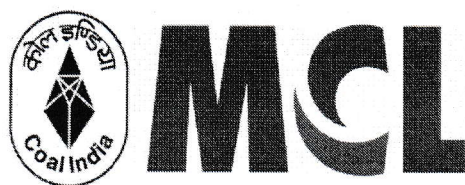


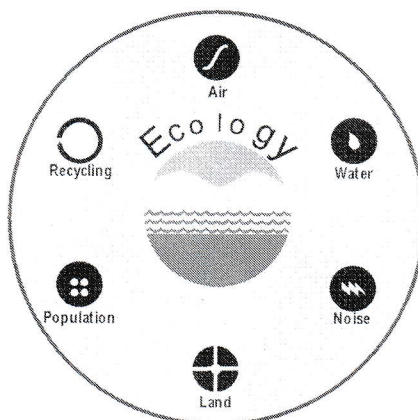
Job No.750001

**Environmental Monitoring Report
Of
Jagannath Area
For
May 2021**

Talcher Coalfield



Mahanadi Coalfields Limited



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A Mini Ratna Company

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 :

Jagannath

(Compliance Station)

Project :

Ananta OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
05-May-21	Near NBVL Station (Reported only)	276	159	42	24.21	29.67	CHP, CT Road	About 600m
06-May-21	Central Nursery	213	134	40	30.49	45.75	Open-Cast Mine	Less than 500m
06-May-21	North-East of Mine	233	149	44	8.82	17.92	Open-Cast Mine	Less than 500m
19-May-21	Near NBVL Station (Reported only)	221	117	40	25.71	37.78	CHP, CT Road	About 600m
20-May-21	Central Nursery	196	123	32	21.74	38.79	Open-Cast Mine	Less than 500m
20-May-21	North-East of Mine	204	120	35	18.42	31.02	Open-Cast Mine	Less than 500m

Project :

Jagannath OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
05-May-21	Near NBVL Station	276	159	42	24.21	29.67	CHP, CT Road	About 600m
05-May-21	Near MDTP	308	181	46	30.76	52.36	Railway Siding CHP	About 800m
06-May-21	Central Nursery (Reported Only)	231	134	40	30.49	45.75	Open-cast	Less than 500m
19-May-21	Near NBVL Station	221	117	40	25.71	37.78	CHP, CT Road	About 600m
19-May-21	Near MDTP	268	144	48	31.11	50.75	Railway Siding CHP	About 800m
20-May-21	Central Nursery (Reported Only)	196	123	32	21.74	38.79	Open-cast	Less than 500m

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Bhubaneswar

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MoEF Standards Notification dated 25th September, 2000

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Test Report

AMBIENT AIR QUALITY DATA

Area :

Jagannath

(Reference Station)

Project :

Jagannath OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
10-May-21	CWS Colony, Meeti	153	81	43	8.98	25.55	Mining Activity	About 1500 m
11-May-21	CWS Colony, Meeti	136	78	39	6.95	22.02	Mining Activity	About 1500 m
17-May-21	CWS Colony, Meeti	140	72	42	18.84	30.12	Mining Activity	About 1500 m
18-May-21	CWS Colony, Meeti	112	68	36	24.73	33.42	Mining Activity	About 1500 m
24-May-21	CWS Colony, Meeti	127	63	34	16.38	35.50	Mining Activity	About 1500 m
25-May-21	CWS Colony, Meeti	120	66	29	18.06	25.87	Mining Activity	About 1500 m
31-May-21	CWS Colony, Meeti	133	70	33	18.20	31.10	Mining Activity	About 1500 m


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DA/SW

*NAAQS,2009

100	60	80	80
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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Jagannath

Project	Jagannath OCP			
Monitoring Station	CWS Colony, Meeti			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
10-May-21	3.38	<0.1	<1.0	<1.0
11-May-21	3.21	<0.1	<1.0	<1.0
17/May/21	2.86	<0.1	<1.0	<1.0
18/May/21	2.71	<0.1	<1.0	<1.0
24/May/21	2.66	<0.1	<1.0	<1.0
25/May/21	2.58	<0.1	<1.0	<1.0
31/May/21	2.71	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)


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AMBIENT AIR QUALITY DATA

Area :

Jagannath

(Reference Station)

Project :

Ananta OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
14-May-21	Guthasahi Village	124	74	39	17.93	38.18	Active Mining, Ananta OCP	About 3000m
15-May-21	Guthasahi Village	111	71	38	23.40	46.42	Active Mining, Ananta OCP	About 3000m
21-May-21	Guthasahi Village	151	72	38	27.03	54.60	Active Mining, Ananta OCP	About 3000m
22-May-21	Guthasahi Village	168	76	42	20.49	48.69	Active Mining, Ananta OCP	About 3000m
28-May-21	Guthasahi Village	102	59	32	25.24	56.65	Active Mining, Ananta OCP	About 3000m
29-May-21	Guthasahi Village	105	53	26	27.55	47.35	Active Mining, Ananta OCP	About 3000m

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

Area: Jagannath

Project	Ananta OCP			
Monitoring Station	Guthasahi Village			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
14-May-21	2.56	<0.1	<1.0	<1.0
15-May-21	2.48	<0.1	<1.0	<1.0
21/May/21	4.12	<0.1	<1.0	<1.0
22/May/21	4.01	<0.1	<1.0	<1.0
28/May/21	4.32	<0.1	<1.0	<1.0
29/May/21	4.18	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Jagannath

PROJECT :

Ananta OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
03-May-21	Near NBVL Station (Reported only)	63.8	60.4
03-May-21	Central Nursery	60.4	58.4
03-May-21	Guthasahi Village	57.4	53.8
03-May-21	North East of the Mine	68.4	65.0
28-May-21	Near NBVL Station (Reported only)	67.9	62.4
28-May-21	Central Nursery	59.6	55.9
28-May-21	Guthasahi Village	56.7	53.4
28-May-21	North East of the Mine	60.1	56.8

PROJECT :

Jagannath OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
03-May-21	CWS Colony, MEETI	59.4	56.3
03-May-21	Central Nursery (Reported only)	60.4	58.4
03-May-21	Near MDTP	60.8	56.4
03-May-21	Near NBVL Station	63.8	60.4
28-May-21	Central Nursery (Reported only)	59.6	55.9
28-May-21	Near MDTP	59.8	55.1
28-May-21	Near NBVL Station	67.9	62.4
28-May-21	CWS Colony, MEETI	58.6	56.8

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00 PM Leq 75dB(A)

10.00 PM -6.00 AM Leq 70dB(A)

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TABLE-

EFFLUENT QUALITY DATA

Area :

Jagannath

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

Project :

Ananta OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
17-May-21	STP OUTLET	7.78		58		<2.0	
31-May-21	STP OUTLET	7.66		48		<2.0	

Project :

Jagannath OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
17-May-21	STP INLET	7.39		54		<2.0	
17-May-21	STP OUTLET	7.60		46		<2.0	
18-May-21	Near MDTP	7.62	<4.0	28	20		
29-May-21	Near MDTP	7.48	<4.0	20	12		
31-May-21	O & G Trap Inlet (4P)	7.61	<4.0	56	40		
31-May-21	O & G Trap Outlet (4P)	7.78	<4.0	30	24		
31-May-21	STP OUTLET	7.41		52		<2.0	

MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents

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Drinking Water Quality Data Jagannath Area

Project / OCP	Jagannath OCP		Indian Drinking Standards (IS-10500):2012	
	Balanda Colony Tap Water	Jagannath Colony Tap Water	Acceptable	Permissible
Date of Sampling	17/May/2021	17/May/2021	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	7.37	7.51	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	52	112	200	600
Total Hardness (Ca CO ₃)(mg/L)	248	328	200	600
Iron(mg/L)	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	22	88	250	1000
Total Dissolve Solid(mg/L)	418	520	500	2000
Calcium(mg/L)	70.54	73.75	75	200
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	108.42	68.61	200	400
Nitrate(mg/L)	<0.5	14.68	45	No relaxation
Fluoride(mg/L)	<0.30	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation

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Drinking Water Quality Data Jagannath Area

Project / OCP	Ananta OCP		Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Ananta Colony Tap Water	Dera Village Tube Well Water		
Date of Sampling	17/May/2021	18/May/2021	Acceptable	Permissible
Colour(Hazen)	2	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	3	3	1	5
pH	7.45	6.78	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	56	168	200	600
Total Hardness (Ca CO ₃)(mg/L)	204	220	200	600
Iron(mg/L)	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	26	48	250	1000
Total Dissolve Solid(mg/L)	304	346	500	2000
Calcium(mg/L)	43.29	70.54	75	200
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	92.56	10.73	200	400
Nitrate(mg/L)	<0.5	<0.5	45	No relaxation
Fluoride(mg/L)	<0.30	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation

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Test Report

GROUND WATER LEVEL MONITORING DATA

Area:

Jagannath

Project:

Ananta OCP

Date of Sampling	Name of the Station	Ground Water level (m.)
24-May-21	Piezometer no MTP 05; Outside Ananta OCP canteen	27.04

Project:

Jagannath OCP

Date of Sampling	Name of the Station	Ground Water level (m.)
12-May-21	Piezometer no MTP 04; Inside central nursery (beside golf hut), Jagannath area	4.5

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TABLE--

Well Water Level Monitoring Data

Area :

Jagannath

Project :

Ananta OCP

Date of sampling	Name of the Station	Depth from Water Level (in m. bgl)
29-May-21	Dera village well (Reported)	3.85

Project :

Jagannath OCP

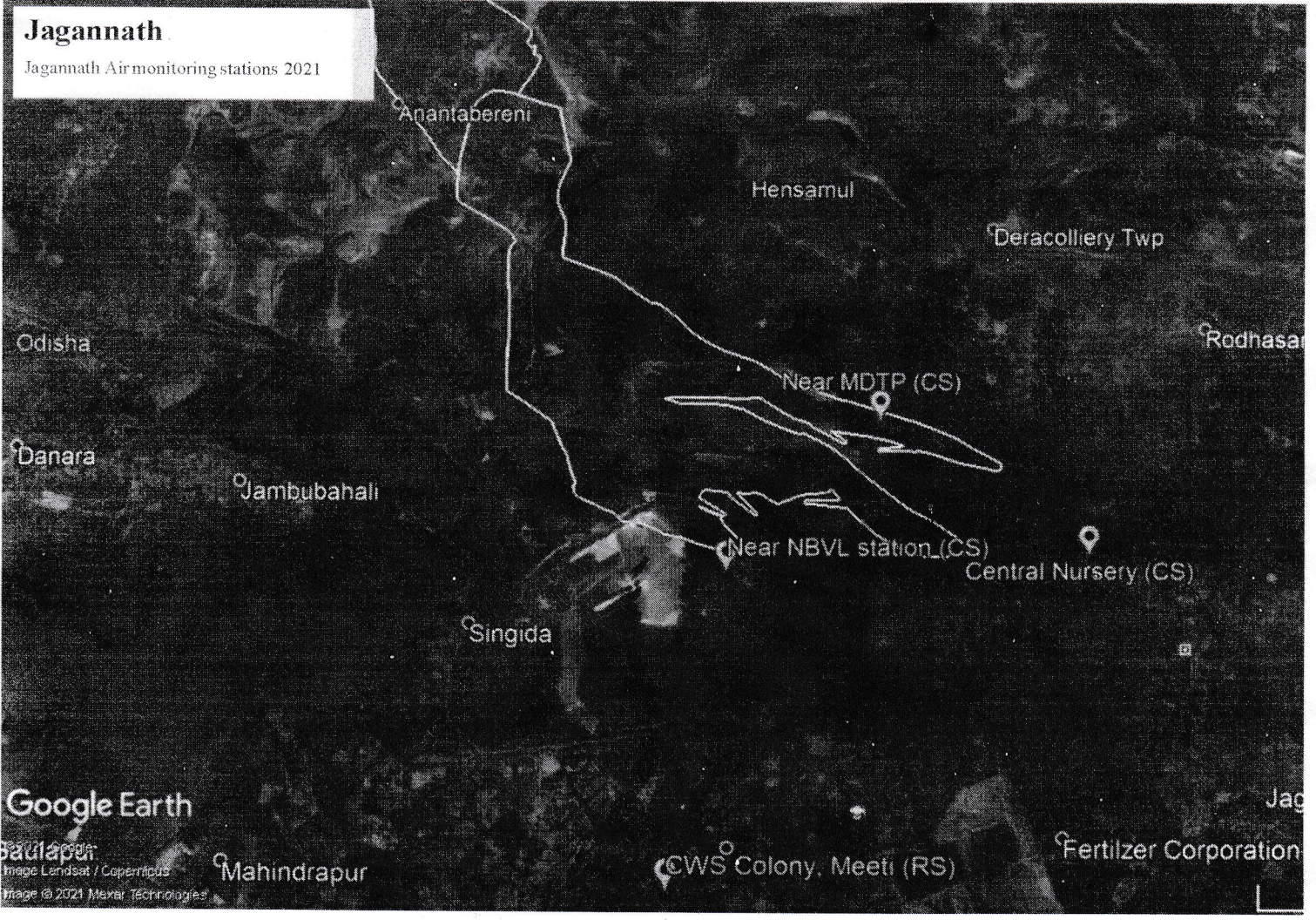
Date of sampling	Name of the Station	Depth from Water Level (in m. bgl)
29-May-21	Rakas village well	Well not found

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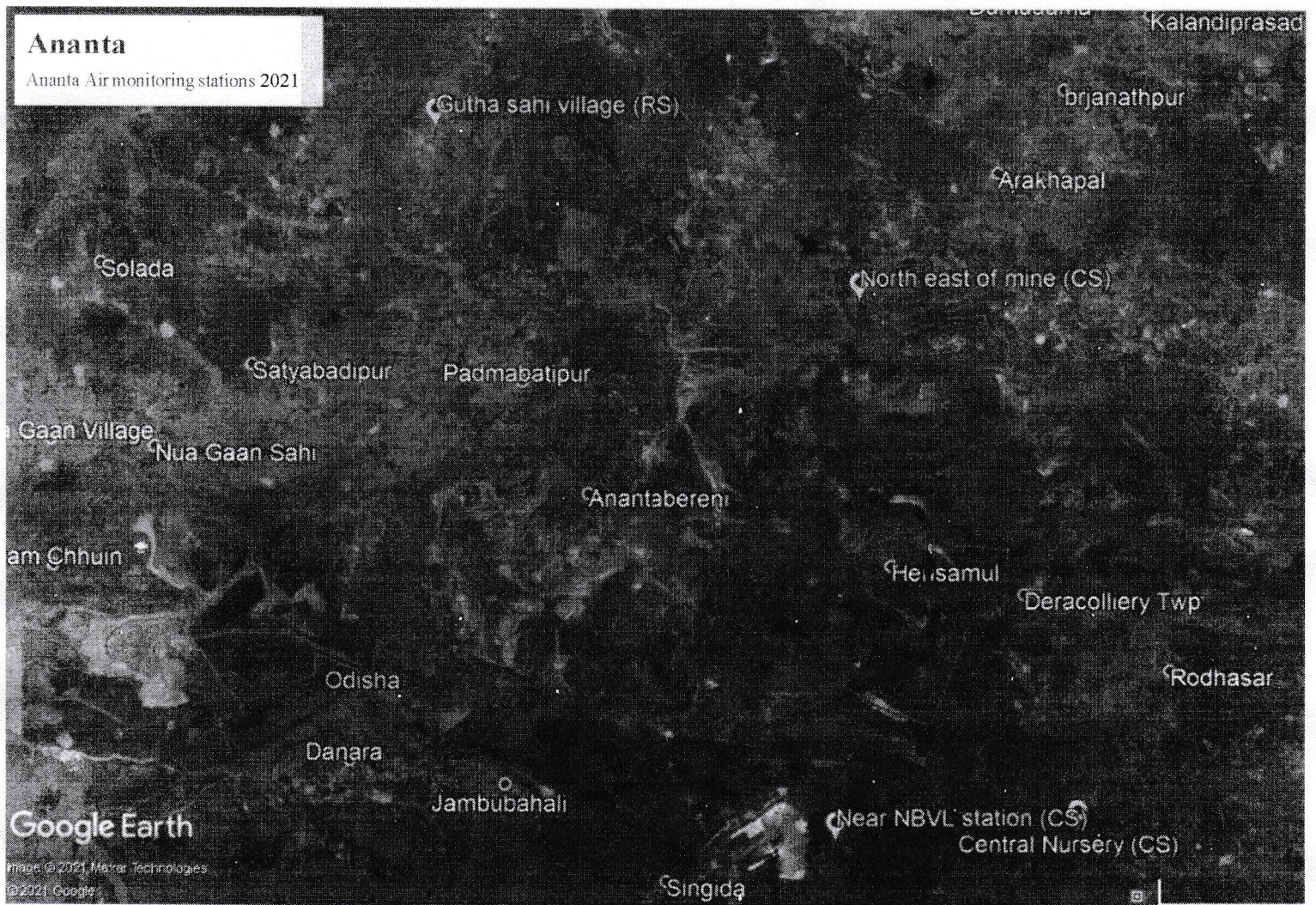
Jagannath

Jagannath Air monitoring stations 2021



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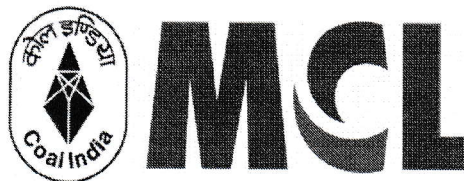
Ananta Air monitoring stations 2021



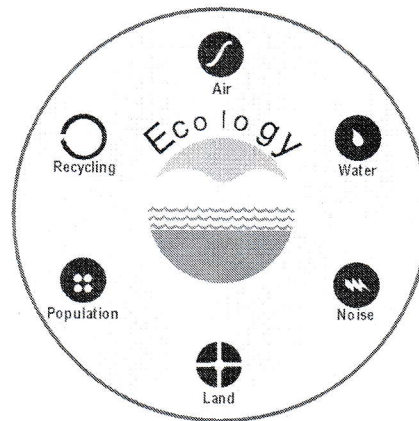
Job No.750001

**Environmental Monitoring Report
Of
Bharatpur Area
For
May 2021**

Talcher Coalfield



Mahanadi Coalfields Limited



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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 :

Bharatpur

(Compliance Station)

Project :

Bharatpur OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
11-May-21	Near MGR-RLS of Bharatpur	172	109	38	18.25	30.82	Railway Siding	About 500m
11-May-21	Near ETP/Workshop	138	68	32	18.37	31.09	Mining Activities & Coal Stock	Above 500m
11-May-21	Near Regional Store	301	170	44	35.63	55.45	Mining Activities	About 500m
11-May-21	North-West Point of the Mine	219	138	40	31.76	48.66	Domestic & Mining Activities	About 500m
25-May-21	Near MGR-RLS of Bharatpur	136	88	34	19.07	33.38	Railway Siding	About 500m
25-May-21	Near ETP/Workshop	114	59	25	14.70	28.53	Mining Activities & Coal Stock	Above 500m
25-May-21	Near Regional Store	259	132	36	16.76	32.07	Mining Activities	About 500m
25-May-21	North-West Point of the Mine	190	122	32	15.57	41.70	Domestic & Mining Activities	About 500m

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MoEF Standards Notification dated 25th September, 2000

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Test Report

AMBIENT AIR QUALITY DATA

Area :

Bharatpur

(Reference Station)

Project :

Bharatpur OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
07-May-21	Natedi Village (Reported Only)	159	77	44	35.86	59.17	Coal Transportation Road	About 2km
07-May-21	Near Joragdia Village	149	78	41	16.49	22.36	Transportation, Domestic Kooking	About 1000m
08-May-21	Near Joragdia Village	136	73	39	13.81	30.23	Transportation, Domestic Kooking	About 1000m
08-May-21	Natedi Village (Reported Only)	141	73	42	32.33	50.64	Coal Transportation Road	About 2km
14-May-21	Natedi Village (Reported Only)	150	67	37	29.04	52.08	Coal Transportation Road	About 2km
14-May-21	Near Joragdia Village	118	68	36	19.49	35.10	Transportation, Domestic Kooking	About 1000m
15-May-21	Near Joragdia Village	105	65	35	18.01	46.24	Transportation, Domestic Kooking	About 1000m
15-May-21	Natedi Village (Reported Only)	129	60	38	37.36	47.70	Coal Transportation Road	About 2km
21-May-21	Near Joragdia Village	103	58	30	23.99	33.60	Transportation, Domestic Kooking	About 1000m
21-May-21	Natedi Village (Reported Only)	126	71	40	20.46	37.54	Coal Transportation Road	About 2km
22-May-21	Natedi Village (Reported Only)	134	69	36	18.93	44.85	Coal Transportation Road	About 2km
22-May-21	Near Joragdia Village	131	69	33	21.75	39.06	Transportation, Domestic Kooking	About 1000m
28-May-21	Natedi Village (Reported Only)	101	56	30	25.09	38.63	Coal Transportation Road	About 2km
28-May-21	Near Joragdia Village	121	74	37	35.32	43.29	Transportation, Domestic Kooking	About 1000m
29-May-21	Near Joragdia Village	105	63	31	25.56	36.00	Transportation, Domestic Kooking	About 1000m
29-May-21	Natedi Village (Reported Only)	105	63	32	21.47	35.87	Coal Transportation Road	About 2km


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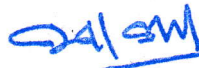
*NAAQS,2009		100	60	80	80
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 cmpdi <i>A Mini Ratna Company</i>	AMBIENT AIR QUALITY DATA (NAAQS PARAMETER) Area: Bharatpur			

Project	Bharatpur OCP			
Monitoring Station	Near Joragadia Village			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
7-May-21	4.01	<0.1	<1.0	<1.0
8-May-21	4.12	<0.1	<1.0	<1.0
14-May-21	3.98	<0.1	<1.0	<1.0
15-May-21	4.2	<0.1	<1.0	<1.0
22/May/21	3.52	<0.1	<1.0	<1.0
21/May/21	3.48	<0.1	<1.0	<1.0
28/May/21	3.61	<0.1	<1.0	<1.0
29/May/21	3.66	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

Project	Bharatpur OCP			
Monitoring Station	Natedi Village (Reported Only)			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
7-May-21	2.86	<0.1	<1.0	<1.0
8-May-21	2.77	<0.1	<1.0	<1.0
14-May-21	2.67	<0.1	<1.0	<1.0
15-May-21	2.7	<0.1	<1.0	<1.0
21/May/21	2.61	<0.1	<1.0	<1.0
22/May/21	2.58	<0.1	<1.0	<1.0
29/May/21	2.52	<0.1	<1.0	<1.0
28/May/21	2.48	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)


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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Bharatpur

PROJECT :

Bharatpur OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
03-May-21	Near MGR-RLS of Bharatpur	71.4	70.0
03-May-21	North West Point of Mine	69.4	66.8
03-May-21	Near Regional Store	59.4	56.3
03-May-21	Near Wokshop	65.4	60.8
28-May-21	Near MGR-RLS of Bharatpur	69.8	66.3
28-May-21	North West Point of Mine	62.8	57.1
28-May-21	Near Regional Store	56.8	55.2
28-May-21	Near Wokshop	62.4	59.8

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00 PM Leq 75dB(A)

10.00 PM -6.00 AM Leq 70dB(A)

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TABLE--

EFFLUENT QUALITY DATA

Area :

Bharatpur

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

Project :

Bharatpur OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
17-May-21	STP Outlet (pH, TSS, Faecal Coliform, BOD)	7.21		38		<2.0	
18-May-21	O & G Trap Inlet	6.48	<4.0	44	36		
18-May-21	Workshop ETP Clear Water Tank	7.19	<4.0	26	16		
29-May-21	Workshop ETP Clear Water Tank	7.32	<4.0	18	12		
31-May-21	STP Outlet (pH, TSS, Faecal Coliform, BOD)	7.28		28		<2.0	

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

24/5/21

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TABLE-

EFFLUENT QUALITY DATA

Area :

Bharatpur

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

Project :

Bharatpur OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
29-May-21	Mine Sump Water - Main Sump	7.39					
29-May-21	Mine Sump Water - Old Quarry Sump	7.29					
29-May-21	Mine Sump Water - South Quarry Sump	5.59					

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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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP			Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Tap water in Nehru Satabdi Nagar A Type Quarters	Tap water in Nehru Satabdi Nagar B Type Quarters		
Date of Sampling	14/May/2021	14/May/2021	14/May/2021	Acceptable	Permissible
Colour(Hazen)	1	2	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	3	2	1	5
pH	6.92	6.88	6.81	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	144	136	152	200	600
Total Hardness (Ca CO ₃)(mg/L)	152	148	144	200	600
Iron(mg/L)	<0.1	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	20	24	20	250	1000
Total Dissolve Solid(mg/L)	264	272	270	500	2000
Calcium(mg/L)	33.67	35.27	36.87	75	200
Copper(mg/L)	<0.03	<0.03	<0.03	0.05	1.5
Manganese (mg/L)	<0.04	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	13.49	12.62	10.83	200	400
Nitrate(mg/L)	<0.5	<0.5	<0.5	45	No relaxation
Fluoride(mg/L)	<0.30	<0.30	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP			Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Tap water in Nehru Satabdi Nagar Transit House	Joragadia Village Open Well		
Date of Sampling	14/May/2021	15/May/2021	17/May/2021	Acceptable	Permissible
Colour(Hazen)	1	2	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	3	2	1	5
pH	7.09	8.01	7.01	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	72	106	108	200	600
Total Hardness (Ca CO3)(mg/L)	68	160	156	200	600
Iron(mg/L)	<0.1	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	26	38	30	250	1000
Total Dissolve Solid(mg/L)	194	414	248	500	2000
Calcium(mg/L)	27.25	32.06	46.49	75	200
Copper(mg/L)	<0.03	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	14.35	56.62	24.86	200	400
Nitrate(mg/L)	18.43	12.26	<0.5	45	No relaxation
Fluoride(mg/L)	<0.30	<0.30	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP		Indian Drinking Standards (IS-10500):2012	
	Badasinga Village Open Well	Taleipasi Village Open Well	Acceptable	Permissible
Monitoring Station				
Date of Sampling	14/May/2021	15/May/2021		
Colour(Hazen)	2	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	4	3	1	5
pH	7.41	6.85	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	208	180	200	600
Total Hardness (Ca CO ₃)(mg/L)	218	250	200	600
Iron(mg/L)	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	104	48	250	1000
Total Dissolve Solid(mg/L)	858	354	500	2000
Calcium(mg/L)	46.49	80.16	75	200
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	122.41	8.52	200	400
Nitrate(mg/L)	35.46	<0.5	45	No relaxation
Fluoride(mg/L)	<0.30	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation


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Test Report

GROUND WATER LEVEL MONITORING DATA

Area:

Bharatpur

Project:

Bharatpur OCP

Date of Sampling	Name of the Station	Ground Water level (m.)
24-May-21	Piezometer no MTP 10; Inside the premises of Danara high school (reported)	Depth could not be measured as
25-May-21	Piezometer no MTP 09; Inside the premises of Joragarhia Panchayat high school	5.93

Project:

Chhendipada OCP

Date of Sampling	Name of the Station	Ground Water level (m.)
11-May-21	Piezometer no MTP 22 ; Inside the premises of the abundant office of Junior Engineer (MI Sector Chhendipada) (in the safety zone of Chhendipada OCP)	Not Accesible, Gate Locked
11-May-21	Piezometer no MTP 23; Inside the premises of Vetenary hospital, Chhendipada	9.43
11-May-21	Piezometer no MTP 21; Between Chhendipada weigh bridge and coal stock yard	8.9

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TABLE--

Well Water Level Monitoring Data

Area :

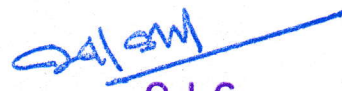
Bharatpur

Project :

Bharatpur OCP

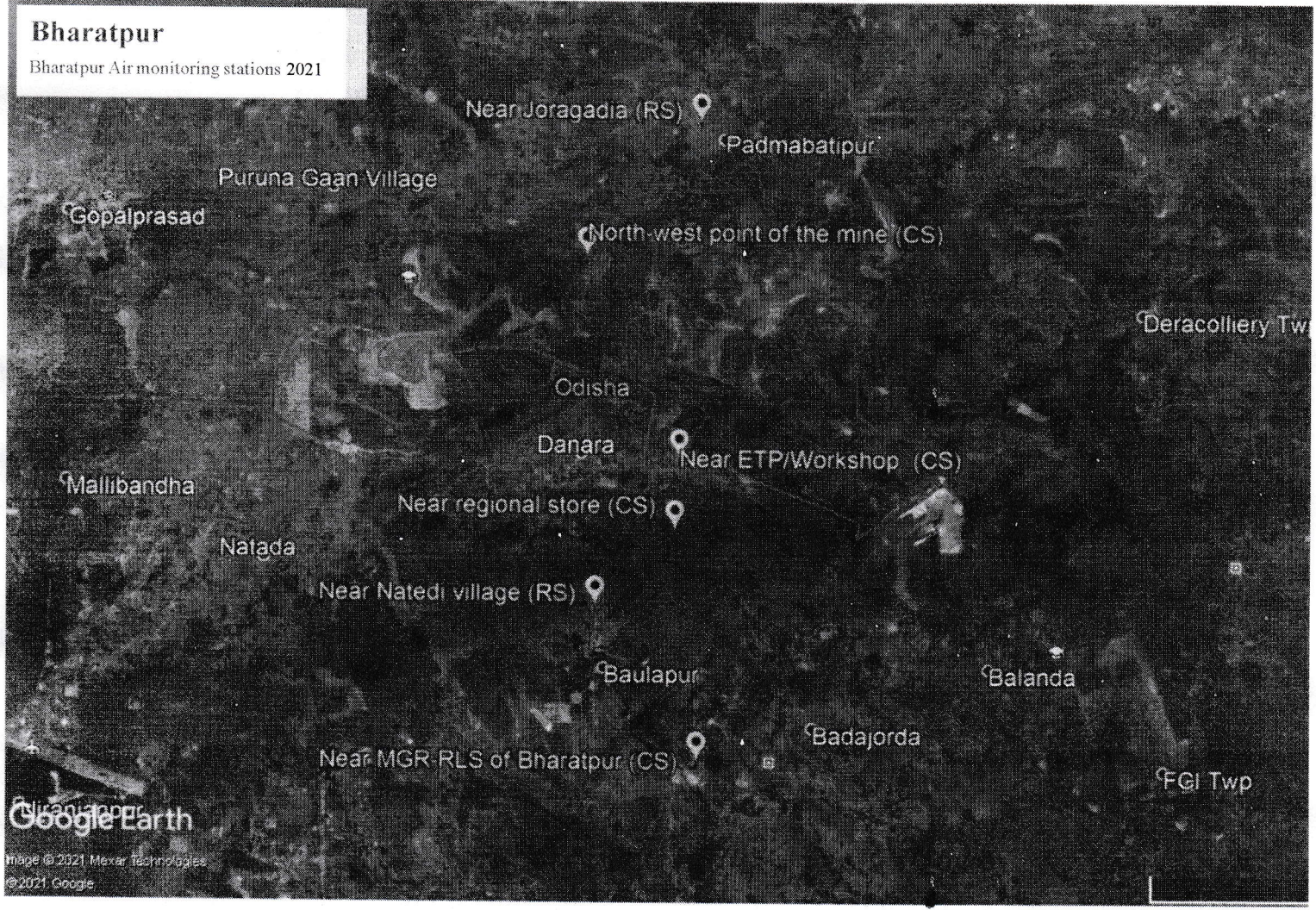
<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
31-May-21	Badasinghada village open well	4.03
31-May-21	Teleipasi village open well	3.51
31-May-21	Danara village well	4.90


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Bhubaneswar

Bharatpur

Bharatpur Air monitoring stations 2021



Near Joragadia (RS)

Padmabatipur

Puruna Gaan Village

Gopalprasad

North-west point of the mine (CS)

Deracolliery Tw

Odisha

Danara

Near ETP/Workshop (CS)

Mallibandha

Near regional store (CS)

Natada

Near Natedi village (RS)

Baulapur

Balanda

Badajorda

Near MGR RLS of Bharatpur (CS)

FCI Twp

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TABLE--

Well Water Level Monitoring Data

Area :

Talcher

Project :

Nandira Colliery

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
31-May-21	Natedi village well	8.05



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TABLE--

Well Water Level Monitoring Data

Area :

Talcher

Project :

Talcher Colliery

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
29-May-21	Dera village well (Reported)	3.85

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GROUND WATER LEVEL MONITORING DATA

Area:

Talcher

Project:

Nandira Colliery

Date of Sampling	Name of the Station	Ground Water level
24-May-21	Piezometer no MTP 11; Inside the premises of Hingula area office	8.15

Talcher

Talcher Air monitoring stations 2021

Rodhasar

Near canteen.TC

Pond

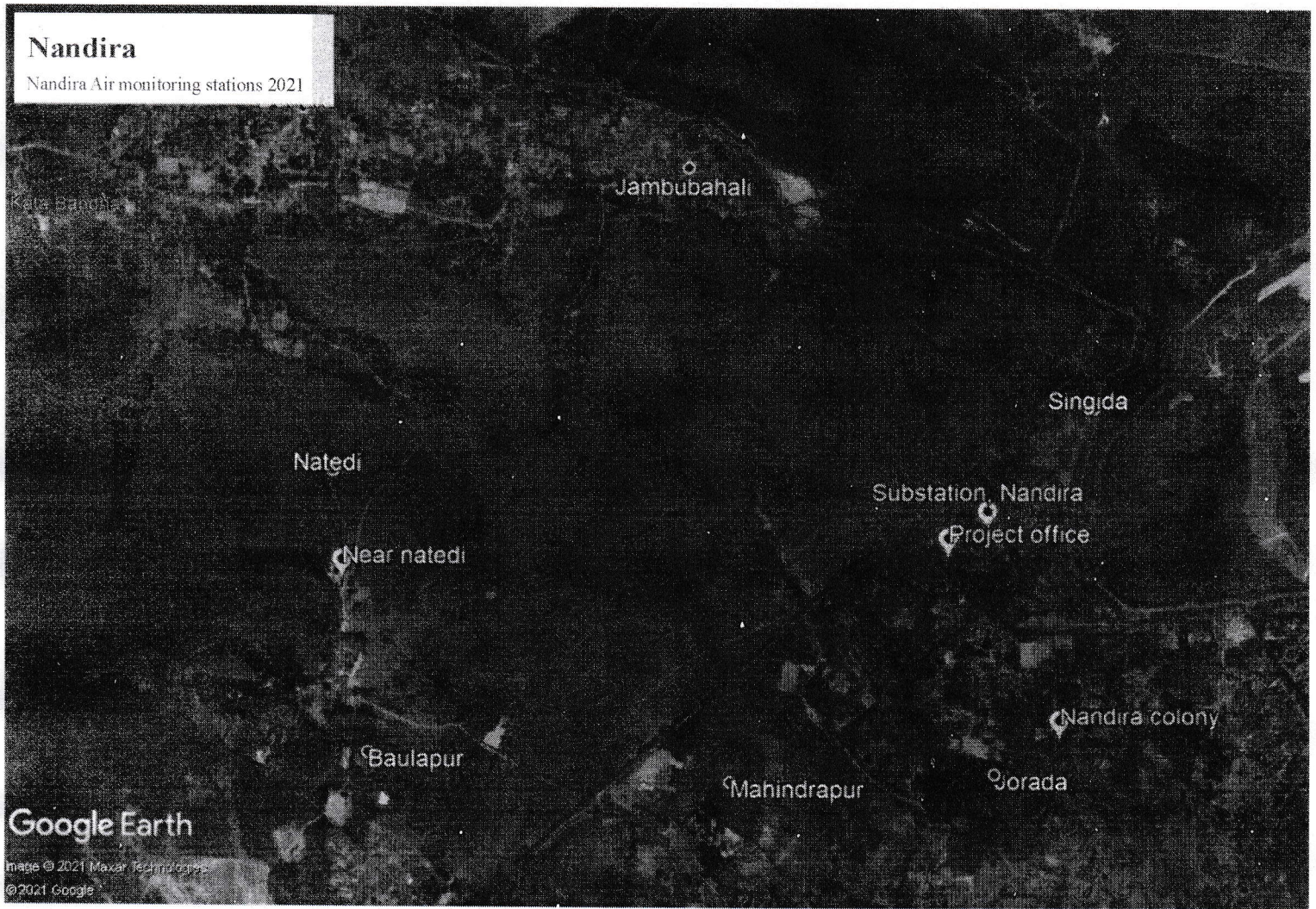
GM office.TA

Google Earth

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Nandira

Nandira Air monitoring stations 2021

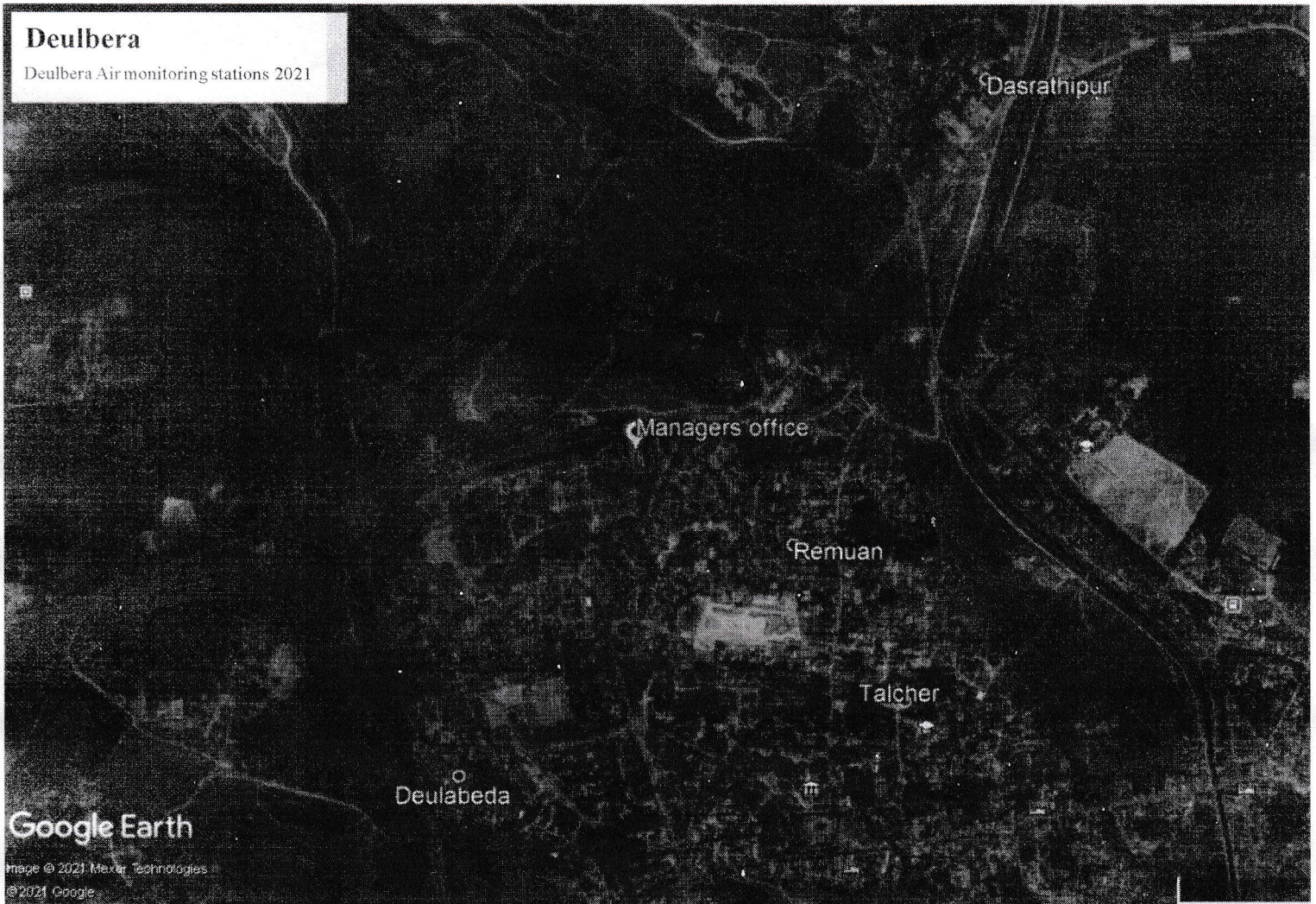


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Deulbera

Deulbera Air monitoring stations 2021



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Handidhua

Handidhua Air monitoring stations 2021

Colliery Colony

Handid

Near project office

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Mandapal sand mine

Mandapal sand mine Air monitoring stations 2021

Dhobapal

Near mandapal hospital

Gopinathpur

Santaramunda

Sendhagram

Near panchimeshwar

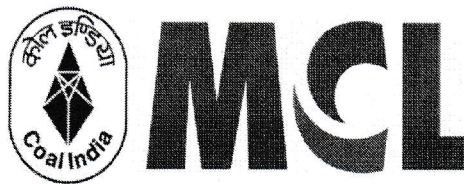
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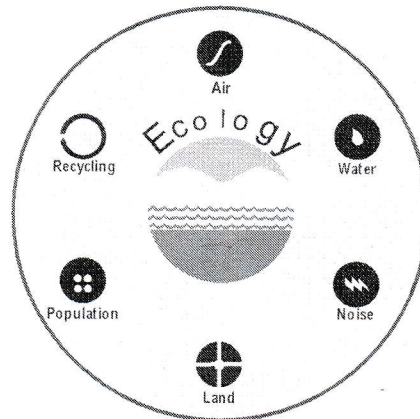
Job No.750001

**Environmental Monitoring Report
Of
Lingaraj Area
For
May 2021**

Talcher Coalfield



Mahanadi Coalfields Limited



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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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Area :

Lingaraj

(Compliance Station)

Project :

Lingaraj 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
06-May-21	Near OB Dump No. 10 (Near North Side of Mine)	296	173	53	27.80	87.26	Mining Activities, Coal Corridor	About 500m
06-May-21	Near Lingaraj to Dera Road	274	147	48	13.96	34.50	Coal Transportation Road	Less than 500m
06-May-21	IWSS	218	133	44	19.07	42.93	Coal Transportation Road, Railway Siding, Coal S.Y	About 500m
06-May-21	Near OB Dump No. 5 (South Side of the Mine)	279	148	42	22.21	50.56	Transportation Road, Mining Activities	About 500m
20-May-21	Near OB Dump No. 10 (Near North Side of Mine)	231	145	48	25.71	23.31	Mining Activities, Coal Corridor	About 500m
20-May-21	Near Lingaraj to Dera Road	241	128	40	20.42	38.04	Coal Transportation Road	Less than 500m
20-May-21	IWSS	184	105	38	16.07	31.80	Coal Transportation Road, Railway Siding, Coal S.Y	About 500m
20-May-21	Near OB Dump No. 5 (South Side of the Mine)	206	123	36	21.67	33.38	Transportation Road, Mining Activities	About 500m

MoEF Standards Notification dated 25th September, 2000

600

300

120

120

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Test Report

AMBIENT AIR QUALITY DATA

Area :

Lingaraj

(Reference Station)

Project :

Lingaraj OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
06-May-21	Near Kankili Community Centre	158	73	40	14.92	47.34	Mining Activity	Within 10km
07-May-21	Near Kankili Community Centre	140	76	41	14.90	39.13	Mining Activity	Within 10km
13-May-21	Near Kankili Community Centre	128	70	37	20.46	46.57	Mining Activity	Within 10km
14-May-21	Near Kankili Community Centre	131	63	33	23.40	32.62	Mining Activity	Within 10km
20-May-21	Near Kankili Community Centre	128	68	33	18.01	34.50	Mining Activity	Within 10km
21-May-21	Near Kankili Community Centre	116	64	30	23.52	36.60	Mining Activity	Within 10km
27-May-21	Near Kankili Community Centre	102	56	27	20.92	28.73	Mining Activity	Within 10km
28-May-21	Near Kankili Community Centre	105	57	26	16.38	21.50	Mining Activity	Within 10km

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Lingaraj

Project	Lingaraj OCP			
Monitoring Station	Near Kankili Community Centre			
Date of sampling	Ozone (O₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
6-May-21	3.74	<0.1	<1.0	<1.0
7-May-21	3.86	<0.1	<1.0	<1.0
13-May-21	3.68	<0.1	<1.0	<1.0
14-May-21	3.94	<0.1	<1.0	<1.0
20/May/21	4.01	<0.1	<1.0	<1.0
21/May/21	4.12	<0.1	<1.0	<1.0
27/May/21	3.97	<0.1	<1.0	<1.0
28/May/21	4.2	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Lingaraj

PROJECT :

Lingaraj OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
04-May-21	Near Lingaraj to Dera Road	58.1	53.4
04-May-21	IWSS	59.4	56.3
04-May-21	Near OB Dump No.5 (South Side of the Mine)	65.8	63.7
04-May-21	Near OB Dump No.10 (North Side of the Mine)	68.4	65.6
29-May-21	Near Lingaraj to Dera Road	58.4	55.6
29-May-21	IWSS	60.8	56.7
29-May-21	Near OB Dump No.5 (South Side of the Mine)	60.6	58.4
29-May-21	Near OB Dump No.10 (North Side of the Mine)	59.8	56.6

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00 PM Leq 75dB(A)

10.00 PM -6.00 AM Leq 70dB(A)

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Effluent Quality (all Parameter): Lingaraj Area

Project (OCP / UG)	Lingaraj			MoEF-Sch-VI Standards
	Inlet of Workshop ETP	Clear Water Reservoir of Workshop ETP	Mine Sump Water	
NAME OF THE STATION	18-May-21	18-May-21	31-May-21	
Date	18-May-21	18-May-21	31-May-21	
Colour(Hazen)	2	1	1	—
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.67	0.91	0.82	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.02	1.89	1.96	100
BOD [3 days at 27°C] (mg/L)	<2.0	<2.0	<2.0	30
Arsenic, mg/l	<0.005	<0.005	<0.005	0.2
Lead, mg/l	<0.005	<0.005	<0.005	0.1
Hexavalent Chromium(mg/L)	<0.05	<0.05	<0.05	0.1
Total Chromium(mg/L)	<0.02	<0.02	<0.02	2
Copper(mg/L)	<0.03	<0.03	<0.03	3
Zinc(mg/L)	<0.04	<0.04	<0.04	5
Cadmium, mg/l	<0.001	<0.001	<0.001	2
Nickel(mg/L)	<0.1	<0.1	<0.1	3
Fluoride(mg/L)	<0.30	<0.30	<0.30	2
Sulphide (mg/L)	<0.1	<0.1	<0.1	2
Manganese(mg/L)	<0.04	<0.04	<0.04	2
Iron(mg/L)	<0.1	<0.1	<0.1	3
Disolved Phosphate(mg/L)	<1.0	<1.0	<1.0	5

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Drinking Water Quality Data Lingraj Area

Project / OCP	Lingraj OCP		Indian Drinking Standards (IS-10500):2012	
	GM Office, Lingraj Area Tap Water	Balunga Khamar Village Well		
Monitoring Station				
Date of Sampling	18/May/2021	18/May/2021	Acceptable	Permissible
Colour(Hazen)	1	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	4	1	5
pH	7.39	7.31	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	104	216	200	600
Total Hardness (Ca CO ₃)(mg/L)	160	292	200	600
Iron(mg/L)	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	34	112	250	1000
Total Dissolve Solid(mg/L)	294	718	500	2000
Calcium(mg/L)	40.08	49.70	75	200
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	51.47	72.38	200	400
Nitrate(mg/L)	5.21	29.74	45	No relaxation
Fluoride(mg/L)	<0.30	<0.50	1	1.5
Arsenic(mg/L)	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation

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Drinking Water Quality Data Lingraj Area

Project / OCP	Lingraj OCP		Indian Drinking Standards (IS-10500):2012	
	Deulbera Village Well	Talabera Village Well		
Monitoring Station				
Date of Sampling	18/May/2021	18/May/2021	Acceptable	Permissible
Colour(Hazen)	1	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	3	1	5
pH	7.02	7.27	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	144	274	200	600
Total Hardness (Ca CO₃)(mg/L)	196	420	200	600
Iron(mg/L)	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	40	202	250	1000
Total Dissolve Solid(mg/L)	362	1008	500	2000
Calcium(mg/L)	44.88	92.98	75	200
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	63.62	129.82	200	400
Nitrate(mg/L)	<0.5	<0.5	45	No relaxation
Fluoride(mg/L)	<0.30	<0.3	1	1.5
Arsenic(mg/L)	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation

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GROUND WATER LEVEL MONITORING DATA

Area:

Lingaraj

Project:

Lingaraj OCP

Date of Sampling	Name of the Station	Ground Water level (m.)
13-May-21	Piezometer no MTP 06 ; Inside the premises of Kandhal high school	Depth could not be measured as casing of
13-May-21	Piezometer no MTP 01; Inside the premises of Mandapal hospital	12.58

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24/5/21

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TABLE--

Well Water Level Monitoring Data

Area :

Lingaraj

Project :

Lingaraj OCP

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
29-May-21	Balunga Khamar village well	1.95
29-May-21	Talabera village well	2.50
29-May-21	Deulbera village well	1.90

24/5/21

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Lingraj

Lingraj Air monitoring station 2021



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TABLE-

EFFLUENT QUALITY DATA

Area :

Lingaraj

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

Project :

Lingaraj OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
18-May-21	Clear Water Reservoir of Workshop ETP	6.94	<4.0	64	52		
18-May-21	Inlet of Workshop ETP	7.31	<4.0	44	64		
29-May-21	Clear Water Reservoir of Workshop ETP	7.06	<4.0	56	44		

MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents

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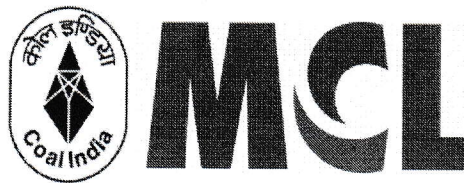
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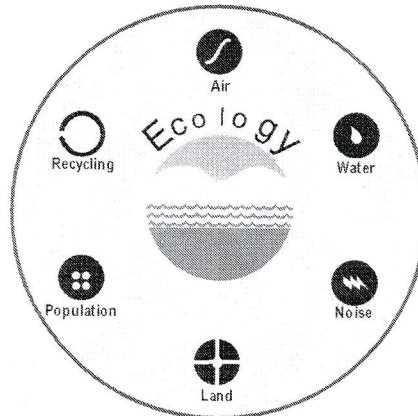
Job No.750001

**Environmental Monitoring Report
Of
Kaniha Area
For
May 2021**

Talcher 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 :

Kaniha

(Compliance Station)

Project :

Kaniha OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
04-May-21	North East Side of Project Office	243	150	45	39.45	47.33	Mining Activities	About 500m
04-May-21	West Of Mine Quarry	345	197	58	16.03	43.75	Mining Activities	About 500m
04-May-21	Near Jatra Padia Jarda	289	161	51	15.42	22.50	Mining Activities	About 500m
05-May-21	New Time Office-Near Z-patch	249	157	48	19.44	25.87	Mining Activities	About 500m
05-May-21	Project Office	228	139	45	24.58	39.26	Mining Activities	About 500m
05-May-21	Old Site Office	278	159	50	25.70	35.99	Mining Activities	About 500m
05-May-21	Near External OB Dump Jamania	335	192	49	24.00	56.79	Mining Activities	About 500m
18-May-21	North East Side of Project Office	176	98	37	36.69	57.40	Mining Activities	About 500m
18-May-21	West Of Mine Quarry	269	153	41	23.36	45.76	Mining Activities	About 500m
18-May-21	Near Jatra Padia Jarda	198	111	40	25.25	56.83	Mining Activities	About 500m
19-May-21	New Time Office-Near Z-patch	207	129	38	17.38	31.06	Mining Activities	About 500m
19-May-21	Project Office	202	117	34	24.94	41.62	Mining Activities	About 500m
19-May-21	Old Site Office	216	118	41	18.42	33.44	Mining Activities	About 500m
19-May-21	Near External OB Dump Jamania	247	139	38	15.94	32.66	Mining Activities	About 500m

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MoEF Standards Notification dated 25th September, 2000

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Air Monitoring Company

Test Report

AMBIENT AIR QUALITY DATA

Area :

Kaniha

(Reference Station)

Project :

Kaniha OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
04-May-21	South Of Proposed Quarry Limit of KOCP	149	79	44	13.22	34.40	Mining Activities	About 500m
05-May-21	South Of Proposed Quarry Limit of KOCP	137	73	46	23.59	25.70	Mining Activities	About 500m
12-May-21	South Of Proposed Quarry Limit of KOCP	117	68	41	28.15	65.31	Mining Activities	About 500m
13-May-21	South Of Proposed Quarry Limit of KOCP	113	64	39	46.69	56.02	Mining Activities	About 500m
18-May-21	South Of Proposed Quarry Limit of KOCP	117	71	37	29.89	47.78	Mining Activities	About 500m
19-May-21	South Of Proposed Quarry Limit of KOCP	127	75	39	30.01	38.92	Mining Activities	About 500m
26-May-21	South Of Proposed Quarry Limit of KOCP	119	68	31	35.48	47.21	Mining Activities	About 500m
27-May-21	South Of Proposed Quarry Limit of KOCP	110	64	28	27.20	45.36	Mining Activities	About 500m
31-May-21	South Of Proposed Quarry Limit of KOCP	102	57	30	26.96	34.68	Mining Activities	About 500m

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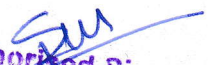
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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Kaniha

Project	Kaniha OCP			
Monitoring Station	South of Proposed Quarry Limit of KOCP			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
4-May-21	2.48	<0.1	<1.0	<1.0
5-May-21	2.36	<0.1	<1.0	<1.0
12-May-21	2.57	<0.1	<1.0	<1.0
13-May-21	2.44	<0.1	<1.0	<1.0
18/May/21	2.18	<0.1	<1.0	<1.0
19/May/21	2.36	<0.1	<1.0	<1.0
26/May/21	2.24	<0.1	<1.0	<1.0
27/May/21	2.39	<0.1	<1.0	<1.0
31/May/21	2.14	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)


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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Kaniha

PROJECT :

Kaniha OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
03-May-21	Telisingha Village	69.8	65.8
03-May-21	Near Jarda Village	70.4	66.9
03-May-21	Site Office	58.4	55.4
03-May-21	Patharmunda Village	68.4	66.3
31-May-21	Telisingha Village	66.8	62.7
31-May-21	Near Jarda Village	65.8	64.6
31-May-21	Site Office	59.4	56.1
31-May-21	Patharmunda Village	65.6	60.8

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00 PM Leq 75dB(A)

10.00 PM -6.00 AM Leq 70dB(A)

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TABLE--

EFFLUENT QUALITY DATA

Area :

Kaniha

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

Project :

Kaniha OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
06-May-21	Clear Water Pond	7.08	<4.0	68	64		
06-May-21	Kansamunda Sump	7.68	<4.0	56	40		
06-May-21	Pre Sedimentation Pond	5.76	<4.0	52	36		
06-May-21	Z-Patch Sump	6.56	<4.0	36	28		
15-May-21	Clear Water Pond	7.14	<4.0	60	56		
15-May-21	Kansamunda Sump	7.60	<4.0	48	36		
15-May-21	Pre Sedimentation Pond	5.84	<4.0	48	32		
15-May-21	Z-Patch Sump	6.68	<4.0	30	24		
22-May-21	Clear Water Pond	7.22	<4.0	62	68		
22-May-21	Kansamunda Sump	7.51	<4.0	48	32		
22-May-21	Pre Sedimentation Pond	5.72	<4.0	44	28		
22-May-21	Z-Patch Sump	6.65	<4.0	28	20		
29-May-21	Clear Water Pond	7.28	<4.0	56	64		
29-May-21	Kansamunda Sump	7.59	<4.0	42	28		
29-May-21	Pre Sedimentation Pond	5.62	<4.0	38	24		
29-May-21	Z-Patch Sump	6.69	<4.0	32	24		

MoEF Standard Notification dated 25th September, 2000 and MoEF Schedule VI, General standard for discharge of Environmental Pollutants Part A: Effluents

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Drinking Water Quality Data Kaniha Area

Project / OCP	Kaniha		Indian Drinking Standards (IS-10500):2012	
	Tube Well at Coal Analysis Lab	Jarda Village Well Water		
Monitoring Station			Acceptable	Permissible
Date of Sampling	10/May/2021	10/May/2021		
Colour(Hazen)	1	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	2	1	5
pH	6.82	6.52	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	32	36	200	600
Total Hardness (Ca CO₃)(mg/L)	80	76	200	600
Iron(mg/L)	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	36	70	250	1000
Total Dissolve Solid(mg/L)	152	190	500	2000
Calcium(mg/L)	24.05	36.87	75	200
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	11.59	13.74	200	400
Nitrate(mg/L)	37.62	41.15	45	No relaxation
Fluoride(mg/L)	<0.3	<0.3	1	1.5
Arsenic(mg/L)	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation

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Test Report

GROUND WATER LEVEL MONITORING DATA

Area:

Kaniha

Project:

Kaniha OCP

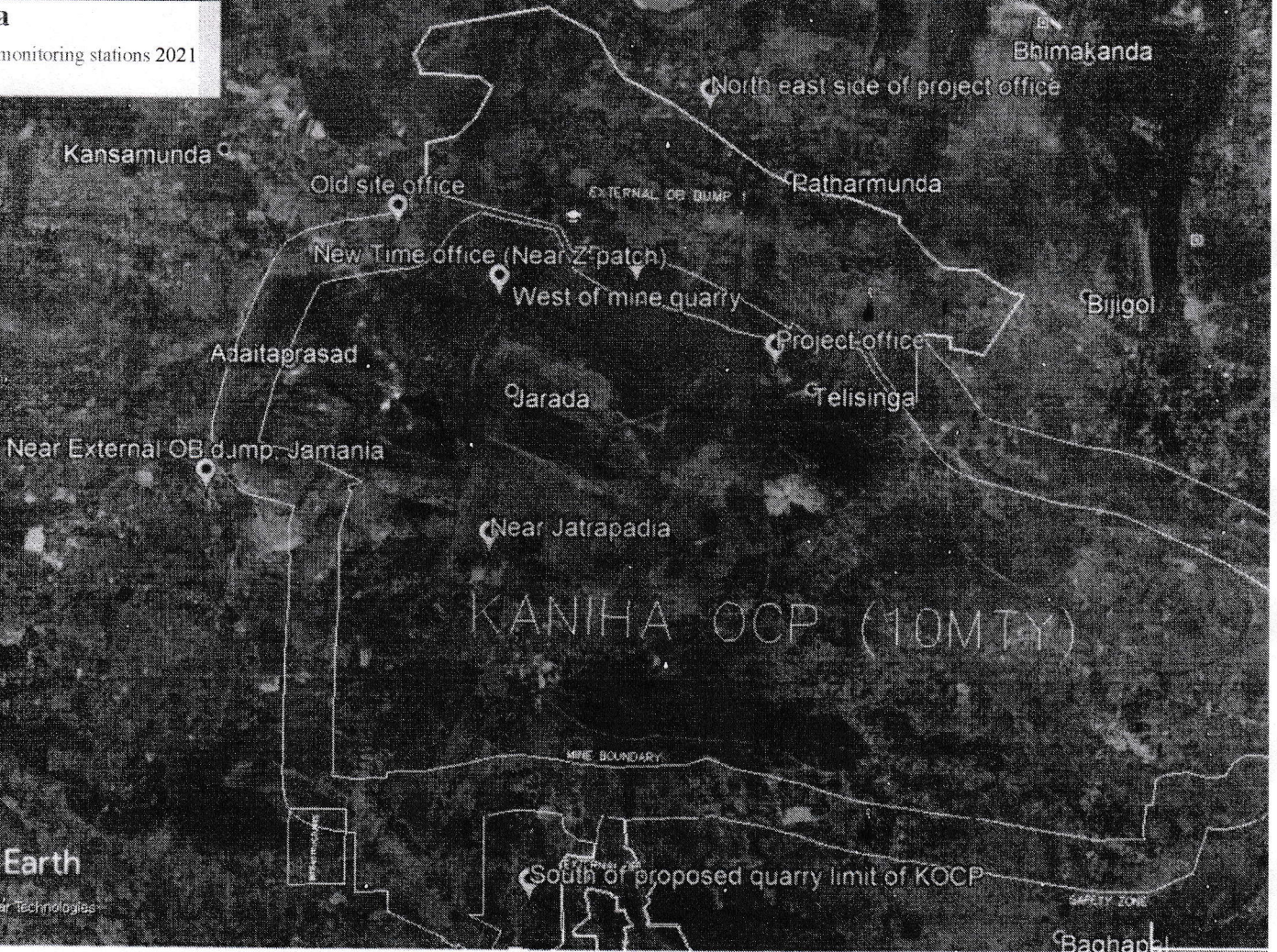
Date of Sampling	Name of the Station	Ground Water level (m.)
10-May-21	Piezometer no MTP 18; Inside the premisses of Chellia Prathamiki school	8.93
10-May-21	Piezometer no MTP 19; Outside Golaghar sahi primary school, Bijigol (school constructed by NTPC)	5.15
10-May-21	Piezometer no MTP 20; Inside the premises of Kansamunda village old site office, MCL	37.67

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Kaniha

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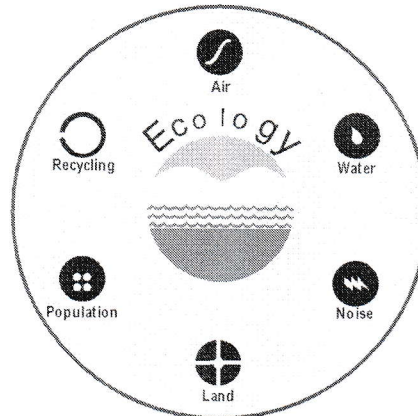
**Environmental Monitoring Report
Of
Hingula Area
For
May 2021**

Talcher Coalfield



MCL

Mahanadi Coalfields Limited



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A Mini Ratna Company

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 :

Hingula

(Compliance Station)

Project :

Balram 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-May-21	South West of the Mine	328	181	50	23.32	37.97	Mining Operations And Coal Corridor	About 350m
03-May-21	Pump House Near Outsourcing Working Pach & Coal TR	293	202	53	18.68	27.25	Mining Operation And Coal Transportation Road	About 200m
17-May-21	South West of the Mine	263	151	46	19.68	35.76	Mining Operations And Coal Corridor	About 350m
17-May-21	Pump House Near Outsourcing Working Pach & Coal TR	216	129	33	16.79	34.41	Mining Operation And Coal Transportation Road	About 200m

Project :

Hingula 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-May-21	Time Office	257	145	43	16.17	32.44	Mining Operations and Haul Road	About 200m
03-May-21	South-West Side of Mine	296	169	51	19.10	20.58	Mining Operations	About 300m
17-May-21	Time Office	193	108	40	20.04	30.07	Mining Operations and Haul Road	About 200m
20-May-21	South-West Side of Mine	225	119	42	19.10	35.48	Mining Operations	About 300m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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AMBIENT AIR QUALITY DATA

Area :

Hingula

(Reference Station)

Project :

Hingula 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
06-May-21	North of the Mine,Purnapi,Kumunda Village	142	78	43	17.72	31.78	Mining Operations	About 3km
07-May-21	North of the Mine,Purnapi,Kumunda Village	126	75	40	26.04	31.00	Mining Operations	About 3km
07-May-21	North East of the Mine, Solda Village	145	62	39	30.01	61.73	Coal Transportation Road	About 2km
08-May-21	North East of the Mine, Solda Village	153	70	43	39.5	44.26	Coal Transportation Road	About 2km
13-May-21	North of the Mine,Purnapi,Kumunda Village	107	68	38	26.33	47.15	Mining Operations	About 3km
14-May-21	North East of the Mine, Solda Village	150	79	41	31.75	52.94	Coal Transportation Road	About 2km
14-May-21	North of the Mine,Purnapi,Kumunda Village	116	73	39	28.81	40.98	Mining Operations	About 3km
15-May-21	North East of the Mine, Solda Village	139	76	37	33.73	70.42	Coal Transportation Road	About 2km
20-May-21	North of the Mine,Purnapi,Kumunda Village	127	73	36	23.85	41.75	Mining Operations	About 3km
21-May-21	North of the Mine,Purnapi,Kumunda Village	114	69	34	29.57	54.30	Mining Operations	About 3km
21-May-21	North East of the Mine, Solda Village	121	62	38	20.83	46.50	Coal Transportation Road	About 2km
22-May-21	North East of the Mine, Solda Village	136	66	34	28.61	60.54	Coal Transportation Road	About 2km
27-May-21	North of the Mine,Purnapi,Kumunda Village	98	59	31	28.07	48.23	Mining Operations	About 3km
28-May-21	North of the Mine,Purnapi,Kumunda Village	106	57	30	29.11	40.04	Mining Operations	About 3km
28-May-21	North East of the Mine, Solda Village	121	60	32	29.41	42.04	Coal Transportation Road	About 2km
29-May-21	North East of the Mine, Solda Village	105	53	28	24.12	47.13	Coal Transportation Road	About 2km

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Test Report

AMBIENT AIR QUALITY DATA

Area :

Hingula

(Reference Station)

Project :

Balram OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
07-May-21	East of the Mine,Natedi Village	159	77	44	35.86	59.17	Coal Transportation Road	About 2km
07-May-21	North West of the Mine, Solda Village (Reported Only)	145	62	39	30.01	61.73	Coal Transportation Road	About 2km
08-May-21	North West of the Mine, Solda Village (Reported Only)	153	70	43	39.5	44.26	Coal Transportation Road	About 2km
08-May-21	East of the Mine,Natedi Village	141	73	42	32.33	50.64	Coal Transportation Road	About 2km
14-May-21	East of the Mine,Natedi Village	150	67	37	29.04	52.08	Coal Transportation Road	About 2km
14-May-21	North West of the Mine, Solda Village (Reported Only)	150	79	41	31.75	52.94	Coal Transportation Road	About 2km
15-May-21	North West of the Mine, Solda Village (Reported Only)	139	76	37	33.73	70.42	Coal Transportation Road	About 2km
15-May-21	East of the Mine,Natedi Village	129	60	38	37.36	47.70	Coal Transportation Road	About 2km
21-May-21	East of the Mine,Natedi Village	126	71	40	20.46	37.54	Coal Transportation Road	About 2km
21-May-21	North West of the Mine, Solda Village (Reported Only)	121	62	38	20.83	46.50	Coal Transportation Road	About 2km
22-May-21	North West of the Mine, Solda Village (Reported Only)	136	66	34	28.61	60.54	Coal Transportation Road	About 2km
22-May-21	East of the Mine,Natedi Village	134	69	36	18.93	44.85	Coal Transportation Road	About 2km
28-May-21	East of the Mine,Natedi Village	101	56	30	25.09	38.63	Coal Transportation Road	About 2km
28-May-21	North West of the Mine, Solda Village (Reported Only)	121	60	32	29.41	42.04	Coal Transportation Road	About 2km
29-May-21	North West of the Mine, Solda Village (Reported Only)	105	53	28	24.12	47.13	Coal Transportation Road	About 2km
29-May-21	East of the Mine,Natedi Village	105	63	32	21.47	35.87	Coal Transportation Road	About 2km

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)


Area:Hingula

Project	Hingula OCP			
Monitoring Station	North of the Mine, Purnapi, Kumunda Village			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
6-May-21	4.01	<0.1	<1.0	<1.0
7-May-21	3.98	<0.1	<1.0	<1.0
13-May-21	4.11	<0.1	<1.0	<1.0
14-May-21	3.84	<0.1	<1.0	<1.0
20/May/21	3.52	<0.1	<1.0	<1.0
21/May/21	3.48	<0.1	<1.0	<1.0
27/May/21	3.39	<0.1	<1.0	<1.0
28/May/21	3.58	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

Project	Hingula OCP			
Monitoring Station	North East of the Mine, Solada Village			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
7-May-21	3.54	<0.1	<1.0	<1.0
8-May-21	3.61	<0.1	<1.0	<1.0
14-May-21	3.68	<0.1	<1.0	<1.0
15-May-21	3.7	<0.1	<1.0	<1.0
21/May/21	4.01	<0.1	<1.0	<1.0
22/May/21	4.11	<0.1	<1.0	<1.0
28/May/21	4.09	<0.1	<1.0	<1.0
29/May/21	4.18	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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 cmpdi <i>A Mini Ratna Company</i>	AMBIENT AIR QUALITY DATA (NAAQS PARAMETER) Area:Hingula
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Project	Balram OCP			
Monitoring Station	East of the Mine, Natedi Village			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
7-May-21	2.86	<0.1	<1.0	<1.0
8-May-21	2.77	<0.1	<1.0	<1.0
14-May-21	2.67	<0.1	<1.0	<1.0
15-May-21	2.7	<0.1	<1.0	<1.0
21/May/21	2.61	<0.1	<1.0	<1.0
22/May/21	2.58	<0.1	<1.0	<1.0
29/May/21	2.52	<0.1	<1.0	<1.0
28/May/21	2.48	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

Project	Balram OCP			
Monitoring Station	North West of the Mine, Solada Village (Reported Only)			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
7-May-21	3.54	<0.1	<1.0	<1.0
8-May-21	3.61	<0.1	<1.0	<1.0
14-May-21	3.68	<0.1	<1.0	<1.0
15-May-21	3.7	<0.1	<1.0	<1.0
21/May/21	4.01	<0.1	<1.0	<1.0
22/May/21	4.11	<0.1	<1.0	<1.0
28/May/21	4.09	<0.1	<1.0	<1.0
29/May/21	4.18	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Hingula

PROJECT :

Balaram OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
03-May-21	Near Project Office Balram OCP	72.4	69.8
03-May-21	mp House Near Outsourcing Working Patch&Coal T	68.4	66.7
03-May-21	Backfilled Area Near Dozer Shed	70.8	66.7
03-May-21	South West of the Mine	69.8	65.6
31-May-21	South West of the Mine	67.4	63.1
31-May-21	Backfilled Area Near Dozer Shed	70.4	65.3
31-May-21	mp House Near Outsourcing Working Patch&Coal T	60.4	56.7
31-May-21	Near Project Office Balram OCP	68.4	66.8

PROJECT :

Hingula OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
03-May-21	Time Office	67.4	65.0
03-May-21	North of the Mine, Purnapi Kumunda Village	58.4	55.6
03-May-21	South West Side of the Mine	70.8	68.4
03-May-21	North East of the Mine, Solda Village	59.8	56.3
31-May-21	South West Side of the Mine	69.2	67.3
31-May-21	Time Office	65.6	60.3
31-May-21	North of the Mine, Purnapi Kumunda Village	59.4	55.6
31-May-21	North East of the Mine, Solda Village	57.1	54.2

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00 PM Leq 75dB(A)

10.00 PM -6.00 AM Leq 70dB(A)

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TABLE--

EFFLUENT QUALITY DATA

Area :

Hingula

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

Project :

Balram OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
17-May-21	STP Outlet of Balram Colony	7.54		52		<2.0	
18-May-21	Inlet of O & G Trap	7.32	<4.0	48	36		
18-May-21	Mine Sump Water	7.06	<4.0	44	32		
18-May-21	Outlet of O & G Trap	8.39	<4.0	40	28		
31-May-21	STP Outlet of Balram Colony	7.41		44		<2.0	

Project :

Hingula OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
18-May-21	Inlet of O & G Trap	7.14	<4.0	38	28		
18-May-21	Mine Sump Water	7.16	<4.0	42	28		
18-May-21	Outlet of O & G Trap	8.30	<4.0	30	24		

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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Drinking Water Quality Data Hingula Area

Project / OCP	Hingula OCP			Indian Drinking Standards (IS-10500):2012	
	Time Office Water	Gopalprasad Village Bore Well Water	Kumunda Village Bore Well Water	Acceptable	Permissible
Date of Sampling	14/May/2021	14/May/2021	14/May/2021	Acceptable	Permissible
Colour(Hazen)	1	1	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	2	1	5
pH	7.29	7.15	7.08	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	56	272	220	200	600
Total Hardness (Ca CO ₃)(mg/L)	320	216	148	200	600
Iron(mg/L)	<0.1	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	36	38	68	250	1000
Total Dissolve Solid(mg/L)	462	438	448	500	2000
Calcium(mg/L)	83.37	54.51	28.86	75	200
Copper(mg/L)	<0.03	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	159.62	14.85	11.46	200	400
Nitrate(mg/L)	<0.5	<0.5	<0.5	45	No relaxation
Fluoride(mg/L)	<0.30	<0.30	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation


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Drinking Water Quality Data Hingula Area

Project / OCP	Balaram OCP			Indian Drinking Standards (IS-10500):2012	
	Danara Village Borewell Water	Balaram Colony Tap Water	Nakeipasi Village Bore Well Water		
Date of Sampling	17/May/2021	18/May/2021	15/May/2021	Acceptable	Permissible
Colour(Hazen)	1	1	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	2	1	5
pH	7.40	7.59	6.87	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	276	72	28	200	600
Total Hardness (Ca CO ₃)(mg/L)	176	380	68	200	600
Iron(mg/L)	<0.1	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	48	34	30	250	1000
Total Dissolve Solid(mg/L)	472	588	154	500	2000
Calcium(mg/L)	40.08	86.57	20.84	75	200
Copper(mg/L)	<0.03	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	13.41	164.58	14.25	200	400
Nitrate(mg/L)	<0.5	3.47	31.68	45	No relaxation
Fluoride(mg/L)	<0.30	<0.30	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation

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GROUND WATER LEVEL MONITORING DATA

Area:

Hingula

Project:

Balram OCP

Date of Sampling	Name of the Station	Ground Water level (m.)
24-May-21	Piezometer no MTP 10; Inside the premises of Danara high school	Depth could not be measured as
24-May-21	Piezometer no MTP 13 ; Inside the premises of Ambapal Natarha high school	13.03
13-May-21	Piezometer no MTP 17; Inside the premises of market building (through gramin rojgar yojna), Kandhaberani village	Could not be accessed because of
24-May-21	Piezometer no MTP 12; In Betianalli village, opposite to Sindhu deori's house	7.54

Project:

Hingula OCP

Date of Sampling	Name of the Station	Ground Water level (m.)
11-May-21	Piezometer no MTP 16; Backside of Hingula Mandir VIP guest house	7.7
24-May-21	Piezometer no MTP 15; Beside Sujan Pradhan's house in Chottaberani village, near nalla.	7.05
24-May-21	Piezometer no MTP 14; Inside the premises of Pirakhamam village primary school	9.55

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TABLE--

Well Water Level Monitoring Data

Area :

Hingula

Project :

Hingula OCP

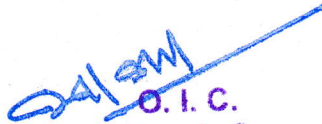
<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
29-May-21	Gopalprasad village well water	1.35

Project :

Hingula OCP

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
31-May-21	Kusumpal village well	3.05

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TABLE--

Well Water Level Monitoring Data

Area :

Hingula

Project :

Balaram OCP

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
31-May-21	Danara village well(Reported)	4.90
31-May-21	Nakeiposi village well	4.90

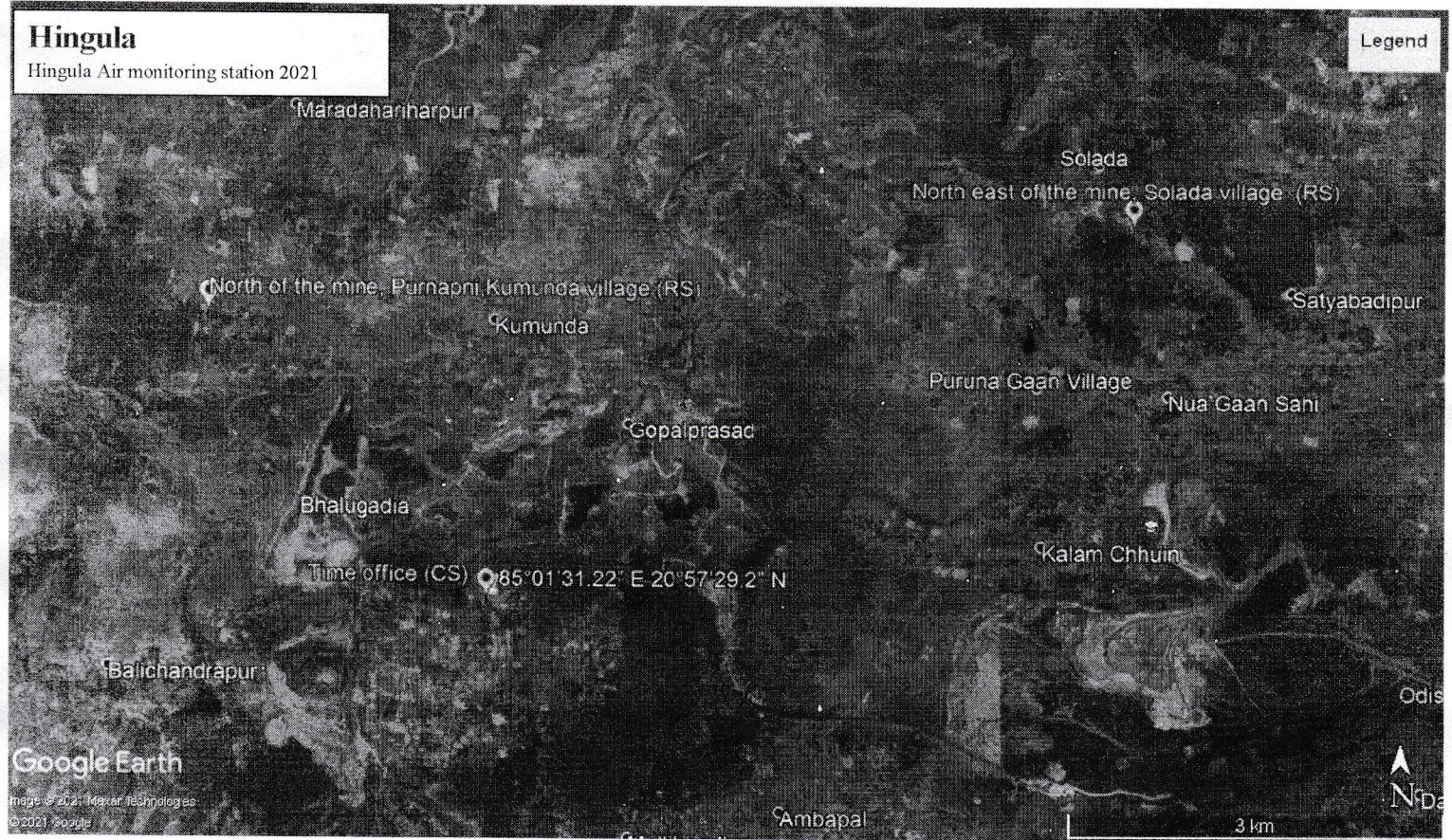
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Hingula

Hingula Air monitoring station 2021

Legend



Google Earth

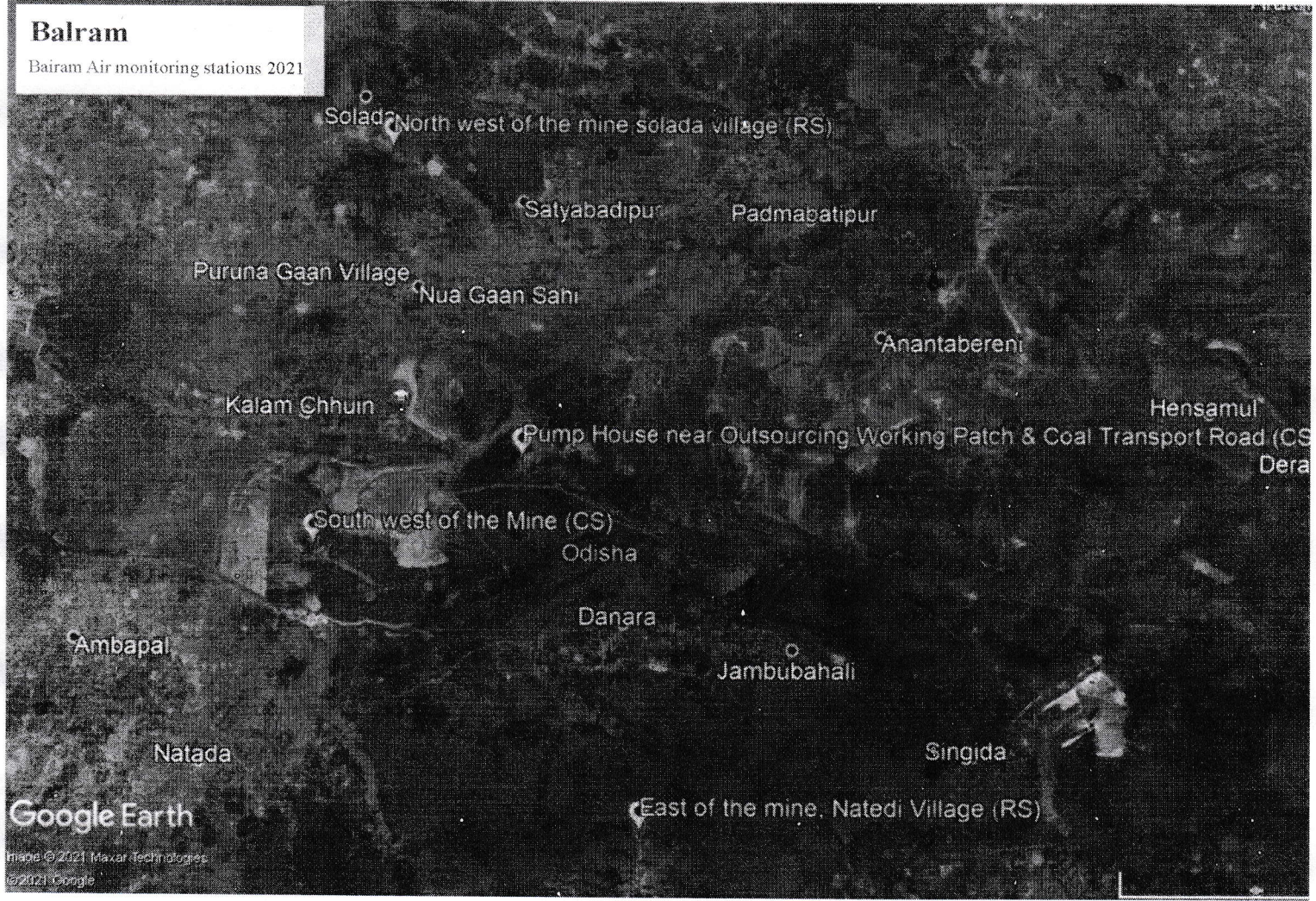
Image © 2021, Maxar Technologies
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Bairam Air monitoring stations 2021



Job No.750001

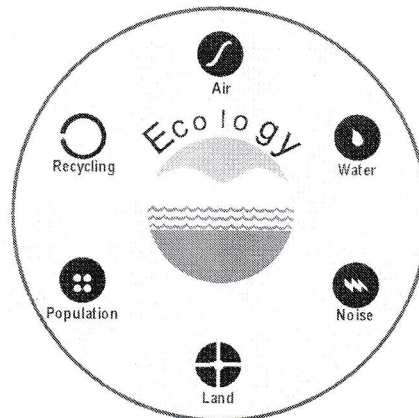
**Environmental Monitoring Report
Of
Talcher Area
For
May 2021**

Talcher Coalfield



MCL

Mahanadi Coalfields Limited



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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 :

Talcher

(Compliance Station)

Project :

Talcher Colliery

(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
10-May-21	Near Canteen Talcher Colliery	218	139	50	34.74	36.05	Local Transportation	About 500m
10-May-21	Officer Club, Talcher Area	149	94	38	18.33	27.31	Mining Activities, Ananta, Lingaraj &Bharatpur OCP	About 1000m
24-May-21	Near Canteen Talcher Colliery	180	102	36	20.18	33.88	Local Transportation	About 500m
24-May-21	Officer Club, Talcher Area	129	80	28	24.25	25.78	Mining Activities, Ananta, Lingaraj &Bharatpur OCP	About 1000m

MoEF Standards Notification dated 25th September, 2000

600	300		120	120
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AMBIENT AIR QUALITY DATA

Area :

Talcher

(Compliance Station)

Project :

Nandira Colliery

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
03-May-21	Project Office	318	193	50	14.41	33.43	Local Transportation, CHP	About 500m
03-May-21	Sub Station	338	189	46	22.72	43.39	Transportation & Railway Sidings of BOCP	About 500m
17-May-21	Project Office	226	133	41	19.70	36.65	Local Transportation, CHP	About 500m
17-May-21	Sub Station	209	133	38	23.76	32.11	Transportation & Railway Sidings of BOCP	About 500m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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AMBIENT AIR QUALITY DATA

Area :

Talcher

(Compliance Station)

Project :

Deulbera Colliery

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
06-May-21	IWSS, Talcher (Reported Only)	218	133	44	19.07	42.93	Coal Transportation Road, Railway Siding, Coal S.Y	About 500m
20-May-21	IWSS, Talcher (Reported Only)	184	105	38	16.07	31.80	Coal Transportation Road, Railway Siding, Coal S.Y	About 500m

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AMBIENT AIR QUALITY DATA

Area :

Talcher

(Compliance Station)

Project :

Handidhua Colliery

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
12-May-21	Manager's Office	191	125	43	29.03	47.65	Local Transportation, CHP	About 500m
26-May-21	Manager's Office	88	50	26	23.32	40.82	Local Transportation, CHP	About 500m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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AMBIENT AIR QUALITY DATA

Area :

Talcher

(Compliance Station)

Project :

Mandapal Sand Mine

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
13-May-21	Near Pachismeshwar Temple	198	120	39	21.03	44.01	Mining Activity	Less than 500m
26-May-21	Near Pachismeshwar Temple	149	92	28	34.01	56.84	Mining Activity	Less than 500m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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AMBIENT AIR QUALITY DATA

Area : **Talcher** (Compliance Station)

Project : **Kakudi & kishoripal sand mine** (conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
12-May-21	Near Kishoripal Village	184	117	44	36.36	48.09	Domestic Cooking, Transportation Road	About 500m
26-May-21	Near Kishoripal Village	133	87	30	20.67	39.60	Domestic Cooking, Transportation Road	About 500m

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MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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AMBIENT AIR QUALITY DATA

Area :

Talcher

(Reference Station)

Project :

Nandira Colliery

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
06-May-21	Nandira Colony	153	80	47	20.20	45.46	Local Transportation, Mining Activities etc.	About 500m
07-May-21	Nandira Colony	140	77	43	11.18	23.24	Local Transportation, Mining Activities etc.	About 500m
07-May-21	Near Natedi Village (Reported Only)	159	77	44	35.86	59.17	Coal Transportation Road	About 2km
08-May-21	Near Natedi Village (Reported Only)	141	73	42	32.33	50.64	Coal Transportation Road	About 2km
13-May-21	Nandira Colony	117	70	36	18.12	30.21	Local Transportation, Mining Activities etc.	About 500m
14-May-21	Near Natedi Village (Reported Only)	150	67	37	29.04	52.08	Coal Transportation Road	About 2km
14-May-21	Nandira Colony	103	63	34	20.12	39.14	Local Transportation, Mining Activities etc.	About 500m
15-May-21	Near Natedi Village (Reported Only)	129	60	38	37.36	47.70	Coal Transportation Road	About 2km
20-May-21	Nandira Colony	98	56	29	20.51	35.20	Local Transportation, Mining Activities etc.	About 500m
21-May-21	Nandira Colony	105	60	32	17.44	39.92	Local Transportation, Mining Activities etc.	About 500m
21-May-21	Near Natedi Village (Reported Only)	126	71	40	20.46	37.54	Coal Transportation Road	About 2km
22-May-21	Near Natedi Village (Reported Only)	134	69	36	18.93	44.85	Coal Transportation Road	About 2km
27-May-21	Nandira Colony	91	56	25	18.60	37.87	Local Transportation, Mining Activities etc.	About 500m
28-May-21	Near Natedi Village (Reported Only)	101	56	30	25.09	38.63	Coal Transportation Road	About 2km
28-May-21	Nandira Colony	102	64	27	20.37	41.73	Local Transportation, Mining Activities etc.	About 500m
29-May-21	Near Natedi Village (Reported Only)	105	63	32	21.47	35.87	Coal Transportation Road	About 2km

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*NAAQS,2009

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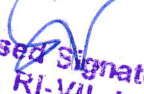
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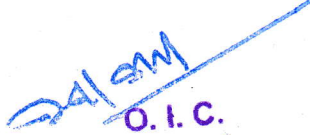
AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Talcher

Project	Nandira			
Monitoring Station	Nandira Colony			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
6-May-01	3.36	<0.1	<1.0	<1.0
7-May-01	3.21	<0.1	<1.0	<1.0
13-May-21	3.28	<0.1	<1.0	<1.0
14-May-21	3.36	<0.1	<1.0	<1.0
20-May/21	3.01	<0.1	<1.0	<1.0
21-May/21	3.12	<0.1	<1.0	<1.0
28-May/21	3.1	<0.1	<1.0	<1.0
27-May/21	3.19	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

Project	Nandira			
Monitoring Station	East of the Mine, Natedi Village (Reported)			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
7-May-21	2.86	<0.1	<1.0	<1.0
8-May-21	2.77	<0.1	<1.0	<1.0
14-May-21	2.67	<0.1	<1.0	<1.0
15-May-21	2.7	<0.1	<1.0	<1.0
21-May/21	2.61	<0.1	<1.0	<1.0
22-May/21	2.58	<0.1	<1.0	<1.0
29-May/21	2.52	<0.1	<1.0	<1.0
28-May/21	2.48	<0.1	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)


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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Talcher

PROJECT :

Talcher Colliery

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
04-May-21	GM Office, Talcher Area	58.4	55.1
04-May-21	Near Canteen, Talcher Colliery	60.4	56.4
29-May-21	GM Office, Talcher Area	57.1	55.6
29-May-21	Near Canteen, Talcher Colliery	58.4	54.8

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00
PM Leq 75dB(A)

10.00 PM -6.00
AM Leq 70dB(A)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Talcher

PROJECT :

Nandira Colliery


DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
04-May-21	Sub Station, Nandira Colliery	68.4	65.6
04-May-21	Project Office	65.4	63.2
29-May-21	Sub Station, Nandira Colliery	68.7	65.6
29-May-21	Project Office	65.6	60.8

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00
PM Leq 75dB(A)

10.00 PM -6.00
AM Leq 70dB(A)


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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Talcher

PROJECT :

Deulbera Colliery

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
04-May-21	Manager's Office	55.4	52.8
29-May-21	Manager's Office	57.4	53.8

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00 PM Leq 75dB(A)

10.00 PM -6.00 AM Leq 70dB(A)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Talcher

PROJECT :

Mandapal Sand Mine

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
04-May-21	Near Gopinathpur Village	56.4	55.0
29-May-21	Near Gopinathpur Village	56.7	54.4

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00
PM Leq 75dB(A)

10.00 PM -6.00
AM Leq 70dB(A)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Talcher

PROJECT :


Kakudi & Kishoripal Sand Mine

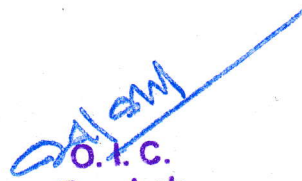
DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
04-May-21	Near Kishoripal Village	58.6	56.4
29-May-21	Near Kishoripal Village	58.9	55.2

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00
PM Leq 75dB(A)

10.00 PM -6.00
AM Leq 70dB(A)


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TABLE--

EFFLUENT QUALITY DATA

Area :

Talcher

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

Project :

Talcher Colliery

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
17-May-21	Talcher Colliery Sedimentation Tank Discharge	7.69	<4.0	44	32		
31-May-21	Talcher Colliery Sedimentation Tank Discharge	7.59	<4.0	36	28		

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 :

Talcher

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

Project :

Nandira Colliery

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
15-May-21	Nandira Colliery Sedimentation Tank Discharge	7.24	<4.0	30	20		
31-May-21	Nandira Colliery Sedimentation Tank Discharge	7.30	<4.0	24	16		

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 :

Talcher

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

Project :

Deulbera Colliery

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
15-May-21	Deulbera Colliery Mine Discharge at Pit Top	6.61	<4.0	48	36		
15-May-21	Ranipark Submersible Pump	7.56	<4.0	40	28		
31-May-21	Deulbera Colliery Mine Discharge at Pit Top	6.77	<4.0	38	28		
31-May-21	Ranipark Submersible Pump	7.43	<4.0	32	20		

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 :

Talcher

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

Project :

Handidhua Colliery

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
13-May-21	Handidhua Colliery Mine Discharge	7.44	<4.0	56	40		
17-May-21	19X Cut Road Bore Hole Point	7.21	<4.0	28	20		
31-May-21	19X Cut Road Bore Hole Point	7.04	<4.0	16	12		
31-May-21	Handidhua Colliery Mine Discharge	7.58	<4.0	48	28		

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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Drinking Water Quality Data Talcher Area

Project / OCP	Talcher U/G		Indian Drinking Standards (IS-10500):2012	
	Tap-Water, GM Office	Canteen Tap- Water, Talcher Colliery		
Date of Sampling	17/May/2021	17/May/2021	Acceptable	Permissible
Colour(Hazen)	1	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	3	1	1	5
pH	7.79	7.74	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	104	100	200	600
Total Hardness (Ca CO ₃)(mg/L)	160	164	200	600
Iron(mg/L)	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	34	42	250	1000
Total Dissolve Solid(mg/L)	298	306	500	2000
Calcium(mg/L)	38.48	36.87	75	200
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	52.46	64.82	200	400
Nitrate(mg/L)	2.57	3.26	45	No relaxation
Fluoride(mg/L)	<0.30	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation

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Drinking Water Quality Data Talcher Area

Project / OCP Monitoring Station	Nandira U/G		Indian Drinking Standards (IS-10500):2012	
	Canteen Tap- Water, Nandira Colliery	Pit Top Tap Water, Nandira Colliery	Acceptable	Permissible
Date of Sampling	15/May/2021	15/May/2021	Acceptable	Permissible
Colour(Hazen)	2	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	4	1	5
pH	7.60	7.42	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	56	56	200	600
Total Hardness (Ca CO ₃)(mg/L)	164	196	200	600
Iron(mg/L)	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	28	22	250	1000
Total Dissolve Solid(mg/L)	318	316	500	2000
Calcium(mg/L)	46.49	40.08	75	200
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	101.74	110.53	200	400
Nitrate(mg/L)	<0.5	<0.5	45	No relaxation
Fluoride(mg/L)	<0.30	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	0.01	0.05
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation

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Drinking Water Quality Data Talcher Area

Project / OCP	Deulbera U/G	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Deulbera Manager Office Tap Water	Acceptable	Permissible
Date of Sampling	13/May/2021	Acceptable	Permissible
Colour(Hazen)	1	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	5
pH	8.06	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	108	200	600
Total Hardness (Ca CO ₃)(mg/L)	168	200	600
Iron(mg/L)	<0.1	0.3	No relaxation
Chloride(mg/L)	32	250	1000
Total Dissolve Solid(mg/L)	294	500	2000
Calcium(mg/L)	33.67	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	51.26	200	400
Nitrate(mg/L)	5.47	45	No relaxation
Fluoride(mg/L)	<0.30	1	1.5
Arsenic(mg/L)	<0.005	0.01	0.05
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	0.003	No relaxation

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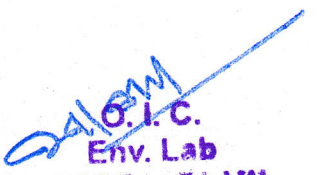
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Drinking Water Quality Data Talcher Area

Project / OCP	Handhidhua Colliery	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Pit Top Tap Water	Acceptable	Permissible
Date of Sampling	3/May/2021	Acceptable	Permissible
Colour(Hazen)	2	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	3	1	5
pH	7.86	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	82	200	600
Total Hardness (Ca CO ₃)(mg/L)	160	200	600
Iron(mg/L)	<0.1	0.3	No relaxation
Chloride(mg/L)	40	250	1000
Total Dissolve Solid(mg/L)	284	500	2000
Calcium(mg/L)	36.87	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	42.61	200	400
Nitrate(mg/L)	17.62	45	No relaxation
Fluoride(mg/L)	<0.30	1	1.5
Arsenic(mg/L)	<0.005	0.01	0.05
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	0.003	No relaxation


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TABLE--

Well Water Level Monitoring Data

Area :

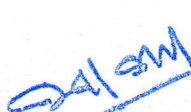
Talcher

Project :

Deulbera Colliery

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
29-May-21	Deulbera village well (Reported)	1.90

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