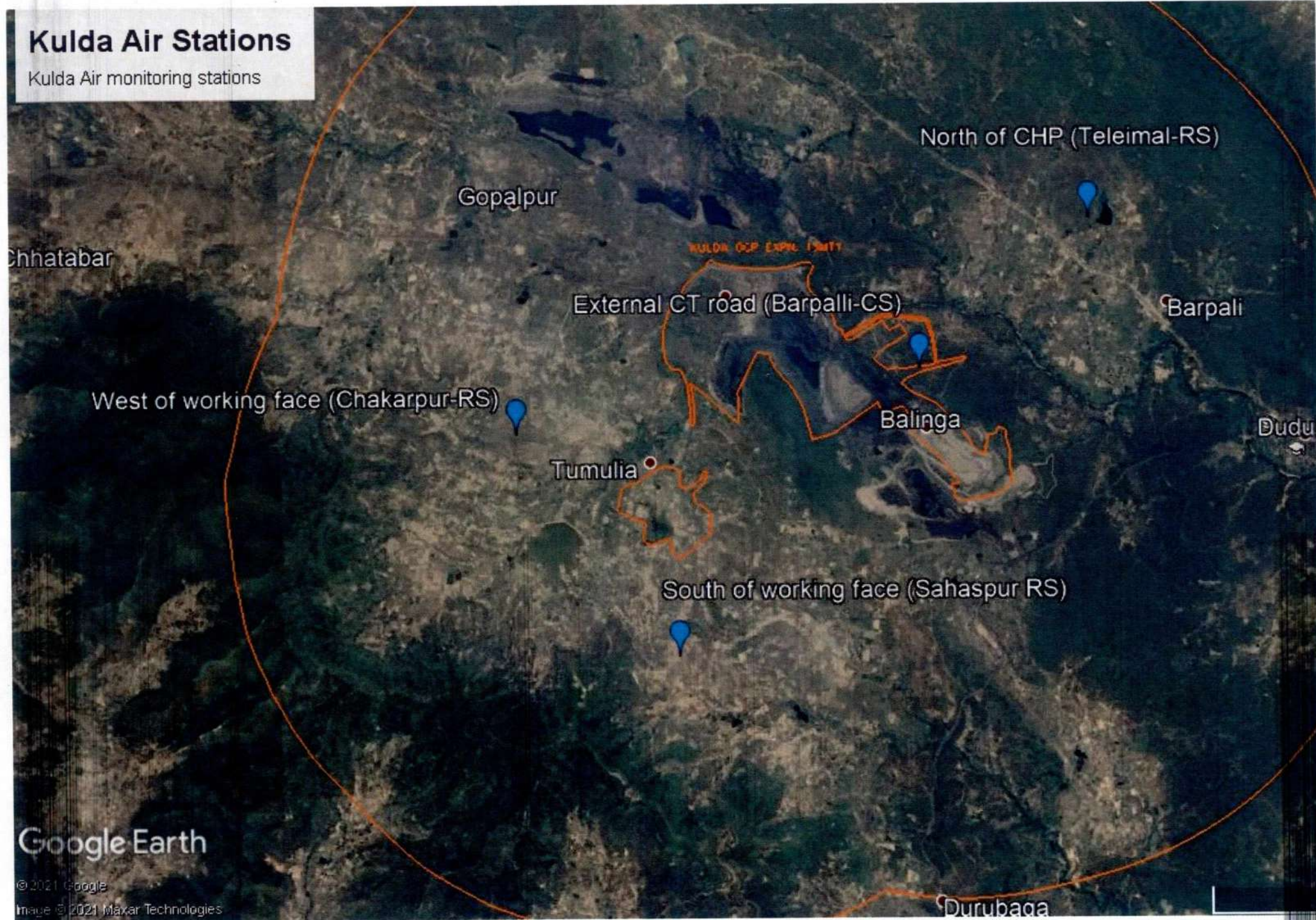
KAN-1 Near Coal Sampling Lab



8 km

Kulda Air Stations

Kulda Air monitoring stations



Google Earth

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**Environmental Monitoring Report
Of
Orient Area
For
November-2023
Ib Valley Coalfield**



Mahanadi Coalfields Limited



Central Mine Planning & Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)

Regional Institute-VII, Samantpuri, P.O : RRL, Bhubaneswar-751013 (Odisha)
[Assistance from Environment Division, CMPDI(HQs), Ranchi]

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Test Report

AMBIENT AIR QUALITY DATA

Area : **Orient** (Compliance Station)

Project : **Orient Mine No. 1 & 2** (conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
08-Nov-23	Orient Mine No. 1 & 2	265	164	62	13.88	14.25	Coal Stock Yard, Surface Bunker, Coal	About 250m
23-Nov-23	Orient Mine No. 1 & 2	294	194	75	14.58	15.00	Coal Stock Yard, Surface Bunker, Coal	About 250m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Orient

(Compliance Station)

Project :

Orient Mine No. 3

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
08-Nov-23	Orient Mine No. 3	272	172	66	11.83	15.20	Coal Stockyard, Surface Bunker, Coal	About 200m
23-Nov-23	Orient Mine No. 3	280	178	68	14.61	15.45	Coal Stockyard, Surface Bunker, Coal	About 200m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area : **Orient**

(Compliance Station)

Project : **Orient Mine No. 4**

(conc. in $\mu\text{g}/\text{cu.m.}$)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
08-Nov-23	Orient Mine No. 4	280	178	70	13.28	15.07	Coal Transportation Road	About 300m
23-Nov-23	Orient Mine No. 4	286	184	74	17.85	15.43	Coal Transportation Road	About 300m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Orient

(Compliance Station)

Project :

HBI Mine

(conc. in $\mu\text{g}/\text{cu.m.}$)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source	Distance from DGS
08-Nov-23	HBI Mine	285	184	72	10.03	11.47	Coal Stockyard, Surface Bunker, Coal Transport	About 100m
08-Nov-23	Bundia Colony Pump House	256	166	58	12.27	12.62	Coal Stockyard, Surface Bunker, Coal Transport	About 150m
23-Nov-23	HBI Mine	272	172	64	15.74	12.19	Coal Stockyard, Surface Bunker, Coal Transport	About 100m
23-Nov-23	Bundia Colony Pump House	254	154	56	13.40	14.14	Coal Stockyard, Surface Bunker, Coal Transport	About 150m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Orient

(Reference Station)

Project :

Orient Mine No.1 & 2

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
01-Nov-23	VIP Guest House IB Valley (Reported Only)	195	88	40	11.82	12.06	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
02-Nov-23	VIP Guest House IB Valley (Reported Only)	185	84	36	15.22	16.44	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
09-Nov-23	VIP Guest House IB Valley (Reported Only)	184	82	32	13.83	14.95	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
10-Nov-23	VIP Guest House IB Valley (Reported Only)	196	92	41	10.49	16.01	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
16-Nov-23	VIP Guest House IB Valley (Reported Only)	172	82	31	15.91	15.08	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
17-Nov-23	VIP Guest House IB Valley (Reported Only)	166	78	29	13.01	15.40	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
24-Nov-23	VIP Guest House IB Valley (Reported Only)	176	85	34	17.89	16.57	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m
25-Nov-23	VIP Guest House IB Valley (Reported Only)	162	74	27	16.79	11.11	Coal Stock Yard, Surface Bunker, Coal Transportation	About 800m

*NAAQS,2009		100	60	80	80
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Test Report

AMBIENT AIR QUALITY DATA

Area :

Orient

(Reference Station)

Project :

Hirakand Bundia Mine (HBM)

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
01-Nov-23	Rampur Sub Area	182	83	34	14.76	10.63	Coal Stock And CT Road	About 1000m
01-Nov-23	Rampur Officers Guest House	210	94	43	12.74	16.94	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m
02-Nov-23	Rampur Officers Guest House	192	84	38	10.51	11.04	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m
02-Nov-23	Rampur Sub Area	205	73	42	17.12	15.97	Coal Stock And CT Road	About 1000m
09-Nov-23	Rampur Officers Guest House	186	86	35	13.00	10.54	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m
09-Nov-23	Rampur Sub Area	194	88	38	12.47	15.20	Coal Stock And CT Road	About 1000m
10-Nov-23	Rampur Officers Guest House	189	88	36	13.92	12.16	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m
10-Nov-23	Rampur Sub Area	180	85	33	15.47	19.10	Coal Stock And CT Road	About 1000m
16-Nov-23	Rampur Officers Guest House	186	90	38	14.98	19.73	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m
16-Nov-23	Rampur Sub Area	183	88	36	15.30	14.62	Coal Stock And CT Road	About 1000m
17-Nov-23	Rampur Officers Guest House	174	84	32	10.16	15.91	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m
17-Nov-23	Rampur Sub Area	173	84	32	17.34	16.15	Coal Stock And CT Road	About 1000m
24-Nov-23	Rampur Sub Area	171	81	30	16.17	19.25	Coal Stock And CT Road	About 1000m
24-Nov-23	Rampur Officers Guest House	182	88	36	14.20	19.99	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m
25-Nov-23	Rampur Officers Guest House	176	85	33	15.39	21.03	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m
25-Nov-23	Rampur Sub Area	183	88	36	14.14	21.10	Coal Stock And CT Road	About 1000m
29-Nov-23	Rampur Officers Guest House	180	87	35	12.95	13.99	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m

*NAAQS,2009

100	60	80	80
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AMBIENT AIR QUALITY DATA

Area :

Orient


(Reference Station)

29-Nov-23	Rampur Sub Area	178	85	34	15.07	16.28	Coal Stock And CT Road	About 1000m
30-Nov-23	Rampur Sub Area	182	87	35	17.07	12.06	Coal Stock And CT Road	About 1000m
30-Nov-23	Rampur Officers Guest House	168	78	29	16.08	18.48	Coal Stockyard, Surface Bunker, Coal Transport	About 1000m


*NAAQS, 2009		100	60	80	80
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Env. Lab
CMPDI, RI-VII


 cmpdi <i>A Mini Ratna Company</i>		AMBIENT AIR QUALITY DATA (NAAQS PARAMETER) Area: Orient						
Project	Orient Mine No.2							
Monitoring Station	VIP Guest House, IB Valley(Reported Only)							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(μg/m ³)	(μg/m ³)	(μg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(μg/m ³)
01-Nov-2023	<20.0	4.22	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	4.68	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
10-Nov-2023	<20.0	5.38	<0.1	<1.0	<1.0	1	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	7.45	<0.1	<1.0	<1.0	1.1	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	6.31	<0.1	<1.0	<1.0	1.4	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	5.05	<0.1	<1.0	<1.0	1.2	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	7.06	<0.1	<1.0	<1.0	1.3	BQL(Q L=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)


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 cmpdi <i>A Mini Ratna Company</i>		AMBIENT AIR QUALITY DATA (NAAQS PARAMETER) Area: Orient						
Project	HBI Mine							
Monitoring Station	Rampur Officers Guest House							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzene
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(µg/m ³)
01-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	4.78	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
10-Nov-2023	<20.0	7.06	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	5.07	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	8.01	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	5.34	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	5.26	<0.1	<1.0	<1.0	0.9	BQL(Q L=0.7)	BQL
29-Nov-2023	<20.0	5.74	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
30-Nov-2023	<20.0	6.33	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hours)	01(annual)	05(annual)


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Project	HBI Mine							
Monitoring Station	Rampur Sub Area							
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(μg/m ³)	(μg/m ³)	(μg/m ³)	(ng/m ³)	(ng/m ³)	(mg/m ³)	(ng/m ³)	(μg/m ³)
01-Nov-2023	<20.0	5.64	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	5.24	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	8.47	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
10-Nov-2023	<20.0	5.68	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	5.30	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	5.69	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	4.60	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
29-Nov-2023	<20.0	8.68	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
30-Nov-2023	<20.0	4.57	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
Standard	400(24 hours)	180(hour)	1.0(24 hours)	6.0(Annual)	20(Annual)	04(1 hour)	01(annual)	05(annual)


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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Orient

PROJECT :

Orient Mine No. 1 & 2

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
08-Nov-23	Orient Mine No. 1 & 2	62.4	59.4
08-Nov-23	VIP Guest House, IB Valley (Reported Only)	53.2	42.7
27-Nov-23	Orient Mine No. 1 & 2	65.3	63.9
27-Nov-23	VIP Guest House, IB Valley (Reported Only)	54.3	42.7

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Orient

PROJECT :

Orient Mine No.3

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
08-Nov-23	Orient Mine No.3	62.8	59.4
27-Nov-23	Orient Mine No.3	64.2	59.2

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Orient

PROJECT :

Orient Mine No.4

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
08-Nov-23	Orient Mine No.4	63.4	58.8
27-Nov-23	Orient Mine No.4	65.7	62.3

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Orient

PROJECT :

HBI Mine

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
08-Nov-23	HBI Mine	64.7	60.4
08-Nov-23	Bundia Colony Pump House	50.4	39.7
08-Nov-23	Rampur Officer's Guest House	53.2	41.6
08-Nov-23	Rampur Sub Area (Reported)	53.6	43.2
27-Nov-23	HBI Mine	68.6	65.1
27-Nov-23	Rampur Sub Area (Reported)	53.4	42.8
27-Nov-23	Rampur Officer's Guest House	53.9	43.7
27-Nov-23	Bundia Colony Pump House	50.8	39.5

MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 75dB(A) (Industrial)	10.00 PM -6.00 AM Leq 70dB(A) (Industrial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 55dB(A) (Residential)	10.00 PM -6.00 AM Leq 45dB(A) (Residential)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 65dB(A) (Commercial)	10.00 PM -6.00 AM Leq 55dB(A) (Commercial)
MoEF Standard Notification dated 25th September, 2000	6.00 AM -10.00 PM Leq 50dB(A) (Silence Zone)	10.00 PM -6.00 AM Leq 40dB(A) (Silence Zone)

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TABLE--

EFFLUENT QUALITY DATA

Area :

Orient

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Orient Mine No. 1 & 2

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
13-Nov-23	Mine Sump of Mine No. 2	7.31	<4.0	20	12	-	-	-	
20-Nov-23	Mine Sump of Mine No. 2	7.15	<4.0	38	24	-	-	-	

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MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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TABLE--

EFFLUENT QUALITY DATA

Area :

Orient

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Orient Mine No. 3

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
13-Nov-23	Mine Sump of Mine No. 3	7.42	<4.0	26	20	-	-	-	
20-Nov-23	Mine Sump of Mine No. 3	7.20	<4.0	40	32	-	-	-	

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MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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A Mini Ratna Company

TABLE--

EFFLUENT QUALITY DATA

Area :

Orient

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

Orient Mine No. 4

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
13-Nov-23	Mine Sump of Mine No. 4	7.58	<4.0	18	8	-	-	-	
20-Nov-23	Mine Sump of Mine No. 4	7.16	<4.0	28	16	-	-	-	

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MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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TABLE--

EFFLUENT QUALITY DATA

Area :

Orient

(All dimensions are in mg/l unless otherwise stated except pH)

Project :

HBI Mine

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	TDS	DO	Remarks
13-Nov-23	Mine Sump of HBM	7.33	<4.0	22	16	-	-	-	
20-Nov-23	Mine Sump of HBM	7.27	<4.0	32	20	-	-	-	

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MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents	5.5-9.0	10	100	250	30
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Effluent Quality (all Parameter): - Orient Area

Project (OCP / UG)	Orient Mine No.2	MoEF-Sch-VI Standards
NAME OF THE STATION	Mine Sump. of Mine No.2	
Date of Sampling	20-Nov-2023	
Odour	Unobjectionable	-
Colour(Hazen)	1	-
Temperature(^o C)	23	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.75	50
Total Kjeldhal Nitrogen, mg/l (As N)	3.33	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	30
Fluoride(mg/L)	0.39	2
Copper(mg/L)	0.04	3
Manganese(mg/L)	0.06	2
Iron(mg/L)	<0.1	3
Zinc(mg/L)	<0.04	5
Lead, mg/l	<0.005	0.1
Cadmium, mg/l	<0.001	2
Total Chromium(mg/L)	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	0.1
Nickel(mg/L)	<0.1	3
Arsenic, mg/l	<0.005	0.2
Selenium (mg/L)	<0.005	0.05
Disolved Phosphate(mg/L)	<4	5
Phenolics (mg/L)	<0.001	1


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Effluent Quality (all Parameter): - Orient Area

Project (OCP / UG)	Orient Mine No.3	
NAME OF THE STATION	Mine Sump. of Mine No.3	MoEF-Sch-VI Standards
Date of Sampling	20-Nov-2023	
Odour	Unobjectionable	-
Colour(Hazen)	1	-
Temperature(^o C)	24	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	10
Ammonical Nitrogen , mg/l (As N)	1.02	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	30
Fluoride(mg/L)	0.36	2
Copper(mg/L)	<0.03	3
Manganese(mg/L)	0.05	2 standards
Iron(mg/L)	<0.1	3
Zinc(mg/L)	0.11	5
Lead, mg/l	<0.005	0.1
Cadmium, mg/l	<0.001	2 above temperature
Total Chromium(mg/L)	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	0.1
Nickel(mg/L)	<0.1	3
Arsenic, mg/l	<0.005	0.2
Selenium (mg/L)	<0.005	0.05
Disolved Phosphate(mg/L)	<4	5
Phenolics (mg/L)	<0.001	1

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Effluent Quality (all Parameter): - Orient Area

Project (OCP / UG)	HBI Mine	MoEF-Sch-VI Standards
NAME OF THE STATION	Mine Sump. of HBM	
Date of Sampling	20-Nov-2023	
Odour	Unobjectionable	-
Colour(Hazen)	2	-
Temperature(^o C)	24	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.95	50
Total Kjeldhal Nitrogen, mg/l (As N)	4.44	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	30
Fluoride(mg/L)	0.47	2
Copper(mg/L)	<0.03	3
Manganese(mg/L)	0.06	2
Iron(mg/L)	<0.1	3
Zinc(mg/L)	0.08	5
Lead, mg/l	<0.005	0.1
Cadmium, mg/l	<0.001	2
Total Chromium(mg/L)	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	0.1
Nickel(mg/L)	<0.1	3
Arsenic, mg/l	<0.005	0.2
Selenium (mg/L)	<0.005	0.05
Disolved Phosphate(mg/L)	<4	5
Phenolics (mg/L)	<0.001	1

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Effluent Quality (all Parameter): - Orient Area

Project (OCP / UG)	Orient Mine No.4	MoEF-Sch-VI Standards
NAME OF THE STATION	Mine Sump. of Mine No.4	
Date of Sampling	20-Nov-2023	
Odour	Unobjectionable	-
Colour(Hazen)	3	-
Temperature(^o C)	23	Shall not exceed 5 ^o C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.51	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 ^o C] (mg/L)	<2	30
Fluoride(mg/L)	0.43	2
Copper(mg/L)	0.03	3
Manganese(mg/L)	<0.04	2
Iron(mg/L)	<0.1	3
Zinc(mg/L)	0.08	5
Lead, mg/l	<0.005	0.1
Cadmium, mg/l	<0.001	2
Total Chromium(mg/L)	<0.01	2
Hexavalent Chromium(mg/L)	<0.05	0.1
Nickel(mg/L)	<0.1	3
Arsenic, mg/l	<0.005	0.2
Selenium (mg/L)	<0.005	0.05
Disolved Phosphate(mg/L)	<4	5
Phenolics (mg/L)	<0.001	1

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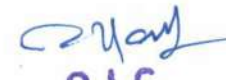
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Surface Water Quality Data Orient Area

Project/OCP	Orient Mine No. 3	
NAME OF STATIONS	Pond Water at Budhijam Village	IS:2296-1982 Tolerance for inland Surface water (Class C)
Date of sampling	27-Nov-23	
pH	7.81	6.5-8.5
Color (Hazen unit)	2	300
Dissolved Oxygen(mg/L)	6.0	4
BOD (3 days 27oc)(mg/L)	<2	3
Chlorides(mg/L)	19.44	600
Sulphate(mg/L)	15.12	400
Nitrate(mg/L)	<2.0	50
Fluoride(mg/L)	0.36	1.5
Total Hardness(mg/L)	72.58	-
Total dissolved solids (mg/L)	138	1500
TSS(mg/L)	22	-
Copper(mg/L)	<0.03	1.5
Iron(mg/L)	<0.1	50
Zinc (mg/L)	<0.04	15
Lead(mg/L)	<0.005	0.1
Cadmium(mg/L)	<0.001	0.01
Total Chromium (mg/L)	<0.01	-
Arsenic(mg/L)	<0.005	0.2
Selenium(mg/L)	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	
Phenolics(mg/L)	<0.001	0.005
Oil & Grease (mg/L)	<4.0	0.1
MPN (Index/100 ml)	25	-


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Project/OCP	Orient Mine No. 1 & 2		IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	U/S of Baghmara stream at Discharge Point	D/S of Baghmara stream at Discharge Point	
Date of sampling	27-Nov-23	27-Nov-23	
pH	7.67	7.70	6.5-8.5
Color (Hazen unit)	1	2	300
Dissolved Oxygen(mg/L)	6.6	6.3	4
BOD (3 days 27oc(mg/L)	<2	<2	3
Chlorides(mg/L)	9.72	11.66	600
Sulphate(mg/L)	12.07	11.83	400
Nitrate(mg/L)	<2.0	<2.0	50
Fluoride(mg/L)	0.37	0.41	1.5
Total Hardness(mg/L)	56.45	68.55	-
Total dissolved solids (mg/L)	104	122	1500
TSS(mg/L)	36	44	-
Copper(mg/L)	<0.03	<0.03	1.5
Iron(mg/L)	<0.1	<0.1	50
Zinc(mg/L)	0.05	<0.04	15
Lead(mg/L)	<0.005	<0.005	0.1
Cadmium(mg/L)	<0.001	<0.001	0.01
Total Chromium (mg/L)	<0.01	<0.01	-
Arsenic(mg/L)	<0.005	<0.005	0.2
Selenium(mg/L)	<0.005	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	<0.05	
Phenolics(mg/L)	<0.001	<0.001	0.005
Oil & Grease (mg/L)	<4.0	<4.0	0.1
MPN (Index/100 ml)	14	17	-


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Surface Water Quality Data Orient Area

Project/OCP	Orient Mine No. 4		IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	IB River Near Charbhathi Village as u/s Water for IB Valley Coalfield	IB River Bridge of NH200 at Gondghora Village as u/s of Orient Area	
Date of sampling	27-Nov-23	27-Nov-23	
pH	7.82	7.89	6.5-8.5
Color (Hazen unit)	2	1	300
Dissolved Oxygen(mg/L)	6.5	6.0	4
BOD (3 days 27oc)(mg/L)	<2	<2	3
Chlorides(mg/L)	11.66	13.61	600
Sulphate(mg/L)	30.61	32.32	400
Nitrate(mg/L)	<2.0	<2.0	50
Fluoride(mg/L)	0.42	0.33	1.5
Total Hardness(mg/L)	112.91	88.71	-
Total dissolved solids (mg/L)	154	136	1500
TSS(mg/L)	28	36	-
Copper(mg/L)	<0.03	<0.03	1.5
Iron(mg/L)	<0.1	<0.1	50
Zinc(mg/L)	<0.04	0.05	15
Lead(mg/L)	<0.005	<0.005	0.1
Cadmium(mg/L)	<0.001	<0.001	0.01
Total Chromium (mg/L)	<0.01	<0.01	-
Arsenic(mg/L)	<0.005	<0.005	0.2
Selenium(mg/L)	<0.005	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	<0.05	
Phenolics(mg/L)	<0.001	<0.001	0.005
Oil & Grease(mg/L)	<4.0	<4.0	0.1
MPN (Index/100 ml)	31	33	-

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Project/OCP	HBI	IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	IB River near Kutabaga Village at Bridge Point	
Date of sampling	27-Nov-23	
pH	7.93	6.5-8.5
Color (Hazen unit)	3	300
Dissolved Oxygen(mg/L)	6.2	4
BOD (3 days 27oc)(mg/L)	<2	3
Chlorides(mg/L)	9.72	600
Sulphate(mg/L)	16.46	400
Nitrate(mg/L)	<2.0	50
Fluoride(mg/L)	0.38	1.5
Total Hardness(mg/L)	72.58	-
Total dissolved solids (mg/L)	118	1500
TSS(mg/L)	24	-
Copper(mg/L)	<0.03	1.5
Iron(mg/L)	<0.1	50
Zinc(mg/L)	<0.04	15
Lead(mg/L)	<0.005	0.1
Cadmium(mg/L)	<0.001	0.01
Total Chromium (mg/L)	<0.01	-
Arsenic(mg/L)	<0.005	0.2
Selenium(mg/L)	<0.005	0.05
Hexavalent Chromium,(mg/L)	<0.05	
Phenolics(mg/L)	<0.001	0.005
Oil & Grease (mg/L)	<4.0	0.1
MPN (Index/100 ml)	25	-

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TABLE--

Well Water Level Monitoring Data


Area :

Orient

Project

Orient mine no. 2

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth to Water Level (in m. bgl)</i>
20-Nov-23	Chauliberna Village Well Water (Reported)	3
20-Nov-23	Madhuban Nagar Well Water	3.7


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TABLE--

Well Water Level Monitoring Data

Area :

Orient

Project

Orient mine no. 3

Date of sampling	Name of the Station	Depth to Water Level (in m. bgl)
20-Nov-23	Well of Lajkura	3

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TABLE--

Well Water Level Monitoring Data

Area :

Orient

Project

Orient mine no. 4

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth to Water Level (in m. bgl)</i>
20-Nov-23	Jhopadi Basti Villge Well	DRY
20-Nov-23	Adibasi Basti Villge Well	2

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TABLE--

Well Water Level Monitoring Data

Area :

Orient

Project

HBI

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth to Water Level (in m. bgl)</i>
20-Nov-23	Kudopali Village Well (Reported Only)	2.27
20-Nov-23	Ainlapali Village Well	3.77
20-Nov-23	Chingriguda Village Well	2.6

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Test Report

GROUND WATER LEVEL MONITORING DATA

Area:

Orinet

Project:

Orient Mine No. 1 & 2

Date of Sampling	Name of the Station	Ground Levels (in meter)
11/27/2023	Piezometer No- MIP 03; Beside Ib Valley GM House. Latitude 21.85446 N Longitude 83.926961 E	13.75

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Test Report

GROUND WATER LEVEL MONITORING DATA

Area:

Orinet

Project:

Orient Mine No. 3

Date of Sampling	Name of the Station	Ground Levels (in meter)
11/27/2023	Piezometer No MIP 05; Village Chauliberna; Inside Nursing high School Campus Latitude 21°49'4" N Longitude 83°52'43"E	28.58

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Test Report

GROUND WATER LEVEL MONITORING DATA

Area:

Orient

Project:

HBI

Date of Sampling	Name of the Station	Ground Levels (in meter)
11/27/2023	Piezometer No MIP 05; Village Chauliberna; Inside Nursing High School Campus (Reported only) Latitude 21°49'4" N Longitude 83°52'43"E	28.58

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Drinking Water Quality Data Orient Area

Project / OCP	Orient Mine No. 1 & 2		Indian Drinking Standards (IS-10500):2012	
	Budhijaam Colony	Mine no 1 & 2 Filter Plant	Acceptable	Permissible
Date of Sampling	8-Nov-2023	8-Nov-2023	Acceptable	Permissible
Colour(Hazen)	3	4	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	2	1	5
pH	8.09	8.13	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	61.2	93.8	200	600
Chloride(mg/L)	15.55	42.77	250	1000
Sulphate(mg/L)	30.61	2.44	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO ₃)(mg/L)	72.58	137.10	200	600
Calcium(mg/L)	21.01	50.10	75	200
Fluoride(mg/L)	0.36	0.30	1	1.5
Total Dissolve Solid(mg/L)	180	242	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.15	0.27	5	15
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	<1.8	-	-

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Project / OCP	Orient Mine No. 3	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Mine no 3 Filter Plant	Acceptable	Permissible
Date of Sampling	8-Nov-2023		
Colour(Hazen)	2	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	5
pH	8.04	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	61.2	200	600
Chloride(mg/L)	15.55	250	1000
Sulphate(mg/L)	1.59	200	400
Nitrate(mg/L)	<2.0	45	No relaxation
Total Hardness (Ca CO ₃)(mg/L)	92.75	200	600
Calcium(mg/L)	24.24	75	200
Fluoride(mg/L)	0.32	1	1.5
Total Dissolve Solid(mg/L)	154	500	2000
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Iron(mg/L)	<0.1	1.0	No relaxation
Zinc(mg/L)	0.33	5	15
Lead(mg/L)	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	-	-

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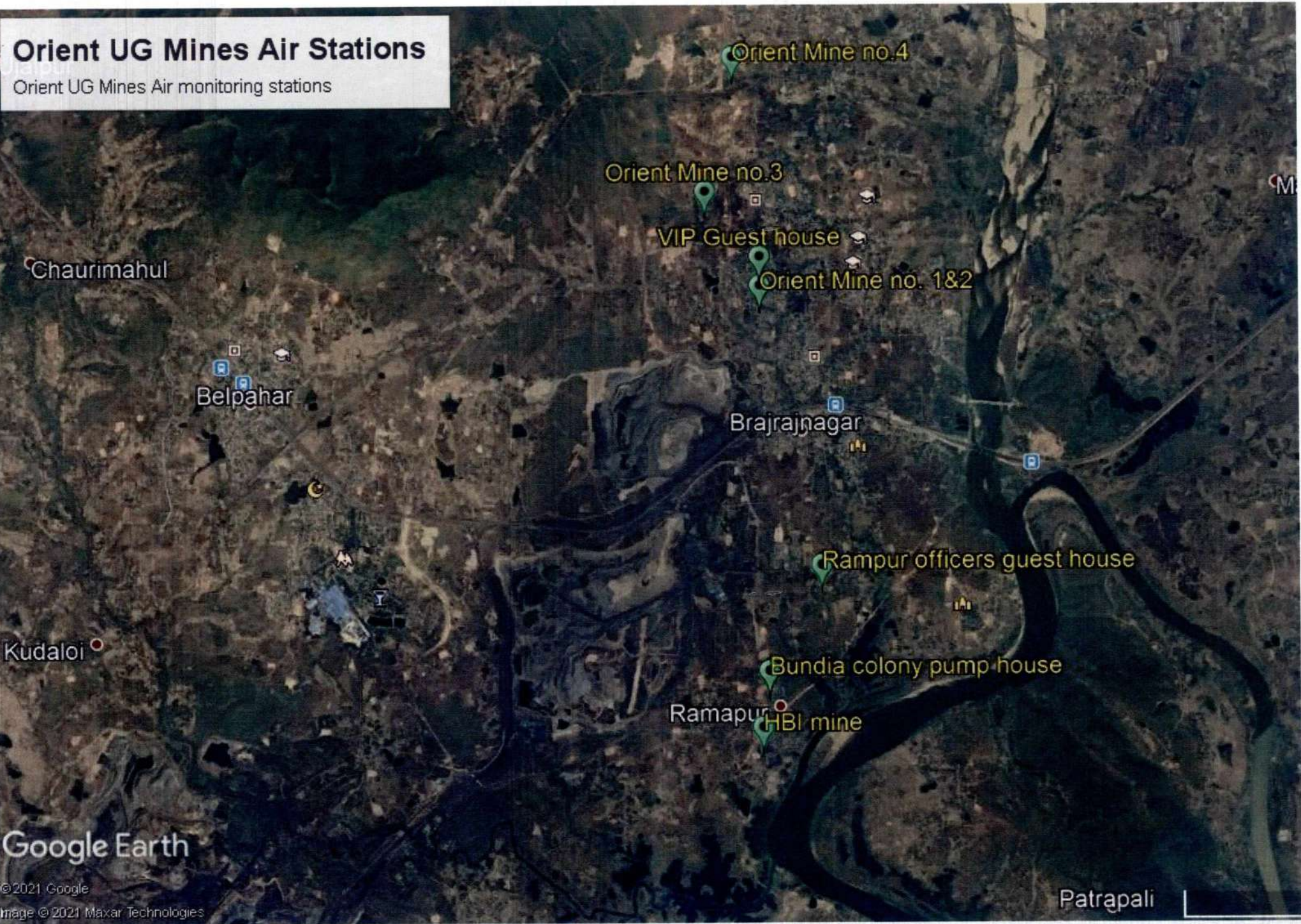
Project / OCP Monitoring Station	HBI Mine		Indian Drinking Standards (IS-10500):2012	
	Tap Water at Rampur Colony	HBI Water Filter Plant	Acceptable	Permissible
Date of Sampling	8-Nov-2023	8-Nov-2023	5	15
Colour(Hazen)	1	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	2	1	5
pH	8.19	8.24	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	114.2	118.3	200	600
Chloride(mg/L)	21.38	21.38	250	1000
Sulphate(mg/L)	15.73	12.68	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO ₃)(mg/L)	112.91	129.04	200	600
Calcium(mg/L)	29.09	30.71	75	200
Fluoride(mg/L)	0.36	0.04	1	1.5
Total Dissolve Solid(mg/L)	220	232	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.2	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.07	0.12	5	15
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	<1.8	-	-

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Orient UG Mines Air Stations

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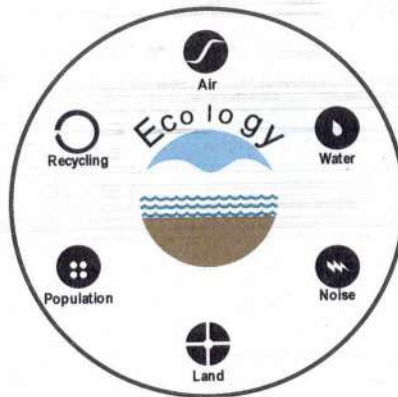
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**Environmental Monitoring Report
Of
MCL HQ
For
November-2023**

IB Valley Coalfield



Mahanadi Coalfields Limited



Central Mine Planning & Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)

Regional Institute-VII, Samantpuri, P.O : RRL, Bhubaneswar-751013 (Odisha)
[Assistance from Environment Division, CMPDI(HQs), Ranchi]

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Drinking Water Quality Data MCL (HQ)

Project / OCP Monitoring Station	MCL (HQ)		Indian Drinking Standards (IS-10500):2012	
	DAV School (Anand vihar)	Corporate Office (Jagriti Vihar)	Acceptable	Permissible
Date of Sampling	11-Nov-2023	11-Nov-2023	5	15
Colour(Hazen)			Agreeable	Agreeable
Odour	3	1	Agreeable	Agreeable
Taste	Agreeable	Agreeable	1	5
Turbidity(NTU)	1	1	6.5-8.5	No relaxation
pH	8.03	7.98	200	600
Total Alkalinity(mg/L)	61.2	61.2	250	1000
Chloride(mg/L)	9.72	7.78	200	400
Sulphate(mg/L)	9.27	17.80	45	No relaxation
Nitrate(mg/L)	<2.0	<2.0	200	600
Total Hardness (Ca CO ₃)(mg/L)	80.65	88.71	75	200
Calcium(mg/L)	25.86	30.71	1	1.5
Fluoride(mg/L)	0.4	0.35	500	2000
Total Dissolve Solid(mg/L)	158	174	0.05	1.5
Copper(mg/L)	<0.03	<0.03	0.1	0.3
Manganese(mg/L)	<0.04	<0.04	1.0	No relaxation
Iron(mg/L)	<0.1	<0.1	5	15
Zinc(mg/L)	<0.04	<0.04	0.01	No relaxation
Lead(mg/L)	<0.005	<0.005	0.003	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.05	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	0.01	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.5	2.4
Boron(mg/L)	<0.2	<0.2	0.001	0.002
Phenolics(mg/L)	<0.001	<0.001	0.2	1.0
Residual Free Chlorine(mg/L)	<0.2	<0.2	-	-
MPN (Index/100 ml)	<1.8	<1.8		

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Drinking Water Quality Data MCL (HQ)

Project / OCP	MCL(HQ)		Indian Drinking Standards (IS-10500):2012	
	Inlet to Water Treatment Plant (Anand Vihar)	Outlet to Water Treatment Plant (Anand Vihar)		
Date of Sampling	11-Nov-2023	11-Nov-2023	Acceptable	Permissible
Colour(Hazen)			5	15
Odour	4	2	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	1	5
pH	8.11	7.82	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	69.4	61.2	200	600
Chloride(mg/L)	5.83	9.72	250	1000
Sulphate(mg/L)	4.02	4.15	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO3)(mg/L)	88.71	92.75	200	600
Calcium(mg/L)	24.24	32.32	75	200
Fluoride(mg/L)	0.33	0.36	1	1.5
Total Dissolve Solid(mg/L)	162	156	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	<1.8	<1.8		

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Mandapal sand mine Air Stations

Mandapal sand mine Air monitoring stations



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