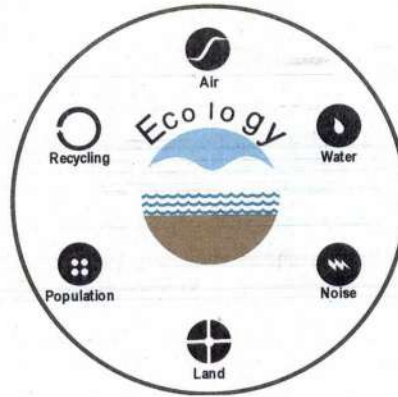


**Environmental Monitoring Report  
Of  
Jagannath Area  
For  
November-2023  
Talcher Coalfield**



**Mahanadi Coalfields Limited**



**cmpdi**  
*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 ]

*The test report shall not be reproduced in part or full without written approval of the competent authority*



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*A Tata Group Company*

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
03-Nov-23	North East of Mine	262	163	61	12.70	15.59	Open-Cast Mine	Less than 500m
03-Nov-23	Central Nursery	254	155	57	10.10	18.08	Open-Cast Mine	Less than 500m
03-Nov-23	Near NBVL Station (Reported)	248	152	54	14.08	14.91	CHP, CT Road	About 600m
21-Nov-23	North East of Mine	274	172	66	15.01	13.10	Open-Cast Mine	Less than 500m
21-Nov-23	Central Nursery	252	152	55	14.21	13.72	Open-Cast Mine	Less than 500m
21-Nov-23	Near NBVL Station (Reported)	255	156	58	10.32	14.29	CHP, CT Road	About 600m

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
03-Nov-23	Central Nursery (Reported Only)	254	155	57	10.10	18.08	Open-Cast Mine	Less than 500m
03-Nov-23	Near NBVL Station	248	152	54	14.08	14.91	CHP, CT Road	About 600m
03-Nov-23	Near MDTP	256	158	58	11.83	13.10	Railway Siding CHP	About 800m
21-Nov-23	Central Nursery (Reported Only)	252	152	55	14.21	13.72	Open-Cast Mine	Less than 500m
21-Nov-23	Near NBVL Station	255	156	58	10.32	14.29	CHP, CT Road	About 600m
21-Nov-23	Near MDTP	265	164	62	14.21	13.72	Railway Siding CHP	About 800m

MoEF Standards Notification dated 25th September, 2000	500	250		120	120
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Env. Lab  
CMPDI, RI-VII  
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*Air & Water Company*

Test Report

**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
01-Nov-23	Guthasahi Village	198	95	43	11.32	12.53	Active Mining, Ananta OCP	About 3000m
02-Nov-23	Guthasahi Village	170	80	30	13.76	12.00	Active Mining, Ananta OCP	About 3000m
08-Nov-23	Guthasahi Village	172	86	33	12.97	11.33	Active Mining, Ananta OCP	About 3000m
09-Nov-23	Guthasahi Village	176	88	35	11.19	13.07	Active Mining, Ananta OCP	About 3000m
16-Nov-23	Guthasahi Village	196	92	41	11.90	13.72	Active Mining, Ananta OCP	About 3000m
17-Nov-23	Guthasahi Village	182	86	37	16.16	12.47	Active Mining, Ananta OCP	About 3000m
24-Nov-23	Guthasahi Village	176	84	34	13.60	14.37	Active Mining, Ananta OCP	About 3000m
25-Nov-23	Guthasahi Village	174	82	33	11.87	16.11	Active Mining, Ananta OCP	About 3000m
29-Nov-23	Guthasahi Village	178	84	35	13.85	16.84	Active Mining, Ananta OCP	About 3000m
30-Nov-23	Guthasahi Village	170	80	31	12.96	12.00	Active Mining, Ananta OCP	About 3000m

\*NAAQS,2009

	100	60	80	80
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A *Wipro* Retail Company

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

Jagannath

(Reference Station)

Project :

Jagannath 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	CWS Colony, Meeti	178	83	36	12.96	15.43	Mining Activity	About 1500 m
02-Nov-23	CWS Colony, Meeti	170	78	32	15.72	16.33	Mining Activity	About 1500 m
08-Nov-23	CWS Colony, Meeti	182	89	38	14.63	17.30	Mining Activity	About 1500 m
09-Nov-23	CWS Colony, Meeti	168	78	29	12.40	15.68	Mining Activity	About 1500 m
16-Nov-23	CWS Colony, Meeti	175	84	33	13.25	16.11	Mining Activity	About 1500 m
17-Nov-23	CWS Colony, Meeti	184	89	38	14.14	15.59	Mining Activity	About 1500 m
24-Nov-23	CWS Colony, Meeti	170	82	30	11.19	18.95	Mining Activity	About 1500 m
25-Nov-23	CWS Colony, Meeti	176	85	34	11.32	14.32	Mining Activity	About 1500 m
29-Nov-23	CWS Colony, Meeti	180	88	36	10.77	17.30	Mining Activity	About 1500 m
30-Nov-23	CWS Colony, Meeti	173	83	32	12.70	14.29	Mining Activity	About 1500 m

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*NAAQS,2009		100	60	80	80
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Signature  
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*[Signature]*  
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CMPDI, RI-VII






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A Mini Ratna Company

Air Quality Monitoring: Carbon Monoxide (CO) Data

Area: Jagannath

Project	Ananta OCP
Monitoring Station	Central Nursery
Date of sampling	Carbon Monoxide (CO)
	mg/m <sup>3</sup>
03-Nov-2023	0.6
21-Nov-2023	0.7
Standard	04(1 Hours)

Project	Ananta OCP
Monitoring Station	North-East of the Mine
Date of sampling	Carbon Monoxide (CO)
	mg/m <sup>3</sup>
03-Nov-2023	0.7
21-Nov-2023	0.8
Standard	04(1 Hours)

  
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**cmpdi** BIEN T AIR QUALITY DATA (NAAQS PARAMETER)

A Mini Ratna Company

Area: Jagannath

Project	Ananta OCP							
Monitoring Station	Guthasahi Village							
Date of sampling	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzen e
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
01-Nov-2023	<20.0	5.30	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
08-Nov-2023	<20.0	5.63	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	3.97	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	4.63	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	7.85	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	7.63	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	5.67	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
29-Nov-2023	<20.0	8.06	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
30-Nov-2023	<20.0	6.44	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
Standard	400(24h ours)	180(ho ur)	1.0(24h ours)	6.0(Ann ual)	20(Ann ual)	04(1ho urs)	01(ann ual)	05(ann ual)

*Prasuti*  
 Authorised Signatory  
 CMPDI, RI-VII, LAB  
 BHUBANESWAR

*[Signature]*  
 O. I. C.  
 Env. Lab  
 CMPDI, RI-VII  
 Bhubaneswar





**cmpdi** BIEN T AIR QUALITY DATA (NAAQS PARAMETER)

A Mini Ratna Company

Area: Jagannath

Project	Jagannath OCP							
Monitoring Station	CWS Colony, Meeti							
Date of sampling	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
01-Nov-2023	<20.0	5.14	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.3	BQL(Q L=0.7)	BQL
08-Nov-2023	<20.0	5.21	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	4.68	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	7.45	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	6.38	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	7.64	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	5.28	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
29-Nov-2023	<20.0	4.36	<0.1	<1.0	<1.0	0.2	BQL(Q L=0.7)	BQL
30-Nov-2023	<20.0	4.77	<0.1	<1.0	<1.0	0.3	BQL(Q L=0.7)	BQL
Standard	400(24h ours)	180(hou r)	1.0(24h ours)	6.0(Ann ual)	20(Ann ual)	04(1hou rs)	01(annu al)	05(annu al)

*[Signature]*  
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*[Signature]*  
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 Bhubaneswar



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**TABLE--**

**NOISE LEVEL MONITORING DATA**

**AREA :**

**Jagannath**

**PROJECT :**

**Jagannath OCP**

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
09-Nov-23	Near MDTP	61.3	60.4
09-Nov-23	CWS Colony, MEETI	49.2	37.3
09-Nov-23	Central Nursery (Reported only)	67.7	63.1
09-Nov-23	Near NBVL Station	67.7	63.5
28-Nov-23	Near MDTP	67.7	63.5
28-Nov-23	CWS Colony, MEETI	51.3	40.4
28-Nov-23	Central Nursery (Reported only)	59.2	57.3
28-Nov-23	Near NBVL Station	66.5	64.3

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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 CMPDI, RI-VII  
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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
09-Nov-23	Near NBVL Station (Reported only)	67.7	63.5
09-Nov-23	North East of the Mine	69.1	64.3
09-Nov-23	Guthasahi Village	50.3	41.7
09-Nov-23	Central Nursery	67.7	63.1
28-Nov-23	Near NBVL Station (Reported only)	66.5	64.3
28-Nov-23	North East of the Mine	65.8	64.3
28-Nov-23	Guthasahi Village	49.1	41.7
28-Nov-23	Central Nursery	59.2	57.3

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)

*Jamati*  
 Authorised Signatory  
 CMPDI, RI-VII, LAB  
 BHUBANESWAR

*O.I.C.*  
 Env. Lab  
 CMPDI, RI-VII  
 Bhubaneswar



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TABLE--

**EFFLUENT QUALITY DATA**

Area :

Jagannath

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

Project :

Jagannath OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
06-Nov-23	Near MDTP	7.15	<4.0	36	20	-	
20-Nov-23	Near MDTP	7.43	<4.0	30	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 :

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	MPN/100mL
06-Nov-23	STP INLET	6.68		52		<2	120
06-Nov-23	STP OUTLET	6.85	-	38	-	<2	79
20-Nov-23	STP OUTLET	7.13	-	30	-	<2	79

Project :

Jagannath OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	MPN/100mL
06-Nov-23	STP INLET	7.23	-	44	-	<2	94
06-Nov-23	STP OUTLET	7.76	-	30	-	<2	70
20-Nov-23	STP OUTLET	7.94	-	26	-	<2	63

<i>G.S.R. 1265(E) Effluent discharge standards (applicable to all mode of disposal), Sewage Treatment Plants (STPs)</i>	6.5-9.0	-	<100	-	30	<1000
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## Effluent Quality (all Parameter): Jagannath Area

Project (OCP / UG)	Jagannath	MoEF-Sch-VI Standards
NAME OF THE STATION	Face Sump	
Date of Sampling	20-Nov-23	
Odour	Unobjectionable	-
Colour(Hazen)	3	-
Temperature( <sup>o</sup> C)	27	Shall not exceed 5 <sup>o</sup> C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	0.68	10
Ammonical Nitrogen , mg/l (As N)	1.26	50
Total Kjeldhal Nitrogen, mg/l (As N)	3.33	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 <sup>o</sup> C] (mg/L)	<2	30
Fluoride(mg/L)	0.35	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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### Effluent Quality (all Parameter): Jagannath Area

Project (OCP / UG)	Ananta	MoEF-Sch-VI Standards
NAME OF THE STATION	Mine Sump Water	
Date of Sampling	20-Nov-23	
Odour	Unobjectionable	-
Colour(Hazen)	2	-
Temperature( <sup>o</sup> C)	26	Shall not exceed 5 <sup>o</sup> C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.87	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27oC] (mg/L)	<2	30
Fluoride(mg/L)	0.32	2
Copper(mg/L)	<0.03	3
Manganese(mg/L)	5.01	2
Iron(mg/L)	0.19	3
Zinc(mg/L)	1.25	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)	1.40	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 Jagannath Area

Project/OCP	Jagannath					IS:2296-1982 Tolerance for inland Surface water (Class C)
	Downstream of Bangaru Jhor nalla	Upstream of Brahmani River where Bangaru Water meets	Downstream of Brahmani River where Bangaru Water meets	East Sump	Central Sump	
<b>NAME OF STATIONS</b>						
<b>Date of sampling</b>	21-Nov-23	21-Nov-23	21-Nov-23	21-Nov-23	21-Nov-23	
<b>pH</b>	8.03	8.05	4.98	6.69	6.78	6.5-8.5
<b>Color (Hazen unit)</b>	1	1	3	4	2	300
<b>Dissolved Oxygen(mg/L)</b>	5.7	5.5	6.0	6.2	6.7	4
<b>BOD (3 days 27°C(mg/L)</b>	<2	<2	<2	<2	<2	3
<b>Chlorides(mg/L)</b>	29.16	58.32	75.82	23.33	21.38	600
<b>Sulphate(mg/L)</b>	165.37	57.20	190.24	139.02	148.78	400
<b>Nitrate(mg/L)</b>	17.36	14.54	18.26	<2.0	<2.0	50
<b>Fluoride(mg/L)</b>	0.34	0.39	0.50	0.45	0.38	1.5
<b>Total Hardness(mg/L)</b>	423.40	258.07	580.67	411.30	350.82	-
<b>Total dissolved solids (mg/L)</b>	488	392	1036	494	428	1500
<b>TSS(mg/L)</b>	26	20	34	30	28	-
<b>Copper(mg/L)</b>	<0.03	<0.03	<0.03	<0.03	<0.03	1.5
<b>Iron(mg/L)</b>	<0.1	<0.1	0.46	<0.1	<0.1	50
<b>Zinc(mg/L)</b>	<0.04	<0.04	1.08	<0.04	0.04	15
<b>Lead(mg/L)</b>	<0.005	<0.005	<0.005	<0.005	<0.005	0.1
<b>Cadmium(mg/L)</b>	<0.001	<0.001	<0.001	<0.001	<0.001	0.01
<b>Total Chromium (mg/L)</b>	<0.01	<0.01	<0.01	<0.01	<0.01	-
<b>Arsenic(mg/L)</b>	<0.005	<0.005	<0.005	<0.005	<0.005	0.2
<b>Selenium(mg/L)</b>	<0.005	<0.005	<0.005	<0.005	<0.005	0.05
<b>Chromium(as Cr<sup>6+</sup>)(mg/L)</b>	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
<b>Phenolics(mg/L)</b>	<0.001	<0.001	<0.001	<0.001	<0.001	0.005
<b>Oil &amp; Grease (mg/L)</b>	<4.0	<4.0	<4.0	<4.0	<4.0	0.1
<b>MPN (Index/100 ml)</b>	14	17	21	10	11	-

*K.L.*  
Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

*O.I.C.*  
O. I. C.  
Env. Lab  
CMPDI, RI-VII  
Bhubaneswar





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## Drinking Water Quality Data Jagannath Area

Project / OCP	Jagannath OCP			Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Balanda Colony	Jagannath Colony		
Date of Sampling	6-Nov-2023	6-Nov-2023	6-Nov-2023	Acceptable	Permissible
Colour(Hazen)	1	2	3	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	2	1	1	5
pH	7.73	7.65	7.71	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	40.8	40.8	44.9	200	600
Chloride(mg/L)	11.66	9.72	9.72	250	1000
Sulphate(mg/L)	77.8	54.88	61.22	200	400
Nitrate(mg/L)	<2.0	<2.0	16.14	45	No relaxation
Total Hardness (Ca CO <sub>3</sub> )(mg/L)	157.26	104.84	129.04	200	600
Calcium(mg/L)	42.02	35.55	46.87	75	200
Fluoride(mg/L)	0.41	0.45	0.36	1	1.5
Total Dissolve Solid(mg/L)	226	212	252	500	2000
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
Iron(mg/L)	<0.1	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	<0.04	<0.04	<0.04	5	15
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	BDL	BDL	BDL	-	-

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## Drinking Water Quality Data Jagannath Area

Project / OCP	Ananta OCP		Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Ananta Colony	Dera Village Tube Well Water	
Date of Sampling	6-Nov-2023	7-Nov-2023	Acceptable	Permissible
Colour(Hazen)	3	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	2	1	5
pH	7.78	7.69	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	44.9	53	200	600
Chloride(mg/L)	5.83	42.77	250	1000
Sulphate(mg/L)	17.8	62.93	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO3)(mg/L)	60.49	181.46	200	600
Calcium(mg/L)	14.55	63.03	75	200
Fluoride(mg/L)	0.45	0.40	1	1.5
Total Dissolve Solid(mg/L)	146	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)	<0.04	0.07	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)	BDL	BDL	-	-

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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
11/21/2023	Piezometer no MTP 05; Outside Ananta OCP canteen	30

Project:

**Jagannath OCP**

Date of Sampling	Name of the Station	Ground Water level
11/22/2023	Piezometer no MTP 04; Inside central nursery (beside golf hut), Jagannath area	4.4

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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)
06-Nov-23	Dera village well	2

Project :

Jagannath OCP

Date of Sampling	Name of the Station	Depth from Water Level (in m. bgl)
06-Nov-23	Rakas village well	4.7

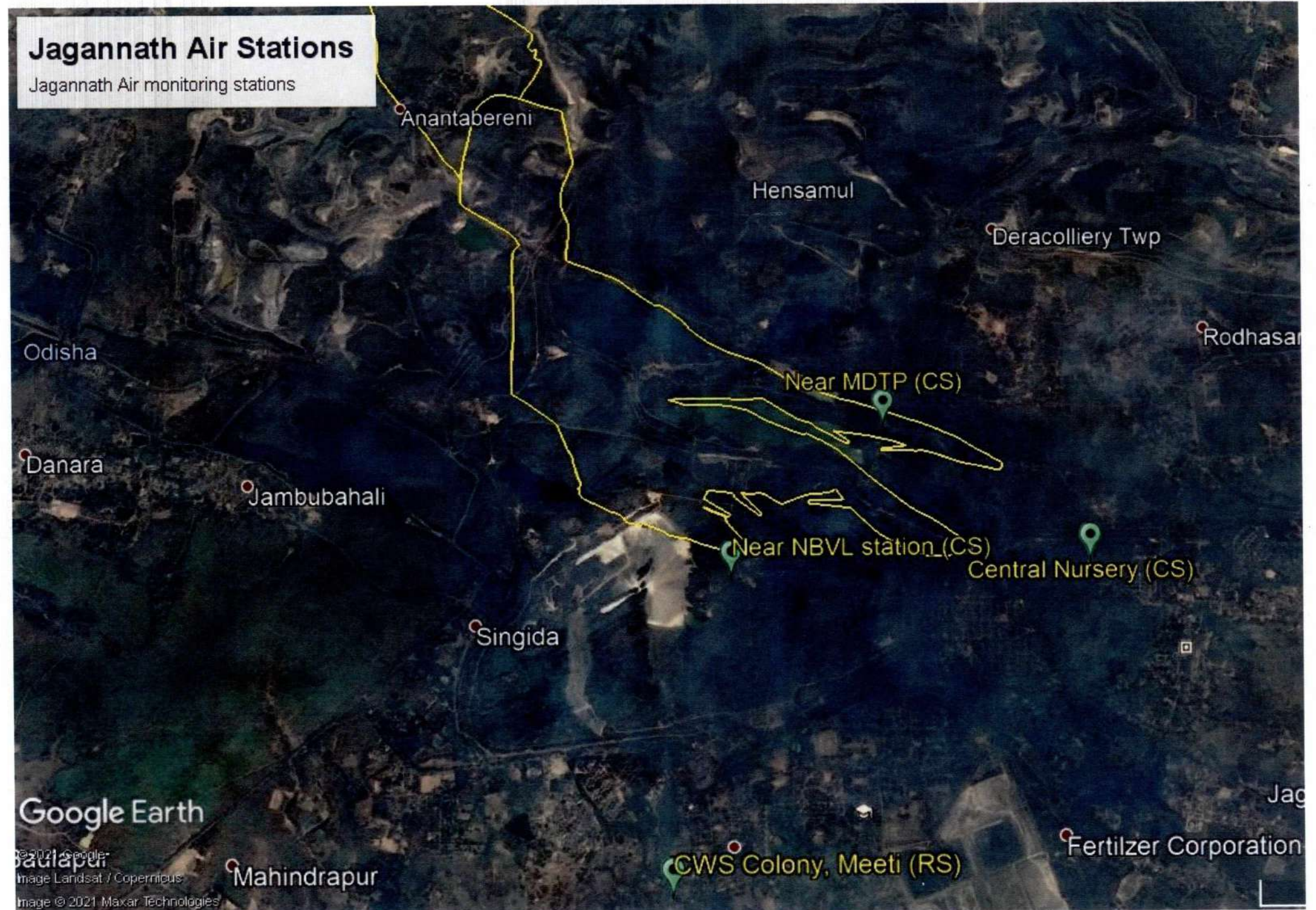
  
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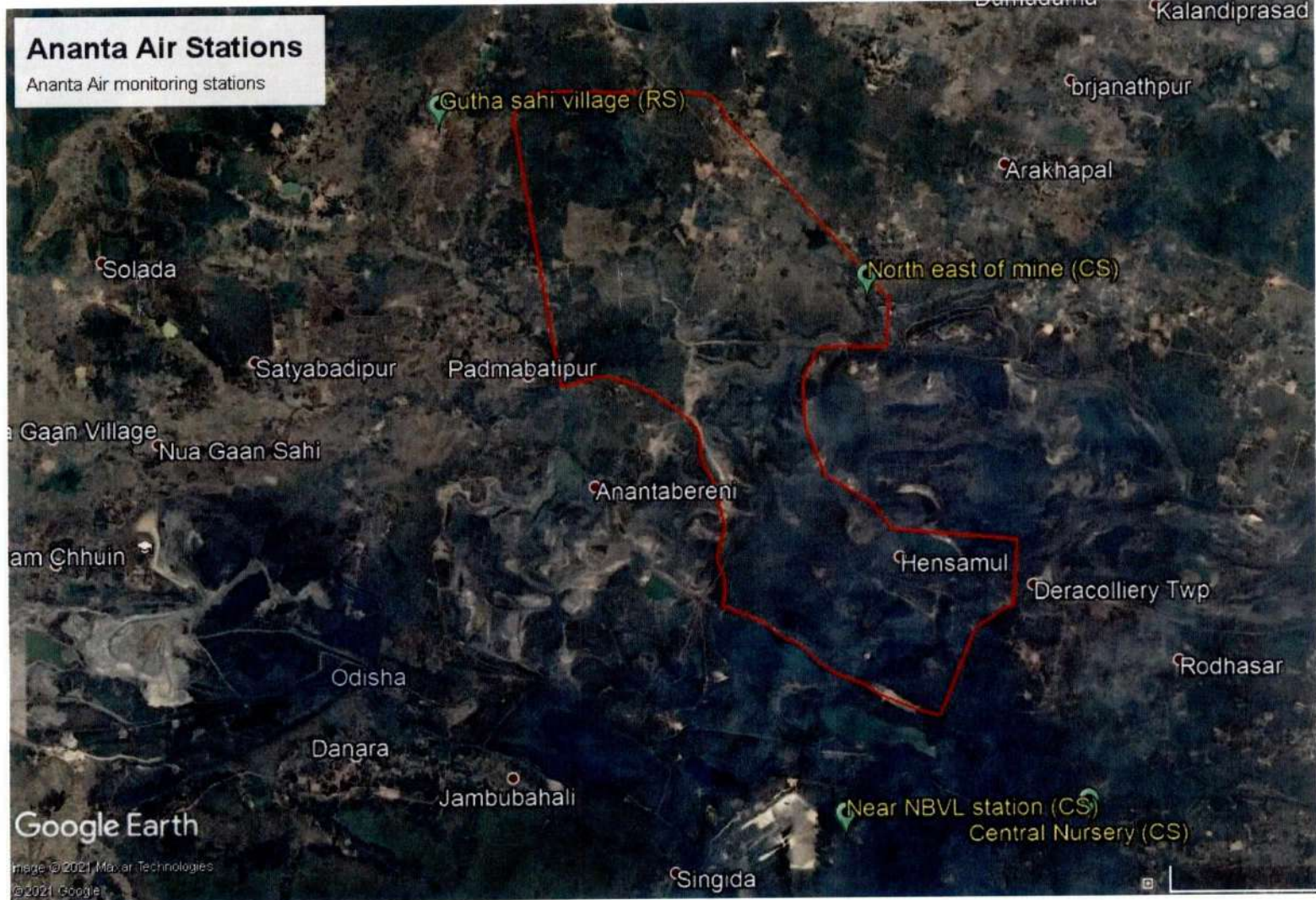


# Jagannath Air Stations

Jagannath Air monitoring stations



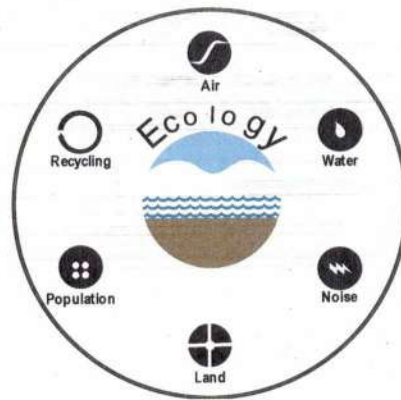




**Environmental Monitoring Report  
Of  
Bharatpur Area  
For  
November-2023  
Talcher Coalfield**



**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  $\mu\text{g}/\text{cu.m.}$ )

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
03-Nov-23	Near Regional Store	244	143	52	10.21	12.53	Mining Activities	About 500m
03-Nov-23	Near MGR-RLS of Bharatpur	252	150	55	12.43	15.43	Railway Siding	About 500m
03-Nov-23	North-West Point of the Mine	255	156	57	16.45	16.84	Domestic & Mining Activities	About 500m
03-Nov-23	Near ETP/Workshop	236	135	49	12.17	12.58	Mining Activities & Coal Stock	Above 500m
21-Nov-23	Near Regional Store	248	153	55	13.30	12.41	Mining Activities	About 500m
21-Nov-23	Near MGR-RLS of Bharatpur	258	158	58	14.72	11.85	Railway Siding	About 500m
21-Nov-23	North-West Point of the Mine	266	165	62	11.59	10.74	Domestic & Mining Activities	About 500m
21-Nov-23	Near ETP/Workshop	246	148	54	12.70	12.41	Mining Activities & Coal Stock	Above 500m

MoEF Standards Notification dated 25th September, 2000	600	300		120	120
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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
01-Nov-23	Near Joragdia Village	172	84	33	11.19	12.41	Transportation, Domestic Kooking	About 1000m
02-Nov-23	Near Joragdia Village	169	78	29	12.15	10.74	Transportation, Domestic Kooking	About 1000m
06-Nov-23	East of the Mine, Natedi Village (Reported Only)	174	83	32	12.41	13.72	Coal Transportation Road	About 2km
07-Nov-23	East of the Mine, Natedi Village (Reported Only)	185	89	38	11.19	13.72	Coal Transportation Road	About 2km
08-Nov-23	Near Joragdia Village	172	80	30	13.76	10.86	Transportation, Domestic Kooking	About 1000m
09-Nov-23	Near Joragdia Village	178	86	35	11.54	11.85	Transportation, Domestic Kooking	About 1000m
13-Nov-23	East of the Mine, Natedi Village (Reported Only)	194	92	40	10.77	12.53	Coal Transportation Road	About 2km
14-Nov-23	East of the Mine, Natedi Village (Reported Only)	169	82	31	10.39	11.85	Coal Transportation Road	About 2km
16-Nov-23	Near Joragdia Village	196	94	42	14.51	13.07	Transportation, Domestic Kooking	About 1000m
17-Nov-23	Near Joragdia Village	192	90	39	12.42	13.12	Transportation, Domestic Kooking	About 1000m
18-Nov-23	East of the Mine, Natedi Village (Reported Only)	174	79	32	12.12	11.85	Coal Transportation Road	About 2km
20-Nov-23	East of the Mine, Natedi Village (Reported Only)	178	84	35	11.11	12.00	Coal Transportation Road	About 2km
24-Nov-23	Near Joragdia Village	173	86	32	12.70	14.37	Transportation, Domestic Kooking	About 1000m
25-Nov-23	Near Joragdia Village	169	82	31	12.99	18.08	Transportation, Domestic Kooking	About 1000m
27-Nov-23	East of the Mine, Natedi Village (Reported Only)	176	88	36	14.72	16.21	Coal Transportation Road	About 2km
28-Nov-23	East of the Mine, Natedi Village (Reported Only)	196	92	41	18.14	16.33	Coal Transportation Road	About 2km
29-Nov-23	Near Joragdia Village	180	85	36	17.03	14.97	Transportation, Domestic Kooking	About 1000m
30-Nov-23	Near Joragdia Village	175	83	34	11.32	16.11	Transportation, Domestic Kooking	About 1000m

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

**Area: Bharatpur**

<b>Project</b>	<b>Bharatpur OCP</b>							
<b>Monitoring Station</b>	<b>Near Joragadia Village</b>							
<b>Date of sampling</b>	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
01-Nov-2023	<20.0	5.44	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
02-Nov-2023	<20.0	4.01	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
08-Nov-2023	<20.0	5.06	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
09-Nov-2023	<20.0	6.09	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
16-Nov-2023	<20.0	8.74	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
17-Nov-2023	<20.0	5.64	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
24-Nov-2023	<20.0	5.30	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
25-Nov-2023	<20.0	5.09	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
29-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
30-Nov-2023	<20.0	5.07	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
<b>Standard</b>	<b>400(24hours)</b>	<b>180(hour)</b>	<b>1.0(24hours)</b>	<b>6.0(Annual)</b>	<b>20(Annual)</b>	<b>04(1hours)</b>	<b>01(annual)</b>	<b>05(annual)</b>

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**AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)**

**Area: Bharatpur**

<b>Project</b>	<b>Bharatpur OCP</b>							
<b>Monitoring Station</b>	<b>Near Natedi Village(Reported Only)</b>							
<b>Date of sampling</b>	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
07-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	5.20	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	5.78	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
18-Nov-2023	<20.0	6.69	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	8.25	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	8.63	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	4.63	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
<b>Standard</b>	<b>400(24 hours)</b>	<b>180(hour)</b>	<b>1.0(24 hours)</b>	<b>6.0(Annual)</b>	<b>20(Annual)</b>	<b>04(1 hours)</b>	<b>01(annual)</b>	<b>05(annual)</b>

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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
09-Nov-23	Near MGR-RLS of Bharatpur	67.3	67.4
09-Nov-23	North West Point of the Mine	69.9	55.8
09-Nov-23	Near Regional Store	68.1	61.3
09-Nov-23	Near Wokshop	59.4	57.9
28-Nov-23	Near MGR-RLS of Bharatpur	69.9	67.4
28-Nov-23	North West Point of the Mine	59.4	55.8
28-Nov-23	Near Regional Store	67.3	61.3
28-Nov-23	Near Wokshop	60.3	57.9

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 :

**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
06-Nov-23	Mine Sump Water - Main Sump	7.29	-	-	-	-	
06-Nov-23	Mine Sump Water - Old Quarry Sump	7.91	-	-	-	-	
06-Nov-23	Workshop Inlet	7.17	<4.0	48	32		
06-Nov-23	Workshop ETP Clear Water Tank	7.33	<4.0	38	24	-	
21-Nov-23	Workshop ETP Clear Water Tank	7.48	<4.0	30	32	-	

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 :

**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	MPN/100mL
06-Nov-23	STP Intlet	7.10		46		<2	110
06-Nov-23	STP Outlet (PH,TSS,MPN,BOD)	7.37		34		<2	58
21-Nov-23	STP Outlet (PH,TSS,MPN,BOD)	7.49	-	28	-	<2	46

*G.S.R. 1265(E) Effluent discharge standards (applicable to all mode of disposal), Sewage Treatment Plants (STPs)*

6.5-9.0

-

<100

-

30

<1000





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## Effluent Quality (all Parameter): - Bharatpur Area

Project (OCP / UG)	Bharatpur		MoEF-Sch-VI Standards
NAME OF THE STATION	Workshop ETP Clear Water Tank Outlet	Mine Sump (Old Quarry Sump)	
Date of Sampling	20-Nov-23	20-Nov-23	
Odour	Unobjectionable	Unobjectionable	-
Colour(Hazen)	4	2	-
Temperature( <sup>o</sup> C)	25.0	26.0	Shall not exceed 5 <sup>o</sup> C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.58	0.92	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	3.33	100
Sulphide (mg/L)	<0.1	<0.1	2
BOD [3 days at 27 <sup>o</sup> C] (mg/L)	<2	<2	30
Fluoride(mg/L)	0.38	0.34	2
Copper(mg/L)	<0.03	<0.03	3
Manganese(mg/L)	<0.04	<0.04	2
Iron(mg/L)	<0.1	<0.1	3
Zinc(mg/L)	0.05	0.08	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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Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

**Bharatpur**

Project:

**Bharatpur OCP**

Date of Sampling	Name of the Station	Ground Water level
11/21/2023	Piezometer no MTP 10; Inside the premises of Danara high school (reported)	13.65
11/21/2023	Piezometer no MTP 09; Inside the premises of Joragarhia Panchayat high school	5.57

  
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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	7-Nov-2023	7-Nov-2023	7-Nov-2023	Acceptable	Permissible
Colour(Hazen)	1	2	3	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	2	1	5
pH	7.58	7.37	7.44	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	32.6	12.2	32.6	200	600
Chloride(mg/L)	9.72	38.88	13.61	250	1000
Sulphate(mg/L)	88.78	17.44	105.24	200	400
Nitrate(mg/L)	<2.0	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO <sub>3</sub> )(mg/L)	185.49	68.55	185.49	200	600
Calcium(mg/L)	69.49	22.63	67.88	75	200
Fluoride(mg/L)	0.45	0.30	0.33	1	1.5
Total Dissolve Solid(mg/L)	256	138	282	500	2000
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
Iron(mg/L)	<0.1	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.10	0.06	0.04	5	15
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	BDL	BDL	BDL	-	-

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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	Time Office, BOCP	Taleipasi Village Open Well	Acceptable
Date of Sampling	7-Nov-2023	7-Nov-2023	7-Nov-2023	7-Nov-2023	5	15
Colour(Hazen)	1	1	3	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	2	1	2	1	5
pH	8.22	8.34	8.11	8.30	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	155	142.8	85.7	179.5	200	600
Chloride(mg/L)	13.61	13.61	9.72	62.21	250	1000
Sulphate(mg/L)	10.6	13.54	8.41	24.39	200	400
Nitrate(mg/L)	<2.0	<2.0	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO3)(mg/L)	169.36	153.23	104.84	201.62	200	600
Calcium(mg/L)	51.72	56.56	35.55	72.73	75	200
Fluoride(mg/L)	0.40	0.32	0.34	0.36	1	1.5
Total Dissolve Solid(mg/L)	294	288	194	364	500	2000
Copper(mg/L)	<0.03	<0.03	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	<0.04	0.11	0.1	0.3
Iron(mg/L)	<0.1	<0.1	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.22	0.06	0.41	0.11	5	15
Lead(mg/L)	<0.005	<0.005	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	BDL	BDL	BDL	Absent	-	-

*Jasmati*

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## Surface Water Quality Data Bharatpur Area

Project/OCP	Bharatpur		IS:2296-1982 Tolerance for inland Surface water (Class C)
	Pond near N-W point of the mine	Jambubahali Village pond	
NAME OF STATIONS			
Date of sampling	21-Nov-23	21-Nov-23	
pH	7.92	7.87	6.5-8.5
Color (Hazen unit)	3	3	300
Dissolved Oxygen(mg/L)	5.9	5.6	4
BOD (3 days 27°c(mg/L)	<2	<2	3
Chlorides(mg/L)	19.44	21.38	600
Sulphate(mg/L)	119.51	117.68	400
Nitrate(mg/L)	<2.0	<2.0	50
Fluoride(mg/L)	0.35	0.43	1.5
Total Hardness(mg/L)	322.59	306	-
Total dissolved solids (mg/L)	398	380	1500
TSS(mg/L)	20	26	-
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
Chromium(as Cr <sup>6+</sup> )(mg/L)	<0.05	<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)	22	26	-

  
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## Surface Water Quality Data Bharatpur Area

Project/OCP	Bharatpur		IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Bangaru Jhor river near Joragadia as downstream water point of Bharatpur OCP	Bangaru Jhor river near up stream water point of Bharatpur OCP	
Date of sampling	21-Nov-23	21-Nov-23	
pH	7.73	7.69	6.5-8.5
Color (Hazen unit)	2	2	300
Dissolved Oxygen(mg/L)	6.8	6.4	4
BOD (3 days 27°c(mg/L)	<2	<2	3
Chlorides(mg/L)	19.44	29.16	600
Sulphate(mg/L)	137.80	159.63	400
Nitrate(mg/L)	<2.0	4.28	50
Fluoride(mg/L)	0.33	0.49	1.5
Total Hardness(mg/L)	318.56	447.60	-
Total dissolved solids (mg/L)	374	530	1500
TSS(mg/L)	36	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
Chromium(as Cr <sup>6</sup> )(mg/L)	<0.05	<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)	17	13	-

  
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TABLE--

**Well Water Level Monitoring Data**

Area :

**Bharatpur**

Project :

**Bharatpur OCP**


Date of Sampling	Name of the Station	Depth from Water Level (in m. bgl)
06-Nov-23	Teleipasi village open well	3.8
06-Nov-23	Badasinghada village open well	3.05


(not billed)

Project :

**Bharatpur OCP**

Date of Sampling	Name of the Station	Depth from Water Level (in m. bgl)
08-Nov-23	Danara village well (Reported only)	4.8

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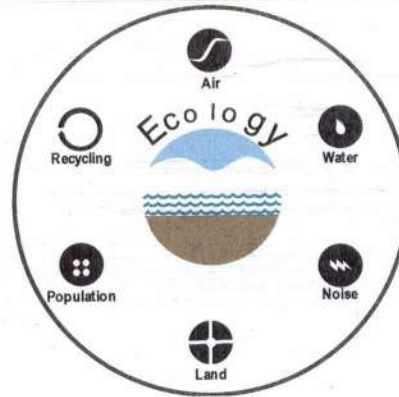
  
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**Environmental Monitoring Report  
Of  
Lingaraj Area  
For  
November-2023**

**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 ]

*The test report shall not be reproduced in part or full without written approval of the competent authority*





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Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

**(Compliance 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
10-Nov-23	Near Lingaraj to Dera Road	275	176	68	15.58	16.84	Coal Transportation Road	Less than 500m
10-Nov-23	Near OB Dump no. 5 (South Side of the Mine)	264	164	61	12.70	11.43	Transportation Road, Mining Activities	About 500m
10-Nov-23	Near OB Dump no. 10 (North Side of the Mine)	256	102	58	14.81	14.37	Mining Activities, Coal Corridor	About 500m
10-Nov-23	IWSS	270	170	64	12.70	14.32	Coal Transportation Road, Railway Siding, Coal S.Y	About 500m
22-Nov-23	Near Lingaraj to Dera Road	281	182	70	11.90	14.86	Coal Transportation Road	Less than 500m
22-Nov-23	Near OB Dump no. 5 (South Side of the Mine)	272	170	65	11.32	16.11	Transportation Road, Mining Activities	About 500m
22-Nov-23	Near OB Dump no. 10 (North Side of the Mine)	265	162	60	11.64	16.58	Mining Activities, Coal Corridor	About 500m
22-Nov-23	IWSS	278	178	68	14.14	16.84	Coal Transportation Road, Railway Siding, Coal S.Y	About 500m

MoEF Standards Notification dated 25th September, 2000	500	250		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
01-Nov-23	Near Kankili Community Centre	174	81	33	13.60	14.37	Mining Activity	Within 10km
02-Nov-23	Near Kankili Community Centre	182	88	37	11.38	16.58	Mining Activity	Within 10km
08-Nov-23	Near Kankili Community Centre	162	72	26	15.87	16.84	Mining Activity	Within 10km
09-Nov-23	Near Kankili Community Centre	174	84	32	12.42	17.30	Mining Activity	Within 10km
16-Nov-23	Near Kankili Community Centre	178	85	34	14.14	16.84	Mining Activity	Within 10km
17-Nov-23	Near Kankili Community Centre	170	83	32	11.90	12.58	Mining Activity	Within 10km
24-Nov-23	Near Kankili Community Centre	185	86	38	15.42	13.72	Mining Activity	Within 10km
25-Nov-23	Near Kankili Community Centre	188	92	40	11.59	12.53	Mining Activity	Within 10km
29-Nov-23	Near Kankili Community Centre	180	88	37	13.56	14.97	Mining Activity	Within 10km
30-Nov-23	Near Kankili Community Centre	176	84	35	14.14	16.21	Mining Activity	Within 10km

\*NAAQS, 2009

100	60	80	80
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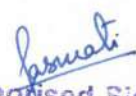
 <b>cmpdi</b> <i>A Mini Ratna Company</i>	<b>AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)</b>  <b>Area: Lingaraj</b>

<b>Project</b>	<b>Lingaraj OCP</b>
<b>Monitoring Station</b>	<b>Near OB Dump no. 5 (South Side of the Mine)</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m<sup>3</sup></b>
10-Nov-2023	0.6
22-Nov-2023	0.7
<b>Standard</b>	<b>04(1 Hours)</b>

<b>Project</b>	<b>Lingaraj OCP</b>
<b>Monitoring Station</b>	<b>Near OB Dump no. 10 (North Side of the Mine)</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m<sup>3</sup></b>
10-Nov-2023	0.7
22-Nov-2023	0.8
<b>Standard</b>	<b>04(1 Hours)</b>

<b>Project</b>	<b>Lingaraj OCP</b>
<b>Monitoring Station</b>	<b>IWSS</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m<sup>3</sup></b>
10-Nov-2023	0.5
22-Nov-2023	0.5
<b>Standard</b>	<b>04(1 Hours)</b>

<b>Project</b>	<b>Lingaraj OCP</b>
<b>Monitoring Station</b>	<b>Near Lingaraj to Dera Road</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m<sup>3</sup></b>
10-Nov-2023	0.8
22-Nov-2023	0.8
<b>Standard</b>	<b>04(1 Hours)</b>

  
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**AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)**

**Area: Lingaraj**

Project	Lingaraj OCP							
Monitoring Station	Near Kankili Community Centre							
Date of sampling	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
01-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
02-Nov-2023	<20.0	4.63	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
08-Nov-2023	<20.0	5.89	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
09-Nov-2023	<20.0	8.77	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
16-Nov-2023	<20.0	8.45	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
17-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
24-Nov-2023	<20.0	5.75	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
25-Nov-2023	<20.0	6.37	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
29-Nov-2023	<20.0	5.88	<0.1	<1.0	<1.0	0.6	BQL(Q L=0.7)	BQL
30-Nov-2023	<20.0	4.68	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
<b>Standard</b>	<b>400(24h ours)</b>	<b>180(hou r)</b>	<b>1.0(24ho urs)</b>	<b>6.0(An nual)</b>	<b>20(Ann ual)</b>	<b>04(10.1h ours)</b>	<b>01(annu al)</b>	<b>05(annu al)</b>

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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
10-Nov-23	Near Lingaraj to Dera Road	68.2	64.5
10-Nov-23	IWSS	63.1	60.8
10-Nov-23	Near OB Dump No.5 (South Side of the Mine)	69.0	67.1
10-Nov-23	Near OB Dump No.10 (North Side of the Mine)	65.5	63.9
29-Nov-23	Near Lingaraj to Dera Road	63.1	60.4
29-Nov-23	IWSS	65.0	63.2
29-Nov-23	Near OB Dump No.5 (South Side of the Mine)	68.1	67.1
29-Nov-23	Near OB Dump No.10 (North Side of the Mine)	69.0	66.7

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 :

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
07-Nov-23	Clear Water Reservoir of ETP Near Dumper Parking	7.07	<4.0	32	32	-	
07-Nov-23	Clear Water Reservoir of Sedimentation Pond Complex near Lingraj Siding	7.24	<4.0	46	40		
07-Nov-23	Clear Water Tank of Sedimentation Pond Complex near Project Office	7.46	<4.0	32	16		
07-Nov-23	Filter Outlet of Workshop ETP	7.36	<4.0	38	40	-	
07-Nov-23	Inlet of Sedimentation Pond Complex near Lingraj Siding	7.11	<4.0	36	20		
07-Nov-23	Inlet of Sedimentation Pond Complex near Project Office	7.53	<4.0	40	36		
07-Nov-23	Mine Sump Water	7.10	-	-	-	-	
22-Nov-23	Clear Water Reservoir of ETP Near Dumper Parking	7.26	<4.0	40	28	-	
22-Nov-23	Filter Outlet of Workshop ETP	7.52	<4.0	44	36	-	

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 :

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	MPN/100mL
07-Nov-23	STP Inlet	7.27		42		<2	130
07-Nov-23	STP Outlet	7.44	-	36	-	<2	70
22-Nov-23	STP Outlet	7.39	-	32	-	<2	79

<i>G.S.R. 1265(E) Effluent discharge standards (applicable to all mode of disposal), Sewage Treatment Plants (STPs)</i>	6.5-9.0	-	<100	-	30	<1000
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## Effluent Quality (all Parameter): Lingaraj Area

Project (OCP / UG)	Lingaraj		MoEF-Sch-VI Standards
NAME OF THE STATION	Inlet of Sedimentation Pond Complex near Lingaraj Siding	Clear Water Tank of Sedimentation Pond Complex Near Lingaraj Siding	
Date of Sampling	22-Nov-2023	22-Nov-23	
Odour	Unobjectionable	Unobjectionable	-
Colour(Hazen)	3	3	
Temperature( <sup>o</sup> C)	23	24	Shall not exceed 5 <sup>o</sup> C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.40	0.32	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	2.22	100
Sulphide (mg/L)	<0.1	<0.1	2
BOD [3 days at 27 <sup>o</sup> C] (mg/L)	<2	<2	30
Fluoride(mg/L)	0.32	0.39	2
Copper(mg/L)	<0.03	<0.03	3
Manganese(mg/L)	<0.04	<0.04	2
Iron(mg/L)	<0.1	<0.1	3
Zinc(mg/L)	0.05	<0.04	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)	<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): Lingaraj Area

Project (OCP / UG)	Lingaraj		MoEF-Sch-VI Standards
NAME OF THE STATION	Inlet of Sedimentation Pond Complex near Project Office	Clear Water Reservoir of Sedimentation Pond Complex near Project Office	
Date of Sampling	22-Nov-23	22-Nov-23	
Odour	Unobjectionable	Unobjectionable	-
Colour(Hazen)	2	1	-
Temperature(°C)	22	22	Shall not exceed 5 °C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.61	0.79	50
Total Kjeldhal Nitrogen, mg/l (As N)	4.44	3.33	100
Sulphide (mg/L)	<0.1	<0.1	2
BOD [3 days at 27°C] (mg/L)	<2	<2	30
Fluoride(mg/L)	0.41	0.36	2
Copper(mg/L)	<0.03	<0.03	3
Manganese(mg/L)	<0.04	0.19	2
Iron(mg/L)	<0.1	<0.1	3
Zinc(mg/L)	0.04	0.17	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)	<0.0005	<0.005	0.05
Disolved Phosphate(mg/L)	<4	<4	5
Phenolics (mg/L)	<0.001	<0.001	1

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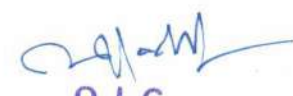


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## Surface Water Quality Data Lingraj Area

Project/OCP	Lingraj	IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Village Pond Near Deulbera Siding	
Date of sampling	22-Nov-23	
pH	7.29	6.5-8.5
Color (Hazen unit)	2	300
Dissolved Oxygen(mg/L)	6.6	4
BOD (3 days 27°C)(mg/L)	<2	3
Chlorides(mg/L)	17.50	600
Sulphate(mg/L)	36.45	400
Nitrate(mg/L)	<2.0	50
Fluoride(mg/L)	0.34	1.5
Total Hardness(mg/L)	362.92	-
Total dissolved solids (mg/L)	428	1500
TSS(mg/L)	34	-
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
Chromium(as Cr <sup>6+</sup> )(mg/L)	<0.05	0.05
Phenolics(mg/L)	<0.001	0.005
Oil & Grease (mg/L)	<4.0	0.1
MPN (Index/100 ml)	21	-

  
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Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

*Lingaraj*

Project:

*Lingaraj OCP*

Date of Sampling	Name of the Station	Ground Water level
11/22/2023	Piezometer no MTP 04; Inside central nursery (beside golf hut), Jagannath area (reported)	4.4
11/22/2023	Piezometer no MTP 01; Inside the premises of Mandapal hospital	11.37



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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	Kankili Village Well	Acceptable	Permissible
<b>Date of Sampling</b>	8-Nov-2023	8-Nov-2023	8-Nov-2023		
<b>Colour(Hazen)</b>	2	1	2	5	15
<b>Odour</b>	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
<b>Taste</b>	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
<b>Turbidity(NTU)</b>	3	3	1	1	5
<b>pH</b>	7.78	8.08	7.96	6.5-8.5	No relaxation
<b>Total Alkalinity(mg/L)</b>	293.8	322.3	44.9	200	600
<b>Chloride(mg/L)</b>	93.31	91.37	9.72	250	1000
<b>Sulphate(mg/L)</b>	68.29	73.90	17.8	200	400
<b>Nitrate(mg/L)</b>	<2.0	<2.0	<2.0	45	No relaxation
<b>Total Hardness (Ca CO<sub>3</sub>)(mg/L)</b>	322.59	370.98	64.52	200	600
<b>Calcium(mg/L)</b>	109.90	117.98	21.01	75	200
<b>Fluoride(mg/L)</b>	0.37	0.40	0.45	1	1.5
<b>Total Dissolve Solid(mg/L)</b>	574	638	134	500	2000
<b>Copper(mg/L)</b>	<0.03	<0.03	<0.03	0.05	1.5
<b>Manganese(mg/L)</b>	<0.04	<0.04	<0.04	0.1	0.3
<b>Iron(mg/L)</b>	<0.1	<0.1	<0.1	1.0	No relaxation
<b>Zinc(mg/L)</b>	0.04	0.04	0.05	5	15
<b>Lead(mg/L)</b>	<0.005	<0.005	<0.005	0.01	No relaxation
<b>Cadmium(mg/L)</b>	<0.001	<0.001	<0.001	0.003	No relaxation
<b>Total Chromium (mg/L)</b>	<0.01	<0.01	<0.01	0.05	No relaxation
<b>Arsenic(mg/L)</b>	<0.005	<0.005	<0.005	0.01	No relaxation
<b>Selenium(mg/L)</b>	<0.005	<0.005	<0.005	0.01	No relaxation
<b>Boron(mg/L)</b>	<0.2	<0.2	<0.2	0.5	2.4
<b>Phenolics(mg/L)</b>	<0.001	<0.001	<0.001	0.001	0.002
<b>Residual Free Chlorine(mg/L)</b>	<0.2	<0.2	<0.2	0.2	1.0
<b>MPN (Index/100 ml)</b>	BDL	BDL	BDL	-	-

*Jasmati*

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## Drinking Water Quality Data Lingraj Area

Project / OCP Monitoring Station	Lingraj OCP		Indian Drinking Standards (IS-10500):2012	
	GM Office, Lingraj Area	Balunga Khamar Village Well	Acceptable	Permissible
Date of Sampling	8-Nov-2023	8-Nov-2023		
Colour(Hazen)	4	3	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	1	5
pH	8.03	7.89	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	53	69.4	200	600
Chloride(mg/L)	9.72	9.72	250	1000
Sulphate(mg/L)	29.15	16.71	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO <sub>3</sub> )(mg/L)	80.65	76.62	200	600
Calcium(mg/L)	25.86	25.86	75	200
Fluoride(mg/L)	0.37	0.4	1	1.5
Total Dissolve Solid(mg/L)	182	170	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)	BDL	BDL	-	-

*Janaki*

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TABLE--

**Well Water Level Monitoring Data**

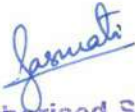
Area :


Lingaraj

Project :

Lingaraj OCP

Date of Sampling	Name of the Station	Depth from Water Level (in m. bgl)
07-Nov-23	Talabera village well	2.59
07-Nov-23	Kankili village well	1.06
07-Nov-23	Deulbera village well	2.08
07-Nov-23	Balunga Khamar village well	1.2

  
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# Lingraj Air Stations

Lingraj Air monitoring stations



Google Earth

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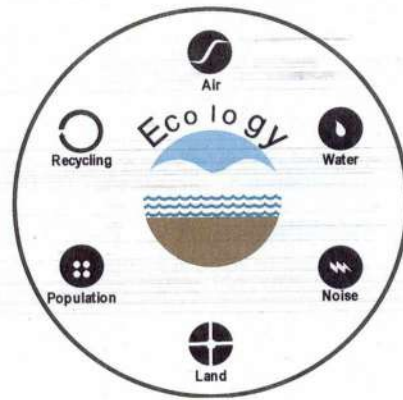


**Environmental Monitoring Report  
Of  
Kaniha Area  
For  
November-2023**

**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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Test Report

**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-Nov-23	Old Site Office	262	162	60	15.18	16.11	Local Transportation, CHP	About 500m
04-Nov-23	North of the Mine	250	150	55	12.43	12.00	Mining Activities	About 500m
04-Nov-23	Near Jatra Padia, Jarada	268	168	64	11.19	14.37	Mining Activities	About 500m
04-Nov-23	Near External OB Dump, Jamania	255	156	58	11.59	12.53	Mining Activities	About 500m
10-Nov-23	New Time Office (Near Z-Patch)	248	148	54	12.99	16.21	Mining Activities	About 500m
10-Nov-23	Near Project Office	256	160	58	16.33	17.64	Mining Activities	About 500m
22-Nov-23	New Time Office (Near Z-Patch)	256	155	58	11.59	13.12	Mining Activities	About 500m
22-Nov-23	Near Project Office	266	166	62	13.49	12.00	Mining Activities	About 500m
22-Nov-23	Old Site Office	262	165	62	12.42	10.14	Local Transportation, CHP	About 500m
22-Nov-23	Near Jatra Padia, Jarada	275	173	66	13.25	14.91	Mining Activities	About 500m
23-Nov-23	North of the Mine	259	155	58	11.54	11.85	Mining Activities	About 500m
23-Nov-23	Near External OB Dump, Jamania	261	167	62	16.02	12.41	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 :

**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
06-Nov-23	South West of the Mine	184	90	38	16.01	10.14	Anthropogenic Activities, Local	
06-Nov-23	South Of Proposed Quarry Limit of KOCP	170	78	30	15.18	12.53	Mining Activities	About 500m
07-Nov-23	South Of Proposed Quarry Limit of KOCP	174	82	33	12.41	13.72	Mining Activities	About 500m
07-Nov-23	South West of the Mine	166	76	28	11.04	14.91	Anthropogenic Activities, Local	
13-Nov-23	South West of the Mine	172	82	31	12.97	11.33	Anthropogenic Activities, Local	
13-Nov-23	South Of Proposed Quarry Limit of KOCP	168	78	29	12.40	15.68	Mining Activities	About 500m
14-Nov-23	South Of Proposed Quarry Limit of KOCP	176	84	35	11.90	12.58	Mining Activities	About 500m
14-Nov-23	South West of the Mine	175	84	33	10.28	12.41	Anthropogenic Activities, Local	
18-Nov-23	South West of the Mine	176	82	34	11.25	10.60	Anthropogenic Activities, Local	
18-Nov-23	South Of Proposed Quarry Limit of KOCP	196	90	41	18.73	14.41	Mining Activities	About 500m
20-Nov-23	South Of Proposed Quarry Limit of KOCP	185	86	38	15.87	13.10	Mining Activities	About 500m
20-Nov-23	South West of the Mine	184	88	38	10.58	13.72	Anthropogenic Activities, Local	
27-Nov-23	South Of Proposed Quarry Limit of KOCP	178	84	36	15.42	14.37	Mining Activities	About 500m
27-Nov-23	South West of the Mine	190	92	40	11.83	13.10	Anthropogenic Activities, Local	
28-Nov-23	South West of the Mine	178	88	36	12.43	10.86	Anthropogenic Activities, Local	
28-Nov-23	South Of Proposed Quarry Limit of KOCP	170	88	31	13.65	14.41	Mining Activities	About 500m

*NAAQS,2009		100	60	80	80
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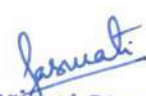


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<b>Project</b>	<b>KanihaOCP</b>
<b>Monitoring Station</b>	<b>Near Jatra Padia, Jarada</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m3</b>
04-Nov-2023	0.6
22-Nov-2023	0.5
<b>Standard</b>	<b>04(1 Hours)</b>

<b>Project</b>	<b>KanihaOCP</b>
<b>Monitoring Station</b>	<b>Near External OB Dump, Jamania</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m3</b>
04-Nov-2023	0.5
23-Nov-2023	0.4
<b>Standard</b>	<b>04(1 Hours)</b>

<b>Project</b>	<b>KanihaOCP</b>
<b>Monitoring Station</b>	<b>North of Mine</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m3</b>
04-Nov-2023	0.8
23-Nov-2023	0.8
<b>Standard</b>	<b>04(1 Hours)</b>

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

<b>Project</b>	<b>KanihaOCP</b>
<b>Monitoring Station</b>	<b>Near Project Office</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m3</b>
10-Nov-2023	0.5
22-Nov-2023	0.6
<b>Standard</b>	<b>04(1 Hours)</b>

<b>Project</b>	<b>KanihaOCP</b>
<b>Monitoring Station</b>	<b>New Time Office (Near Z-Patch)</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m3</b>
10-Nov-2023	0.9
22-Nov-2023	0.8
<b>Standard</b>	<b>04(1 Hours)</b>

<b>Project</b>	<b>KanihaOCP</b>
<b>Monitoring Station</b>	<b>Old Site Office</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m3</b>
04-Nov-2023	0.7
22-Nov-2023	0.7
<b>Standard</b>	<b>04(1 Hours)</b>

  
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**AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)**

**Area: Kaniha**

<b>Project</b>	<b>Kaniha OCP</b>							
<b>Monitoring Station</b>	<b>South West of Mine</b>							
<b>Date of sampling</b>	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06-Nov-2023	<20.0	5.23	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
07-Nov-2023	<20.0	4.68	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	6.47	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	5.89	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
18-Nov-2023	<20.0	8.36	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	4.67	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	5.63	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	5.47	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
<b>Standard</b>	<b>400(24h ours)</b>	<b>180(hour)</b>	<b>1.0(24h ours)</b>	<b>6.0 (Annual)</b>	<b>20(Annual)</b>	<b>04(1hours)</b>	<b>01(annual)</b>	<b>05(annual)</b>


*Sanuati*

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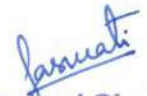
*[Signature]*


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Project	Kaniha OCP							
Monitoring Station	South of Proposed Quarry Limit of KOCP							
Date of sampling	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
07-Nov-2023	<20.0	4.36	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	8.63	<0.1	<1.0	<1.0	0.3	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	4.67	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
18-Nov-2023	<20.0	5.54	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	6.38	<0.1	<1.0	<1.0	0.3	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	5.47	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	4.78	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
<b>Standard</b>	<b>400(24h hours)</b>	<b>180(hour)</b>	<b>1.0(24h hours)</b>	<b>6.0(Annual)</b>	<b>20(Annual)</b>	<b>04(1hours)</b>	<b>01(annual)</b>	<b>05(annual)</b>

  
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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
10-Nov-23	Telisingha Village	53.4	41.2
10-Nov-23	Near Jarda Village	58.9	57.5
10-Nov-23	Site Office	67.2	64.0
10-Nov-23	Patharmunda Village	50.6	36.7
29-Nov-23	Telisingha Village	47.6	42.7
29-Nov-23	Near Jarda Village	53.4	41.2
29-Nov-23	Site Office	58.9	51.5
29-Nov-23	Patharmunda Village	48.2	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 :

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
03-Nov-23	Clear Water Pond	7.53	<4.0	32	24	-	
03-Nov-23	Kansamunda Sump	7.64	<4.0	40	20	-	
03-Nov-23	Pre Sedimentation Pond	7.62	<4.0	34	20	-	
03-Nov-23	Z-Patch Sump	7.71	<4.0	38	32	-	
10-Nov-23	Clear Water Pond	7.59	<4.0	38	32	-	
10-Nov-23	Kansamunda Sump	7.68	<4.0	36	28	-	
10-Nov-23	Pre Sedimentation Pond	7.68	<4.0	30	16	-	
10-Nov-23	Z-Patch Sump	7.75	<4.0	42	40	-	
18-Nov-23	Clear Water Pond	7.31	<4.0	26	20	-	
18-Nov-23	Kansamunda Sump	7.42	<4.0	38	16	-	
18-Nov-23	Pre Sedimentation Pond	7.28	<4.0	28	20	-	
18-Nov-23	Z-Patch Sump	7.53	<4.0	42	24	-	
25-Nov-23	Clear Water Pond	7.36	<4.0	34	36	-	
25-Nov-23	Kansamunda Sump	7.46	<4.0	44	36	-	
25-Nov-23	Pre Sedimentation Pond	7.25	<4.0	32	24	-	
25-Nov-23	Z-Patch Sump	7.58	<4.0	48	32	-	

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): Kaniha Area

Project (OCP / UG)	Kaniha		MoEF-Sch-VI Standards
	Clear Water Pond (Inflow)	Z-Patch Sump	
NAME OF THE STATION			
Date of Sampling	25-Nov-23	25-Nov-23	
Odour	Unobjectionable	Unobjectionable	-
Colour(Hazen)	3	1	-
Temperature( <sup>o</sup> C)	23	25	Shall not exceed 5 <sup>o</sup> C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	1.06	10
Ammonical Nitrogen , mg/l (As N)	0.42	0.49	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	2.22	100
Sulphide (mg/L)	<0.1	<0.1	2
BOD [3 days at 27 <sup>o</sup> C] (mg/L)	<2	<2.0	30
Fluoride(mg/L)	0.41	0.45	2
Copper(mg/L)	<0.03	<0.03	3
Manganese(mg/L)	<0.04	<0.04	2
Iron(mg/L)	<0.1	<0.1	3
Zinc(mg/L)	0.04	<0.04	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)	<0.1	<0.1	3
Arsenic, mg/l	<0.005	<0.005	0.2
Selenium (mg/L)	<0.0005	<0.005	0.05
Disolved Phosphate(mg/L)	<4	<4	5
Phenolics (mg/L)	<0.001	<0.001	1

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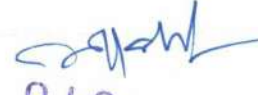
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## Surface Water Quality Data Kaniha Area

Project/OCP	Kaniha				IS:2296-1982 Tolerance for inland Surface water (Class C)
	Singada jhor stream nearer to Village Khairnali as u/s Water for Kaniha OCP	Before Junction Point of Singadajhor & Brahmani River at Balangi Village as d/s for Kaniha OCP	Tikra Nadi Near Kaniah Village as u/s Water for Kaniah OCP	Tikra Nadi Near Shagarhi Pala Village as d/s Water for Kaniah OCP	
Date of sampling	22-Nov-23	22-Nov-23	22-Nov-23	22-Nov-23	
pH	7.73	7.86	8.08	8.17	6.5-8.5
Color (Hazen unit)	1	2	1	3	300
Dissolved Oxygen(mg/L)	6.9	6.4	6.6	6.3	4
BOD (3 days 27°c)(mg/L)	<2	<2	<2	<2	3
Chlorides(mg/L)	9.72	11.66	19.44	87.48	600
Sulphate(mg/L)	53.17	8.66	15.24	61.59	400
Nitrate(mg/L)	<2.0	<2.0	<2.0	<2.0	50
Fluoride(mg/L)	0.38	0.45	0.32	0.36	1.5
Total Hardness(mg/L)	125	48.39	193.56	262.11	-
Total dissolved solids (mg/L)	180	64	220	364	1500
TSS(mg/L)	30	38	24	30	-
Copper(mg/L)	<0.03	<0.03	<0.03	<0.03	1.5
Iron(mg/L)	<0.1	<0.1	<0.1	<0.1	50
Zinc(mg/L)	0.14	<0.04	<0.04	<0.04	15
Lead(mg/L)	<0.005	<0.005	<0.005	<0.005	0.1
Cadmium(mg/L)	<0.001	<0.001	<0.001	<0.001	0.01
Total Chromium (mg/L)	<0.01	<0.01	<0.01	<0.01	-
Arsenic(mg/L)	<0.005	<0.005	<0.005	<0.005	0.2
Selenium(mg/L)	<0.005	<0.005	<0.005	<0.005	0.05
Chromium(as Cr <sup>6+</sup> )(mg/L)	<0.05	<0.05	<0.05	<0.05	0.05
Phenolics(mg/L)	<0.001	<0.001	<0.001	<0.001	0.005
Oil & Grease (mg/L)	<4.0	<4.0	<4.0	<4.0	0.1
MPN (Index/100 ml)	31	33	14	15	-

  
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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
11/22/2023	Piezometer no MTP 19; Outside Golaghar sahi primary school, Bijigol (school constructed by NTPC)	4
11/22/2023	Piezometer no MTP 20; Inside the premises of Kansamunda village old site office, MCL	26
11/22/2023	Piezometer no MTP 18; Inside the premisses of Chellia Prathamiki school	6.6

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## Drinking Water Quality Data Kaniha Area

Project / OCP	Kaniha		Indian Drinking Standards (IS-10500):2012	
	Telisinga Well Water	Jarda Village Well Water	Acceptable	Permissible
<b>Monitoring Station</b>				
<b>Date of Sampling</b>	8-Nov-2023	8-Nov-2023		
<b>Colour(Hazen)</b>	2	1	5	15
<b>Odour</b>	Agreeable	Agreeable	Agreeable	Agreeable
<b>Taste</b>	Agreeable	Agreeable	Agreeable	Agreeable
<b>Turbidity(NTU)</b>	2	1	1	5
<b>pH</b>	8.21	8.10	6.5-8.5	No relaxation
<b>Total Alkalinity(mg/L)</b>	114.2	61.2	200	600
<b>Chloride(mg/L)</b>	23.33	11.66	250	1000
<b>Sulphate(mg/L)</b>	20.24	14.88	200	400
<b>Nitrate(mg/L)</b>	<2.0	11.76	45	No relaxation
<b>Total Hardness (Ca CO<sub>3</sub>)(mg/L)</b>	177.43	100.81	200	600
<b>Calcium(mg/L)</b>	67.88	27.47	75	200
<b>Fluoride(mg/L)</b>	0.33	0.36	1	1.5
<b>Total Dissolve Solid(mg/L)</b>	282	206	500	2000
<b>Copper(mg/L)</b>	<0.03	<0.03	0.05	1.5
<b>Manganese(mg/L)</b>	<0.04	<0.04	0.1	0.3
<b>Iron(mg/L)</b>	<0.1	<0.1	1.0	No relaxation
<b>Zinc(mg/L)</b>	0.11	<0.04	5	15
<b>Lead(mg/L)</b>	<0.005	<0.005	0.01	No relaxation
<b>Cadmium(mg/L)</b>	<0.001	<0.001	0.003	No relaxation
<b>Total Chromium (mg/L)</b>	<0.01	<0.01	0.05	No relaxation
<b>Arsenic(mg/L)</b>	<0.005	<0.005	0.01	No relaxation
<b>Selenium(mg/L)</b>	<0.005	<0.005	0.01	No relaxation
<b>Boron(mg/L)</b>	<0.2	<0.2	0.5	2.4
<b>Phenolics(mg/L)</b>	<0.001	<0.001	0.001	0.002
<b>Residual Free Chlorine(mg/L)</b>	<0.2	<0.2	0.2	1.0
<b>MPN (Index/100 ml)</b>	BDL	BDL	-	-

*Signature*

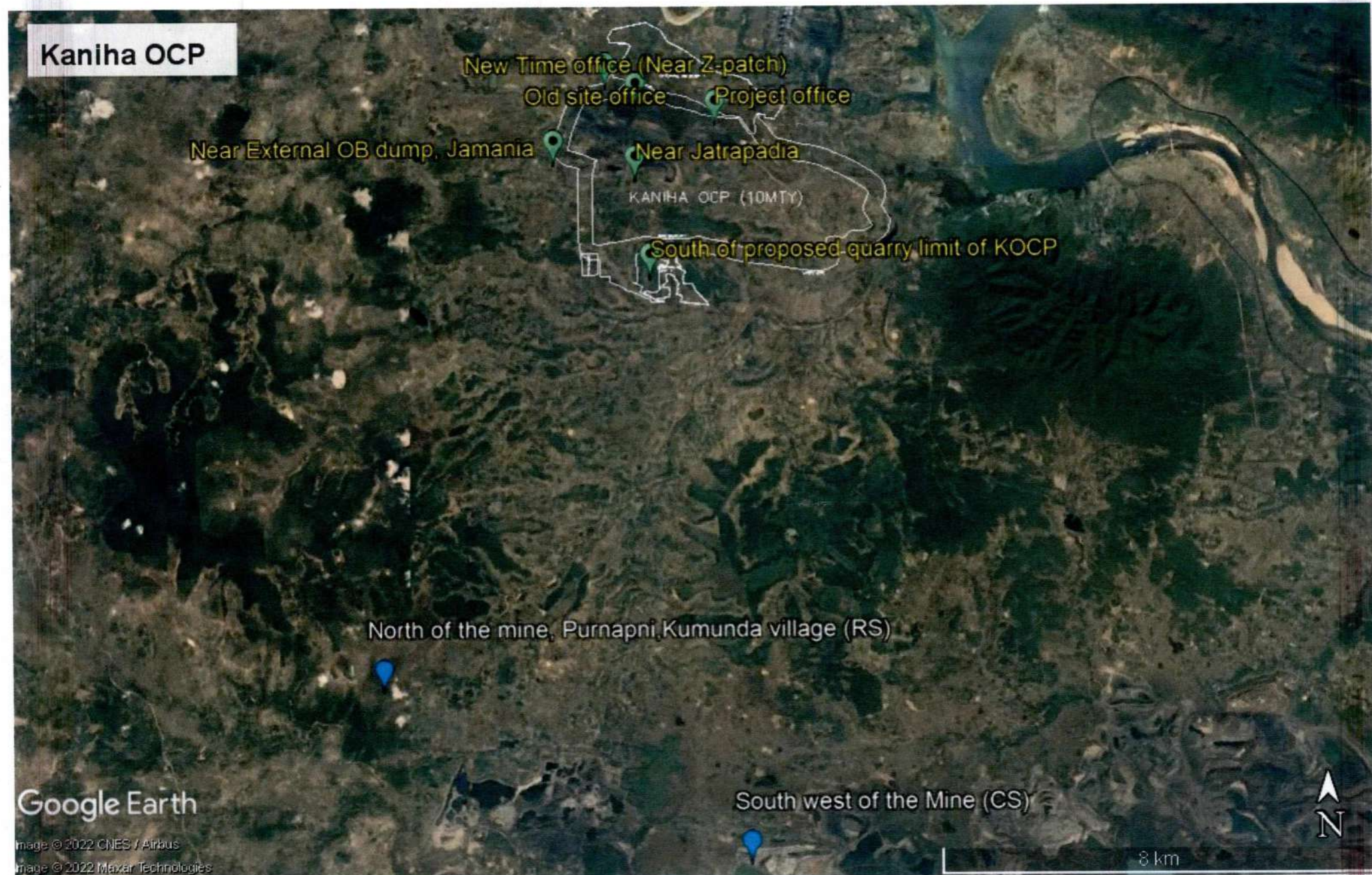
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# Kaniha OCP



New Time office (Near Z-patch)

Old site office

Project office

Near External OB dump, Jamania

Near Jatrapadia

KANIHA OCP (10MTY)

South of proposed quarry limit of KOCP

North of the mine, Purnapni Kumunda village (RS)

South west of the Mine (CS)

Google Earth

Image © 2022 CNES / Airbus  
Image © 2022 Maxar Technologies

8 km





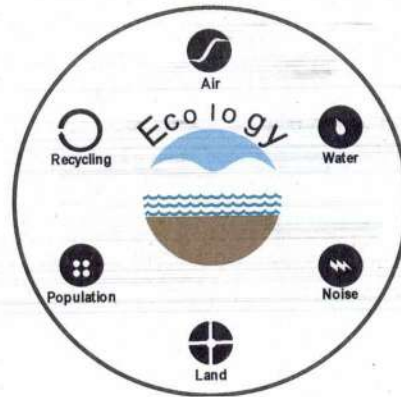
**Environmental Monitoring Report  
Of  
Hingula Area  
For  
November-2023**

**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 ]

*The test report shall not be reproduced in part or full without written approval of the competent authority*





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Test Report

**AMBIENT AIR QUALITY DATA**

Area :

Hingula

(Compliance Station)

Project :

Balaram 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-Nov-23	Pump House near Outsourcing Working Patch	252	154	56	15.55	17.15	Mining Operation And Coal Transportation Road	About 200m
04-Nov-23	Near Project Office	266	162	60	10.68	13.72	Mining Activities	About 500m
23-Nov-23	Pump House near Outsourcing Working Patch	260	160	58	15.42	14.37	Mining Operation And Coal Transportation Road	About 200m
23-Nov-23	Near Project Office	262	165	62	11.87	12.53	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 :

**Hingula**

(Compliance Station)

Project :

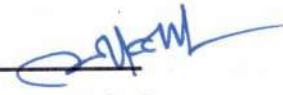
**Hingula OCP**

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
04-Nov-23	Time Office	272	171	66	11.19	13.72	Mining Operations and Haul Road	About 200m
04-Nov-23	South West Side of the Mine	252	152	55	12.70	12.53	Mining Operations	About 300m
23-Nov-23	Time Office	285	184	70	14.35	10.14	Mining Operations and Haul Road	About 200m
23-Nov-23	South West Side of the Mine	274	174	66	15.61	12.00	Mining Operations	About 300m

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

**AMBIENT AIR QUALITY DATA**

Area :

**Hingula**

**(Reference Station)**

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
06-Nov-23	North East of the Mine, Solda Village	168	78	29	10.77	12.53	Coal Transportation Road	About 2km
06-Nov-23	North of the Mine, Purnapani, Kumunda Village	172	84	33	13.65	15.09	Mining Operations	About 3km
07-Nov-23	North of the Mine, Purnapani, Kumunda Village	176	86	34	12.40	13.72	Mining Operations	About 3km
07-Nov-23	North East of the Mine, Solda Village	172	82	31	10.68	11.85	Coal Transportation Road	About 2km
13-Nov-23	North East of the Mine, Solda Village	184	88	38	15.87	9.72	Coal Transportation Road	About 2km
13-Nov-23	North of the Mine, Purnapani, Kumunda Village	192	91	39	13.53	10.14	Mining Operations	About 3km
14-Nov-23	North of the Mine, Purnapani, Kumunda Village	178	74	36	11.19	13.72	Mining Operations	About 3km
14-Nov-23	North East of the Mine, Solda Village	180	87	35	13.91	13.72	Coal Transportation Road	About 2km
18-Nov-23	North East of the Mine, Solda Village	170	80	30	13.76	12.00	Coal Transportation Road	About 2km
18-Nov-23	North of the Mine, Purnapani, Kumunda Village	166	78	29	12.09	14.37	Mining Operations	About 3km
20-Nov-23	North of the Mine, Purnapani, Kumunda Village	172	80	31	11.79	16.33	Mining Operations	About 3km
20-Nov-23	North East of the Mine, Solda Village	178	86	35	14.91	11.33	Coal Transportation Road	About 2km
27-Nov-23	North of the Mine, Purnapani, Kumunda Village	164	76	28	13.25	13.12	Mining Operations	About 3km
27-Nov-23	North East of the Mine, Solda Village	184	87	38	10.88	13.07	Coal Transportation Road	About 2km
28-Nov-23	North East of the Mine, Solda Village	176	83	34	11.83	13.72	Coal Transportation Road	About 2km
28-Nov-23	North of the Mine, Purnapani, Kumunda Village	188	82	39	11.54	13.10	Mining Operations	About 3km

*NAAQS,2009		100	60	80	80
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Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Hingula**

**(Reference Station)**

28-Nov-23	North West of the Mine, Solda Village (Reported Only)	176	83	34	11.83	13.72	Coal Transportation Road	About 2km
28-Nov-23	East of the Mine, Natedi Village	196	92	41	18.14	16.33	Coal Transportation Road	About 2km

\*NAAQS, 2009

	100	60	80	80
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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
06-Nov-23	East of the Mine, Natedi Village	174	83	32	12.41	13.72	Coal Transportation Road	About 2km
06-Nov-23	Natada Village	196	93	42	11.25	12.47	Anthropogenic Activities, Local	About 2km
06-Nov-23	North West of the Mine, Solda Village (Reported Only)	168	78	29	10.77	12.53	Coal Transportation Road	About 2km
07-Nov-23	North West of the Mine, Solda Village (Reported Only)	172	82	31	10.68	11.85	Coal Transportation Road	About 2km
07-Nov-23	East of the Mine, Natedi Village	185	89	38	11.19	13.72	Coal Transportation Road	About 2km
07-Nov-23	Natada Village	166	77	29	11.54	13.72	Anthropogenic Activities, Local	About 2km
13-Nov-23	Natada Village	174	80	30	10.32	12.00	Anthropogenic Activities, Local	About 2km
13-Nov-23	North West of the Mine, Solda Village (Reported Only)	184	88	38	15.87	9.72	Coal Transportation Road	About 2km
13-Nov-23	East of the Mine, Natedi Village	194	92	40	10.77	12.53	Coal Transportation Road	About 2km
14-Nov-23	North West of the Mine, Solda Village (Reported Only)	180	87	35	13.91	13.72	Coal Transportation Road	About 2km
14-Nov-23	East of the Mine, Natedi Village	169	82	31	10.39	11.85	Coal Transportation Road	About 2km
14-Nov-23	Natada Village	164	76	28	11.87	13.12	Anthropogenic Activities, Local	About 2km
18-Nov-23	East of the Mine, Natedi Village	174	79	32	12.12	11.85	Coal Transportation Road	About 2km
18-Nov-23	Natada Village	180	89	37	13.76	13.72	Anthropogenic Activities, Local	About 2km
18-Nov-23	North West of the Mine, Solda Village (Reported Only)	170	80	30	13.76	12.00	Coal Transportation Road	About 2km
20-Nov-23	North West of the Mine, Solda Village (Reported Only)	178	86	35	14.91	11.33	Coal Transportation Road	About 2km
20-Nov-23	East of the Mine, Natedi Village	178	84	35	11.11	12.00	Coal Transportation Road	About 2km
20-Nov-23	Natada Village	175	85	33	12.42	16.11	Anthropogenic Activities, Local	About 2km
27-Nov-23	North West of the Mine, Solda Village (Reported Only)	184	87	38	10.88	13.07	Coal Transportation Road	About 2km
27-Nov-23	East of the Mine, Natedi Village	176	88	36	14.72	16.21	Coal Transportation Road	About 2km
27-Nov-23	Natada Village	184	90	38	10.58	12.58	Anthropogenic Activities, Local	About 2km
28-Nov-23	Natada Village	174	81	32	14.81	17.64	Anthropogenic Activities, Local	About 2km

\*NAAQS,2009

	100	60	80	80
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CMPDI, RI-VII

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

<b>Project</b>	<b>Hingula OCP</b>
<b>Monitoring Station</b>	<b>Time Office</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m3</b>
04-Nov-2023	0.7
23-Nov-2023	0.8
<b>Standard</b>	<b>04(1 Hours)</b>

<b>Project</b>	<b>Hingula OCP</b>
<b>Monitoring Station</b>	<b>South West Side of Mine</b>
<b>Date of sampling</b>	<b>Carbon Monoxide (CO)</b>
	<b>mg/m3</b>
04-Nov-2023	0.7
23-Nov-2023	0.9
<b>Standard</b>	<b>04(1 Hours)</b>

  
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**AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)**

**Area:Hingula**

<b>Project</b>	<b>Hingula OCP</b>							
<b>Monitoring Station</b>	<b>North of the Mine, Purnapi, Kumunda Village</b>							
<b>Date of sampling</b>	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzen e
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
07-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	4.66	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	6.74	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
18-Nov-2023	<20.0	8.25	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	5.07	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	8.06	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
<b>Standard</b>	<b>400(24h ours)</b>	<b>180(ho ur)</b>	<b>1.0(24h ours)</b>	<b>6.0(Ann ual)</b>	<b>20(Ann ual)</b>	<b>04(1hou rs)</b>	<b>01(annu al)</b>	<b>05(ann ual)</b>

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

<b>Project</b>	<b>Hingula OCP</b>							
<b>Monitoring Station</b>	<b>North East of the Mine, Solada Village</b>							
<b>Date of sampling</b>	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzen e
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06-Nov-2023	<20.0	4.58	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
07-Nov-2023	<20.0	7.63	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	5.87	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	7.56	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
18-Nov-2023	<20.0	8.05	<0.1	<1.0	<1.0	1	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	4.36	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	5.68	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	7.62	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
<b>Standard</b>	<b>400(24 hours)</b>	<b>180 (hour)</b>	<b>1.0(24 hours)</b>	<b>6.0(Annual)</b>	<b>20(Annual)</b>	<b>04(1 hours)</b>	<b>01(annual)</b>	<b>05(annual)</b>

  
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**AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)**

**Area:Hingula**

<b>Project</b>	<b>Balram OCP</b>							
<b>Monitoring Station</b>	<b>Near Natedi Village</b>							
<b>Date of sampling</b>	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzen e
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06-Nov-2023	<20.0	5.44	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
07-Nov-2023	<20.0	6.31	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
18-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	8.06	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	4.21	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
<b>Standard</b>	<b>400(24 hours)</b>	<b>180 (hour)</b>	<b>1.0(24 hours)</b>	<b>6.0(Annual)</b>	<b>20 (Annual)</b>	<b>04(1 hours)</b>	<b>01 (annual)</b>	<b>05(annual)</b>


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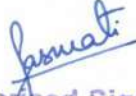
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 <b>cmpdi</b> <i>A Mini Ratna Company</i>	<b>AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)</b> <b>Area:Hingula</b>
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Project	Balram OCP							
Monitoring Station	Natada Village							
Date of sampling	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06-Nov-2023	<20.0	6.14	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL(QL=2.5)
07-Nov-2023	<20.0	4.55	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL(QL=2.5)
13-Nov-2023	<20.0	7.41	<0.1	<1.0	<1.0	1	BQL(QL=0.7)	BQL(QL=2.5)
14-Nov-2023	<20.0	5.23	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL(QL=2.5)
18-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL(QL=2.5)
20-Nov-2023	<20.0	5.04	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL(QL=2.5)
27-Nov-2023	<20.0	5.28	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL(QL=2.5)
28-Nov-2023	<20.0	8.62	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL(QL=2.5)
<b>Standard</b>	<b>400(24 hours)</b>	<b>180(hour)</b>	<b>1.0(24h ours)</b>	<b>6.0(A nnual)</b>	<b>20(Ann ual)</b>	<b>04(1hou rs)</b>	<b>01(annu al)</b>	<b>05(annu al)</b>

  
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**AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)**

*Area: Hingula*

<b>Project</b>	<b>Balram OCP</b>							
<b>Monitoring Station</b>	<b>North West of the Mine, Solada Village (Reported Only)</b>							
<b>Date of sampling</b>	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06-Nov-2023	<20.0	4.58	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
07-Nov-2023	<20.0	7.63	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
13-Nov-2023	<20.0	5.87	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
14-Nov-2023	<20.0	7.56	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
18-Nov-2023	<20.0	8.05	<0.1	<1.0	<1.0	1	BQL(QL=0.7)	BQL
20-Nov-2023	<20.0	4.36	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
27-Nov-2023	<20.0	5.68	<0.1	<1.0	<1.0	0.7	BQL(QL=0.7)	BQL
28-Nov-2023	<20.0	7.62	<0.1	<1.0	<1.0	0.8	BQL(QL=0.7)	BQL
<b>Standard</b>	<b>400(24 hours)</b>	<b>180(hour)</b>	<b>1.0(24 hours)</b>	<b>6.0(Annual)</b>	<b>20(Annual)</b>	<b>04(1hour0.2s)</b>	<b>01(annual)</b>	<b>05(annual)</b>

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 Bhubaneswar



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**TABLE--**

**NOISE LEVEL MONITORING DATA**

AREA :

Hingula

PROJECT :

Hingula OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
11-Nov-23	South West Side of the Mine	70.7	68.4
11-Nov-23	North East of the Mine, Solda Village	54.3	44.3
11-Nov-23	North of the Mine, Purnapi Kumunda Village	47.3	39.6
11-Nov-23	Time Office	68.3	65.3
30-Nov-23	South West Side of the Mine	68.3	65.3
30-Nov-23	North East of the Mine, Solda Village	47.3	44.5
30-Nov-23	North of the Mine, Purnapi Kumunda Village	50.7	38.4
30-Nov-23	Time Office	67.2	64.2

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)

*Jaswati*  
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*[Signature]*  
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 Bhubaneswar





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*A Mine Rehabilitation Company*

**TABLE--**

**NOISE LEVEL MONITORING DATA**

**AREA :**

**Hingula**

**PROJECT :**

**Balaram OCP**

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
09-Nov-23	Natada Village	51.7	42.7
11-Nov-23	North West of the Mine, Solada Village (Reported only)	54.3	44.3
11-Nov-23	Near Natedi Village	45.9	42.9
11-Nov-23	Pump House Near Outsourcing Working Patch	60.2	57.9
11-Nov-23	Near Project Office Balram OCP	50.8	50.1
30-Nov-23	North West of the Mine, Solada Village (Reported only)	47.3	44.5
30-Nov-23	Near Natedi Village	50.8	56.3
30-Nov-23	Pump House Near Outsourcing Working Patch	63.4	58.1
30-Nov-23	Near Project Office Balram OCP	65.1	64.3
30-Nov-23	Natada Village	51.00	37.9

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 :

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
09-Nov-23	Inlet of O & G Trap	7.13	<4.0	44	40	-	
09-Nov-23	Mine Sump Water	7.06	<4.0	28	16		
09-Nov-23	Outlet of O & G Trap	7.47	<4.0	36	32	-	
23-Nov-23	Inlet of O & G Trap	7.26	<4.0	38	28	-	
23-Nov-23	Outlet of O & G Trap	7.53	<4.0	26	20	-	

Project :

Hingula OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
09-Nov-23	Inlet of O & G trap	7.25	<4.0	46	32	-	
09-Nov-23	Mine Sump water	7.30	<4.0	24	20	-	
09-Nov-23	Outlet of O & G trap	7.43	<4.0	38	28	-	
23-Nov-23	Inlet of O & G Trap	7.19	<4.0	40	36	-	
23-Nov-23	Outlet of O & G Trap	7.37	<4.0	28	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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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	MPN/100mL
09-Nov-23	STP Outlet of Balram Colony	7.24	-	32	-	<2	94
23-Nov-23	STP Outlet of Balram Colony	7.29	-	36	-	<2	70

<i>G.S.R. 1265(E) Effluent discharge standards (applicable to all mode of disposal), Sewage Treatment Plants (STPs)</i>	6.5-9.0	-	<100	-	30	<1000
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## Effluent Quality (all Parameter): Hingula Area

Project (OCP / UG)	Balaram	MoEF-Sch-VI Standards
NAME OF THE STATION	Mine Sump Water	
Date of Sampling	23-Nov-23	
Odour	Unobjectionable	-
Colour(Hazen)	4	-
Temperature( <sup>o</sup> C)	26	Shall not exceed 5 <sup>o</sup> C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.43	50
Total Kjeldhal Nitrogen, mg/l (As N)	3.33	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 <sup>o</sup> C].(mg/L)	<2	30
Fluoride(mg/L)	0.42	2
Copper(mg/L)	<0.03	3
Manganese(mg/L)	<0.04	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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Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

**Hingula**

Project:

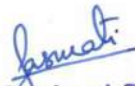
**Balram OCP**

Date of Sampling	Name of the Station	Ground Water level
11/23/2023	Piezometer no MTP 17; Inside the premises of market building (through gram in rojgar yojna), Kandhaberani village	Depth could not be measured as pump fitted
11/23/2023	Piezometer no MTP 10; Inside the premises of Danara high school	13
11/23/2023	Piezometer no MTP 13 ; Inside the premises of Ambapal Natarha high school	Casing jammed
11/23/2023	Piezometer no MTP 12; In Betianalli village, opposite to Sindhu deori's house	7

Project:

**Hingula OCP**

Date of Sampling	Name of the Station	Ground Water level
11/23/2023	Piezometer no MTP 14; Inside the premises of Pirakhamam village primary school	14.5
11/23/2023	Piezometer no MTP 16; Backside of Hingula Mandir VIP guest house	Depth could not be measured as pump fitted
11/23/2023	Piezometer no MTP 15; Beside Sujan Pradhan's house in Chottaberani village, near nalla.	6.9

  
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## Surface Water Quality Data Hingula Area

Project/OCP	Hingula				IS:2296-1982 Tolerance for inland Surface water (Class C)
	Singadhajhor Stream Near Kumunda village	Singadhajhor Stream Near Baghabaspur village	Pond Water of Kankarei Village	Mine Sump Water	
<b>NAME OF STATIONS</b>					
<b>Date of sampling</b>	23-Nov-23	23-Nov-23	23-Nov-23	23-Nov-23	
<b>pH</b>	8.16	8.24	8.19	8.31	6.5-8.5
<b>Color (Hazen unit)</b>	2	1	2	4	300
<b>Dissolved Oxygen(mg/L)</b>	6.0	5.36	6.6	5.8	4
<b>BOD (3 days 27°c(mg/L)</b>	<2	<2	<2	<2	3
<b>Chlorides(mg/L)</b>	9.72	19.44	29.16	21.38	600
<b>Sulphate(mg/L)</b>	17.56	42.44	5.46	45.73	400
<b>Nitrate(mg/L)</b>	<2.0	<2.0	<2.0	<2.0	50
<b>Fluoride(mg/L)</b>	0.31	0.36	0.39	0.37	1.5
<b>Total Hardness(mg/L)</b>	116.94	205.65	56.45	209.68	-
<b>Total dissolved solids (mg/L)</b>	138	248	90	258	1500
<b>TSS(mg/L)</b>	38	18	28	24	-
<b>Copper(mg/L)</b>	<0.03	<0.03	<0.03	<0.03	1.5
<b>Iron(mg/L)</b>	<0.1	<0.1	<0.1	<0.1	50
<b>Zinc(mg/L)</b>	<0.04	<0.04	<0.04	<0.04	15
<b>Lead(mg/L)</b>	<0.005	<0.005	<0.005	<0.005	0.1
<b>Cadmium(mg/L)</b>	<0.001	<0.001	<0.001	<0.001	0.01
<b>Total Chromium (mg/L)</b>	<0.01	<0.01	<0.01	<0.01	-
<b>Arsenic(mg/L)</b>	<0.005	<0.005	<0.005	<0.005	0.2
<b>Selenium(mg/L)</b>	<0.005	<0.005	<0.005	<0.005	0.05
<b>Chromium(as Cr<sup>6+</sup>(mg/L)</b>	<0.05	<0.05	<0.05	<0.05	0.05
<b>Phenolics(mg/L)</b>	<0.001	<0.001	<0.001	<0.001	0.005
<b>Oil &amp; Grease (mg/L)</b>	<4.0	<4.0	<4.0	<4.0	0.1
<b>MPN (Index/100 ml)</b>	26	32	43	15	-

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## Surface Water Quality Data Hingula Area

Project/OCP  NAME OF STATIONS	Balram		IS:2296-1982 Tolerance for inland Surface water (Class C)
	Derjenga reservoir as a part of Impact Study	Pond water of Ambapal Village	
Date of sampling	23-Nov-23	23-Nov-23	
pH	8.10	8.24	6.5-8.5
Color (Hazen unit)	2	2	300
Dissolved Oxygen(mg/L)	5.4	6.2	4
BOD (3 days 27°C)(mg/L)	<2	<2	3
Chlorides(mg/L)	23.33	13.61	600
Sulphate(mg/L)	4.84	26.46	400
Nitrate(mg/L)	<2.0	<2.0	50
Fluoride(mg/L)	0.46	0.34	1.5
Total Hardness(mg/L)	92.75	217.75	-
Total dissolved solids (mg/L)	130	262	1500
TSS(mg/L)	28	18	-
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
Chromium(as Cr <sup>6</sup> )(mg/L)	<0.05	<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)	9.1	32	-

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## Drinking Water Quality Data Hingula Area

Project / OCP Monitoring Station	Balaram OCP			Indian Drinking Standards (IS-10500):2012	
	Danara Village Borewell Water	Balaram Colony	Nakeipasi Village Bore Well Water	Acceptable	Permissible
Date of Sampling	9-Nov-2023	9-Nov-2023	9-Nov-2023	5	15
Colour(Hazen)	3	1	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	3	3	1	5
pH	7.38	7.73	8.05	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	57.1	49	114.2	200	600
Chloride(mg/L)	11.66	15.55	58.3	250	1000
Sulphate(mg/L)	41.22	143.78	134.27	200	400
Nitrate(mg/L)	<2.0	11.64	<2.0	45	No relaxation
Total Hardness (Ca CO <sub>3</sub> )(mg/L)	100.81	282.27	391.14	200	600
Calcium(mg/L)	32.32	82.42	129.29	75	200
Fluoride(mg/L)	0.45	0.3	0.38	1	1.5
Total Dissolve Solid(mg/L)	190	398	562	500	2000
Copper(mg/L)	<0.03	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	0.07	<0.04	0.28	0.1	0.3
Iron(mg/L)	<0.1	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	3.15	0.07	1.17	5	15
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	BDL	BDL	BDL	-	-

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## Drinking Water Quality Data Hingula Area

Project / OCP	Hingula OCP			Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Time Office Water	Gopalprasad Village Bore Well Water	Kumunda Village Bore Well Water	Acceptable
Date of Sampling	9-Nov-2023	9-Nov-2023	9-Nov-2023		
Colour(Hazen)	3	1	3	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	2	2	1	5
pH	8.21	8.41	8.37	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	110.2	212.2	322.3	200	600
Chloride(mg/L)	31.10	40.82	77.76	250	1000
Sulphate(mg/L)	63.05	18.54	3.78	200	400
Nitrate(mg/L)	7.58	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO <sub>3</sub> )(mg/L)	173.39	173.39	274.20	200	600
Calcium(mg/L)	53.33	45.25	58.18	75	200
Fluoride(mg/L)	0.48	0.43	0.35	1	1.5
Total Dissolve Solid(mg/L)	304	342	486	500	2000
Copper(mg/L)	<0.03	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.19	<0.04	0.1	0.3
Iron(mg/L)	<0.1	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.06	2.72	0.17	5	15
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Selenium(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Boron(mg/L)	<0.2	<0.2	<0.2	0.5	2.4
Phenolics(mg/L)	<0.001	<0.001	<0.001	0.001	0.002
Residual Free Chlorine(mg/L)	<0.2	<0.2	<0.2	0.2	1.0
MPN (Index/100 ml)	BDL	BDL	BDL	-	-

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TABLE--

**Well Water Level Monitoring Data**

Area :

Hingula

Project :


Balaram OCP


Date of Sampling	Name of the Station	Depth from Water Level (in m. bgl)
08-Nov-23	Nakeiposi village well	4
08-Nov-23	Danara village well	4.8

Project :

Hingula OCP

Date of Sampling	Name of the Station	Depth from Water Level (in m. bgl)
08-Nov-23	Kusumpal village well	1.8
08-Nov-23	Gopalprasad village well water	1.87

  
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Balaram OCP

North west of the mine, solada village (RS)

Pump House near Outsourcing Working Patch & Coal Transport Road (CS)

Natada Village

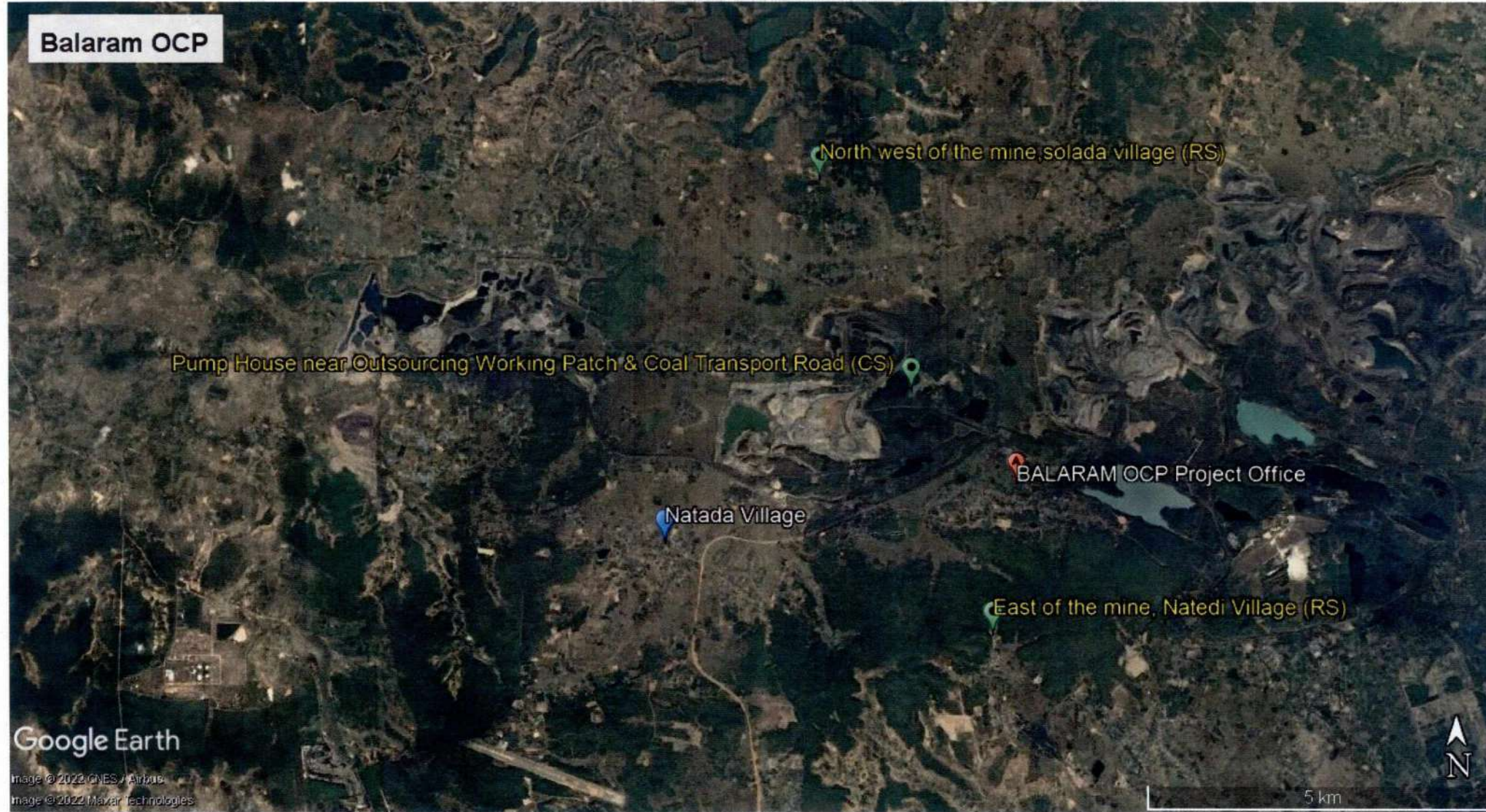
BALARAM OCP Project Office

East of the mine, Natedi Village (RS)

Google Earth

Image © 2022 CNES / Airbus  
Image © 2022 Maxar Technologies

5 km

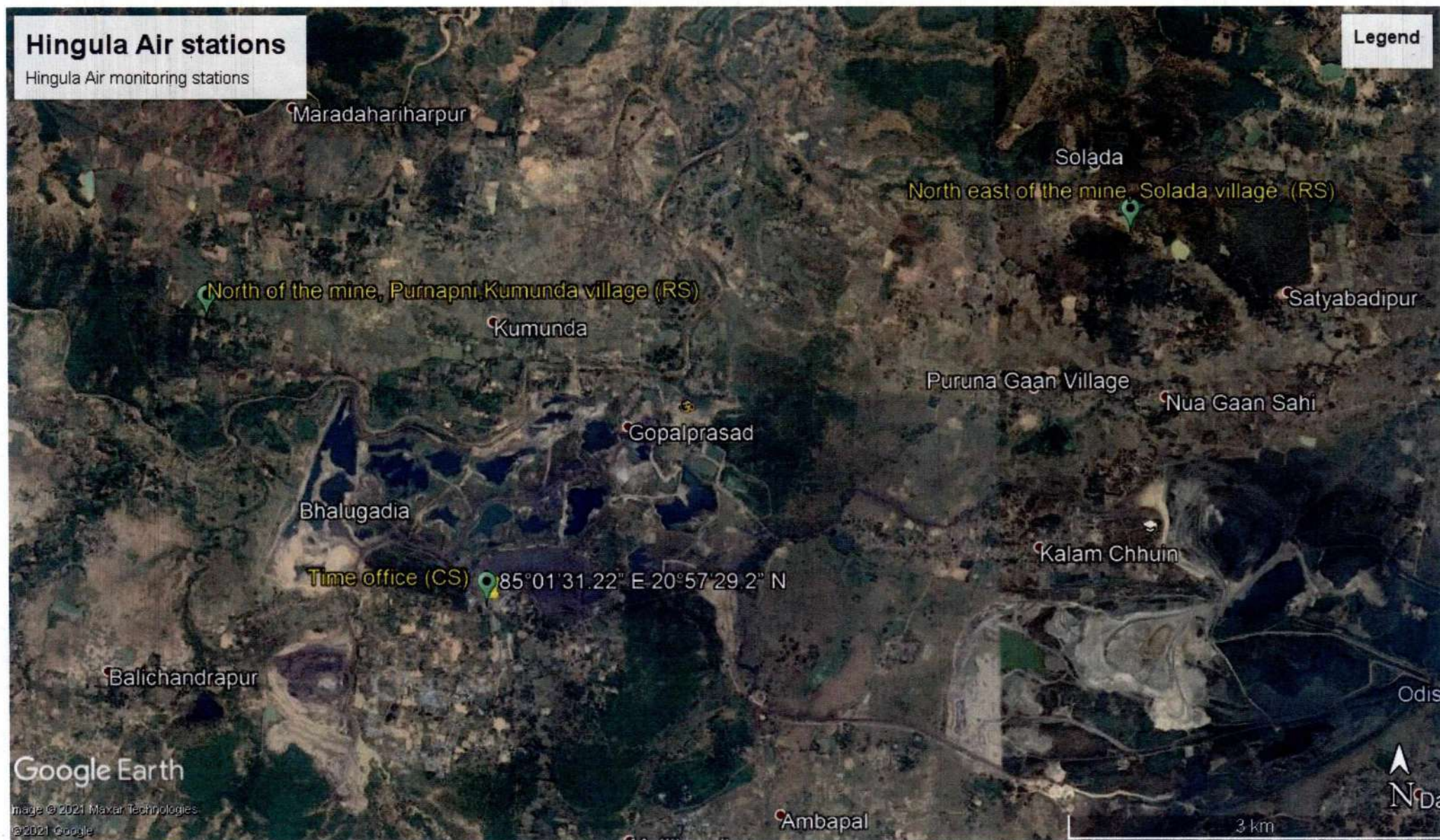




### Hingula Air stations

Hingula Air monitoring stations

Legend

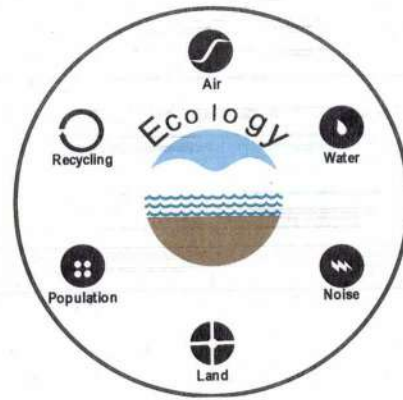




**Environmental Monitoring Report  
Of  
Talcher Area  
For  
November-2023  
Talcher Coalfield**



**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 :

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
11-Nov-23	Officer Club, Talcher Area	272	172	65	12.12	13.10	Mining Activities, Ananta, Lingaraj & Bharatpur OCP	About 1000m
11-Nov-23	Near Canteen Talcher Colliery	278	178	69	10.58	12.41	Local Transportation	About 500m
23-Nov-23	Officer Club, Talcher Area	278	175	68	12.99	13.10	Mining Activities, Ananta, Lingaraj & Bharatpur OCP	About 1000m
23-Nov-23	Near Canteen Talcher Colliery	178	188	74	14.08	14.91	Local Transportation	About 500m

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

**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
11-Nov-23	Project Office	246	146	53	14.02	14.86	Mining Activities, Transportation, CHP	About 500m
11-Nov-23	Sub-station	257	160	58	10.85	14.29	Transportation & Railway Sidings of BOCP	About 500m
29-Nov-23	Project Office	258	160	58	14.08	14.32	Mining Activities, Transportation, CHP	About 500m
29-Nov-23	Sub-station	246	147	54	12.70	15.43	Transportation & Railway Sidings of BOCP	About 500m

MoEF Standards Notification dated 25th September, 2000	600	300		120	120
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**AMBIENT AIR QUALITY DATA**

Area :

Talcher

(Compliance Station)

Project :

Deulbera

(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-Nov-23	IWSS (Reported)	270	170	64	12.70	14.32	Coal Transportation Road, Railway Siding, Coal S.Y	About 500m
22-Nov-23	IWSS (Reported)	278	178	68	14.14	16.84	Coal Transportation Road, Railway Siding, Coal S.Y	About 500m

MoEF Standards Notification dated 25th September, 2000	600	300		120	120
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**AMBIENT AIR QUALITY DATA**

Area :

**Talcher**

**(Reference Station)**

Project :

**Mandapal Sand Mine**

(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	Near Pachismeshwar Temple	182	88	36	15.08	12.00	Mining Activity	Less than 500m
01-Nov-23	Near Mandapal Chowk	188	90	38	10.21	12.53	Mining Activity	Less than 500m
02-Nov-23	Near Mandapal Chowk	176	86	35	12.99	14.97	Mining Activity	Less than 500m
02-Nov-23	Near Pachismeshwar Temple	174	84	32	14.21	18.95	Mining Activity	Less than 500m
08-Nov-23	Near Pachismeshwar Temple	188	90	37	12.70	16.84	Mining Activity	Less than 500m
08-Nov-23	Near Mandapal Chowk	192	92	39	14.02	15.43	Mining Activity	Less than 500m
09-Nov-23	Near Mandapal Chowk	198	93	41	15.46	14.91	Mining Activity	Less than 500m
09-Nov-23	Near Pachismeshwar Temple	196	93	40	12.97	12.97	Mining Activity	Less than 500m
16-Nov-23	Near Pachismeshwar Temple	194	94	42	13.85	11.23	Mining Activity	Less than 500m
16-Nov-23	Near Mandapal Chowk	195	93	40	12.99	16.84	Mining Activity	Less than 500m
17-Nov-23	Near Mandapal Chowk	182	88	36	11.90	15.43	Mining Activity	Less than 500m
17-Nov-23	Near Pachismeshwar Temple	190	92	39	16.33	16.33	Mining Activity	Less than 500m
24-Nov-23	Near Mandapal Chowk	178	83	34	14.08	16.70	Mining Activity	Less than 500m
24-Nov-23	Near Pachismeshwar Temple	185	86	37	14.92	15.78	Mining Activity	Less than 500m
25-Nov-23	Near Pachismeshwar Temple	196	92	40	11.54	13.10	Mining Activity	Less than 500m
25-Nov-23	Near Mandapal Chowk	186	91	38	15.72	17.64	Mining Activity	Less than 500m

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Test Report

**AMBIENT AIR QUALITY DATA**

Area :

Talcher

(Compliance Station)

Project :

Handhidhua 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
11-Nov-23	Manager's Office	255	156	58	12.42	14.91	Local Transportation, CHP	About 500m
29-Nov-23	Manager's Office	272	170	64	12.09	14.37	Local Transportation, CHP	About 500m

MoEF Standards Notification dated 25th September, 2000	600	300		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
01-Nov-23	Nandira Colony	195	90	39	11.38	13.72	Local Transportation,	About 500m
02-Nov-23	Nandira Colony	178	86	35	13.56	16.84	Local Transportation,	About 500m
06-Nov-23	East of the Mine, Natedi Village (Reported Only)	174	83	32	12.41	13.72	Coal Transportation Road	About 2km
07-Nov-23	East of the Mine, Natedi Village (Reported Only)	185	89	38	11.19	13.72	Coal Transportation Road	About 2km
08-Nov-23	Nandira Colony	174	82	33	12.99	13.72	Local Transportation,	About 500m
09-Nov-23	Nandira Colony	168	80	31	16.02	17.64	Local Transportation,	About 500m
13-Nov-23	East of the Mine, Natedi Village (Reported Only)	194	92	40	10.77	12.53	Coal Transportation Road	About 2km
14-Nov-23	East of the Mine, Natedi Village (Reported Only)	169	82	31	10.39	11.85	Coal Transportation Road	About 2km
16-Nov-23	Nandira Colony	180	85	36	14.81	19.60	Local Transportation,	About 500m
17-Nov-23	Nandira Colony	188	90	40	16.16	16.84	Local Transportation,	About 500m
18-Nov-23	East of the Mine, Natedi Village (Reported Only)	174	79	32	12.12	11.85	Coal Transportation Road	About 2km
20-Nov-23	East of the Mine, Natedi Village (Reported Only)	178	84	35	11.11	12.00	Coal Transportation Road	About 2km
24-Nov-23	Nandira Colony	194	94	42	15.18	12.53	Local Transportation,	About 500m
25-Nov-23	Nandira Colony	183	86	37	14.02	14.29	Local Transportation,	About 500m
27-Nov-23	East of the Mine, Natedi Village (Reported Only)	176	88	36	14.72	16.21	Coal Transportation Road	About 2km
28-Nov-23	East of the Mine, Natedi Village (Reported Only)	196	92	41	18.14	16.33	Coal Transportation Road	About 2km

\*NAAQS,2009

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


**Area: Talcher**

Project	Nandira							
Monitoring Station	Nandira Colony							
Date of sampling	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (a) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
01-Nov-2023	<20.0	6.34	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
02-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
08-Nov-2023	<20.0	5.32	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
09-Nov-2023	<20.0	5.87	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
16-Nov-2023	<20.0	7.85	<0.1	<1.0	<1.0	0.6	BQL(QL=0.7)	BQL
17-Nov-2023	<20.0	5.68	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
24-Nov-2023	<20.0	6.37	<0.1	<1.0	<1.0	0.4	BQL(QL=0.7)	BQL
25-Nov-2023	<20.0	4.88	<0.1	<1.0	<1.0	0.5	BQL(QL=0.7)	BQL
<b>Standard</b>	<b>400(24h ours)</b>	<b>180(ho ur)</b>	<b>1.0(24h ours)</b>	<b>6.0(An nual)</b>	<b>20(Ann ual)</b>	<b>04(1ho urs)</b>	<b>01(ann ual)</b>	<b>05(annu al)</b>

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

Project	Nandira							
Monitoring Station	Near Natedi Village (Reported Only)							
Date of sampling	Ammonia (NH <sub>3</sub> )	Ozone (O <sub>3</sub> )	Lead (Pb)	Arsenic (As)	Nickel (Ni)	CO	Benzo (α) Pyrene	Benzene
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06-Nov-2023	<20.0	6.30	<0.1	<1.0	<1.0	0.4	BQL(Q L=0.7)	BQL
07-Nov-2023	<20.0	5.45	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
13-Nov-2023	<20.0	5.20	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
14-Nov-2023	<20.0	5.78	<0.1	<1.0	<1.0	0.5	BQL(Q L=0.7)	BQL
18-Nov-2023	<20.0	6.69	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
20-Nov-2023	<20.0	8.25	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
27-Nov-2023	<20.0	8.63	<0.1	<1.0	<1.0	0.8	BQL(Q L=0.7)	BQL
28-Nov-2023	<20.0	4.63	<0.1	<1.0	<1.0	0.7	BQL(Q L=0.7)	BQL
<b>Standard</b>	<b>400(24 hours)</b>	<b>180(hour)</b>	<b>1.0(24 hours)</b>	<b>6.0(Annual)</b>	<b>20(Annual)</b>	<b>04(1 hours)</b>	<b>01(annual)</b>	<b>05(annual)</b>

  
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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
09-Nov-23	Officers Club, Talcher Area	67.7	64.3
09-Nov-23	Near Canteen, Talcher Colliery	62.1	60.4
28-Nov-23	Officers Club, Talcher Area	50.7	38.2
28-Nov-23	Near Canteen, Talcher Colliery	65.9	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)

*Janaki*

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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
09-Nov-23	Project Office	70.1	64.3
09-Nov-23	Sub Station, Nandira Colliery	64.3	58.1
28-Nov-23	Project Office	61.7	57.9
28-Nov-23	Sub Station, Nandira Colliery	67.1	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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TABLE--

**NOISE LEVEL MONITORING DATA**

AREA : **Talcher**

PROJECT : **Mandapal Sand Mine**

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
09-Nov-23	Near Gopinathpur Village	50.2	39.7
28-Nov-23	Near Gopinathpur Village	53.2	40.1

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 :

Talcher

PROJECT :

Deulbera Colliery

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
09-Nov-23	Manager's Office	63.7	58.5
28-Nov-23	Manager's Office	62.1	60.2

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--

**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
06-Nov-23	Talcher Colliery Sedimentation Tank Discharge	7.45	<4.0	40	32	-	
20-Nov-23	Talcher Colliery Sedimentation Tank Discharge	7.33	<4.0	34	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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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
06-Nov-23	Nandira Colliery Sedimentation Tank Discharge	7.49	<4.0	46	36	-	
20-Nov-23	Nandira Colliery Sedimentation Tank Discharge	7.61	<4.0	40	32	-	

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
06-Nov-23	Deulbera Colliery Mine Discharge at Pit Top	7.28	<4.0	54	40	-	
06-Nov-23	Ranipark Submersible Pump	7.61	<4.0	38	32	-	
20-Nov-23	Deulbera Colliery Mine Discharge at Pit Top	7.41	<4.0	42	28	-	
20-Nov-23	Ranipark Submersible Pump	7.73	<4.0	32	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 :

Handidhua Colliery

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
06-Nov-23	19X Cut Road Bore Hole Point	7.61	<4.0	28	12	-	
06-Nov-23	Handidhua Colliery Mine Discharge	7.49	<4.0	34	24	-	
20-Nov-23	19X Cut Road Bore Hole Point	7.84	<4.0	34	24	-	
20-Nov-23	Handidhua Colliery Mine Discharge	7.68	<4.0	38	36	-	

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): Talcher Area

Project (OCP / UG)	Talcher	MoEF-Sch-VI Standards
NAME OF THE STATION	Talcher Colliery Sedimentation Tank Discharge	
Date of Sampling	20-Nov-23	
Odour	Unobjectionable	-
Colour(Hazen)	2	-
Temperature(°C)	25	Shall not exceed 5 °C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	1.44	10
Ammonical Nitrogen , mg/l (As N)	0.29	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27°C] (mg/L)	<2	30
Fluoride(mg/L)	0.36	2
Copper(mg/L)	<0.03	3
Manganese(mg/L)	<0.04	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):  
Talcher Area**

Project (OCP / UG)	Nandira	MoEF-Sch-VI Standards
NAME OF THE STATION	Nandira Colliery Sedimentation Tank Discharge	
Date of Sampling	20-Nov-23	
Odour	Unobjectionable	-
Colour(Hazen)	3	-
Temperature( <sup>o</sup> C)	25	Shall not exceed 5 <sup>o</sup> C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.84	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	100
Sulphide (mg/L)	<0.1	2
BOD [3 days at 27 <sup>o</sup> C] (mg/L)	<2	30
Fluoride(mg/L)	0.39	2
Copper(mg/L)	<0.03	3
Manganese(mg/L)	<0.04	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

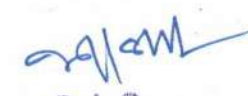
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## Effluent Quality (all Parameter): Talcher Area

Project (OCP / UG)	Deulbera colliery		MoEF-Sch-VI Standards
NAME OF THE STATION	Deulbera Colliery Mine Discharge at Pit Top	Rani Park Submersible Pump	
Date of Sampling	20-Nov-23	20-Nov-23	
Odour	Unobjectionable	Unobjectionable	-
Colour(Hazen)	1	2	-
Temperature( <sup>o</sup> C)	28	22	Shall not exceed 5 <sup>o</sup> C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.31	0.25	50
Total Kjeldhal Nitrogen, mg/l (As N)	2.22	2.22	100
Sulphide (mg/L)	<0.1	<0.1	2
BOD [3 days at 27 <sup>o</sup> C] (mg/L)	<2	<2	30
Fluoride(mg/L)	0.36	0.40	2
Copper(mg/L)	<0.03	<0.03	3
Manganese(mg/L)	<0.04	<0.04	2
Iron(mg/L)	<0.1	<0.1	3
Zinc(mg/L)	<0.04	<0.04	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)	<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): Talcher Area

Project (OCP / UG)	Handhidhua Colliery		MoEF-Sch-VI Standards
	Handhidhua Colliery Mine Discharge	19X Cut Road Bore Hole Point	
NAME OF THE STATION			
Date of Sampling	20-Nov-23	20-Nov-23	
Odour	Unobjectionable	Unobjectionable	-
Colour(Hazen)	4	2	-
Temperature(°C)	24	22	Shall not exceed 5 °C above the receiving temperature
Nitrate Nitrogen(mg/L)(As N)	<0.5	<0.5	10
Ammonical Nitrogen , mg/l (As N)	0.46	1.13	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°C] (mg/L)	<2	<2	30
Fluoride(mg/L)	0.45	0.40	2
Copper(mg/L)	<0.03	<0.03	3
Manganese(mg/L)	<0.04	<0.04	2
Iron(mg/L)	<0.1	<0.1	3
Zinc(mg/L)	0.04	<0.04	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)	<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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## Surface Water Quality Data Talcher Area

Project/OCP	Nandira	IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Jambubahali Village Pond	
Date of sampling	21-Nov-23	
pH	8.10	6.5-8.5
Color (Hazen unit)	2	300
Dissolved Oxygen(mg/L)	6.2	4
BOD (3 days 27°c(mg/L)	<2	3
Chlorides(mg/L)	29.16	600
Sulphate(mg/L)	36.23	400
Nitrate(mg/L)	<2.0	50
Fluoride(mg/L)	0.48	1.5
Total Hardness(mg/L)	88.71	-
Total dissolved solids (mg/L)	124	1500
TSS(mg/L)	40	-
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
Chromium(as Cr <sup>6</sup> )(mg/L)	<0.05	0.05
Phenolics(mg/L)	<0.001	0.005
Oil & Grease (mg/L)	<4.0	0.1
MPN (Index/100 ml)	34	-

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## Surface Water Quality Data Talcher Area

Project/OCP	Talcher	IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Pond Water of Dera Village	
Date of sampling	21-Nov-23	
pH	8.33	6.5-8.5
Color (Hazen unit)	3	300
Dissolved Oxygen(mg/L)	6.5	4
BOD (3 days 27°c(mg/L)	<2	3
Chlorides(mg/L)	48.60	600
Sulphate(mg/L)	42.32	400
Nitrate(mg/L)	<2.0	50
Fluoride(mg/L)	0.46	1.5
Total Hardness(mg/L)	129.04	-
Total dissolved solids (mg/L)	244	1500
TSS(mg/L)	34	-
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
Chromium(as Cr <sup>6+</sup> )(mg/L)	<0.05	0.05
Phenolics(mg/L)	<0.001	0.005
Oil & Grease (mg/L)	<4.0	0.1
MPN (Index/100 ml)	38	-

  
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## Surface Water Quality Data Talcher Area

Project/OCP	Mandapal Sand Mine		IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Upstream - At 200 m before leasehold area	Downstream - At 200 m after leasehold area	
Date of sampling	21-Nov-23	21-Nov-23	
pH	8.15	8.19	6.5-8.5
Color (Hazen unit)	1	3	300
Dissolved Oxygen(mg/L)	6.0	6.5	4
BOD (3 days 27°C)(mg/L)	<2	<2	3
Chlorides(mg/L)	7.78	11.66	600
Sulphate(mg/L)	17.56	17.80	400
Nitrate(mg/L)	<2.0	<2.0	50
Fluoride(mg/L)	0.37	0.34	1.5
Total Hardness(mg/L)	84.68	100.81	-
Total dissolved solids (mg/L)	110	128	1500
TSS(mg/L)	24	32	-
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
Chromium(as Cr <sup>6+</sup> )(mg/L)	<0.05	<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)	6.8	9.2	-

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## Surface Water Quality Data Talcher Area

Project/OCP	Deulbera	IS:2296-1982 Tolerance for inland Surface water (Class C)
NAME OF STATIONS	Pond Water of Gopinathpur Village	
Date of sampling	21-Nov-23	
pH	8.20	6.5-8.5
Color (Hazen unit)	1	300
Dissolved Oxygen(mg/L)	6.4	4
BOD (3 days 27°C)(mg/L)	<2	3
Chlorides(mg/L)	11.66	600
Sulphate(mg/L)	18.66	400
Nitrate(mg/L)	<2.0	50
Fluoride(mg/L)	0.45	1.5
Total Hardness(mg/L)	100.81	-
Total dissolved solids (mg/L)	130	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
Chromium(as Cr <sup>6</sup> )(mg/L)	<0.05	0.05
Phenolics(mg/L)	<0.001	0.005
Oil & Grease (mg/L)	<4.0	0.1
MPN (Index/100 ml)	23	-

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Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

**Talcher**

Project:

**Talcher Colliery**

Date of Sampling	Name of the Station	Ground Water level
11/22/2023	Piezometer no MTP 04; Inside central nursery (beside golf hut), Jagannath area (reported)	4.4
11/21/2023	Piezometer no MTP 05; Outside Ananta OCP canteen (reported)	30

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Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

Talcher

Project:

Nandira Colliery

Date of Sampling	Name of the Station	Ground Water level
11/21/2023	Piezometer no MTP 11; Inside the premises of Hingula area office	8.16

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Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

Talcher

Project:

Deulbera

Date of Sampling	Name of the Station	Ground Water level
11/22/2023	Piezometer no MTP 01; Inside the premises of Mandapal hospital (Reported only)	11.37

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Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

Talcher

Project:

Handhidhua Colliery

Date of Sampling	Name of the Station	Ground Water level
11/22/2023	Piezometer no MTP 04; Inside central nursery (beside golf hut), Jagannath area (reported)	4.4

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## Drinking Water Quality Data Talcher Area

Project / OCP	Nandira U/G		Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Canteen , Nandira Colliery	Pit Top, Nandira Colliery	
Date of Sampling	6-Nov-2023	6-Nov-2023	Acceptable	Permissible
Colour(Hazen)	1	3	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	1	5
pH	8.43	7.84	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	306	61.2	200	600
Chloride(mg/L)	71.93	13.61	250	1000
Sulphate(mg/L)	6.22	32.80	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO <sub>3</sub> )(mg/L)	282.27	100.81	200	600
Calcium(mg/L)	54.95	32.32	75	200
Fluoride(mg/L)	0.46	0.42	1	1.5
Total Dissolve Solid(mg/L)	458	188	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.08	3.63	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)	BDL	BDL	-	-

*Jaswanti*

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## Drinking Water Quality Data Talcher Area

Project / OCP Monitoring Station	Talcher U/G		Indian Drinking Standards (IS-10500):2012	
	Canteen Water, GM Office	Canteen, Talcher Colliery	Acceptable	Permissible
Date of Sampling	6-Nov-2023	6-Nov-2023		
Colour(Hazen)	2	1	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	2	1	5
pH	7.81	7.93	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	16.3	49.0	200	600
Chloride(mg/L)	40.82	15.55	250	1000
Sulphate(mg/L)	23.05	111.95	200	400
Nitrate(mg/L)	<2.0	<2.0	45	No relaxation
Total Hardness (Ca CO3)(mg/L)	88.71	274.20	200	600
Calcium(mg/L)	25.86	79.19	75	200
Fluoride(mg/L)	0.34	0.43	1	1.5
Total Dissolve Solid(mg/L)	146	326	500	2000
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.09	0.1	0.3
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Zinc(mg/L)	0.12	1.18	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)	BDL	BDL	-	-

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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	Acceptable	Permissible
Date of Sampling	6-Nov-2023		
Colour(Hazen)	2	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	5
pH	7.71	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	73	200	600
Chloride(mg/L)	23.33	250	1000
Sulphate(mg/L)	46.95	200	400
Nitrate(mg/L)	<2.0	45	No relaxation
Total Hardness (Ca CO <sub>3</sub> )(mg/L)	141.13	200	600
Calcium(mg/L)	42.02	75	200
Fluoride(mg/L)	0.36	1	1.5
Total Dissolve Solid(mg/L)	244	500	2000
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	0.22	0.1	0.3
Iron(mg/L)	<0.1	1.0	No relaxation
Zinc(mg/L)	1.6	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)	BDL	-	-

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## Drinking Water Quality Data Talcher Area

Project / OCP	Handhidhua Colliery	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Pit Top	Acceptable	Permissible
Date of Sampling	6-Nov-2023	Acceptable	Permissible
Colour(Hazen)	3	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	3	1	5
pH	8.03	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	97.9	200	600
Chloride(mg/L)	58.30	250	1000
Sulphate(mg/L)	126.10	200	400
Nitrate(mg/L)	<2.0	45	No relaxation
Total Hardness (Ca CO <sub>3</sub> )(mg/L)	483.89	200	600
Calcium(mg/L)	119.59	75	200
Fluoride(mg/L)	0.46	1	1.5
Total Dissolve Solid(mg/L)	518	500	2000
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	0.2	0.1	0.3
Iron(mg/L)	<0.1	1.0	No relaxation
Zinc(mg/L)	0.66	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)	BDL	-	-

*Jasmati*

*[Signature]*  
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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>
06-Nov-23	Dera village well (Reported only)	2

  
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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>
06-Nov-23	Natedi village well	5.4

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TABLE--

**Well Water Level Monitoring Data**

Area :

Talcher

Project :

Deulbera Colliery

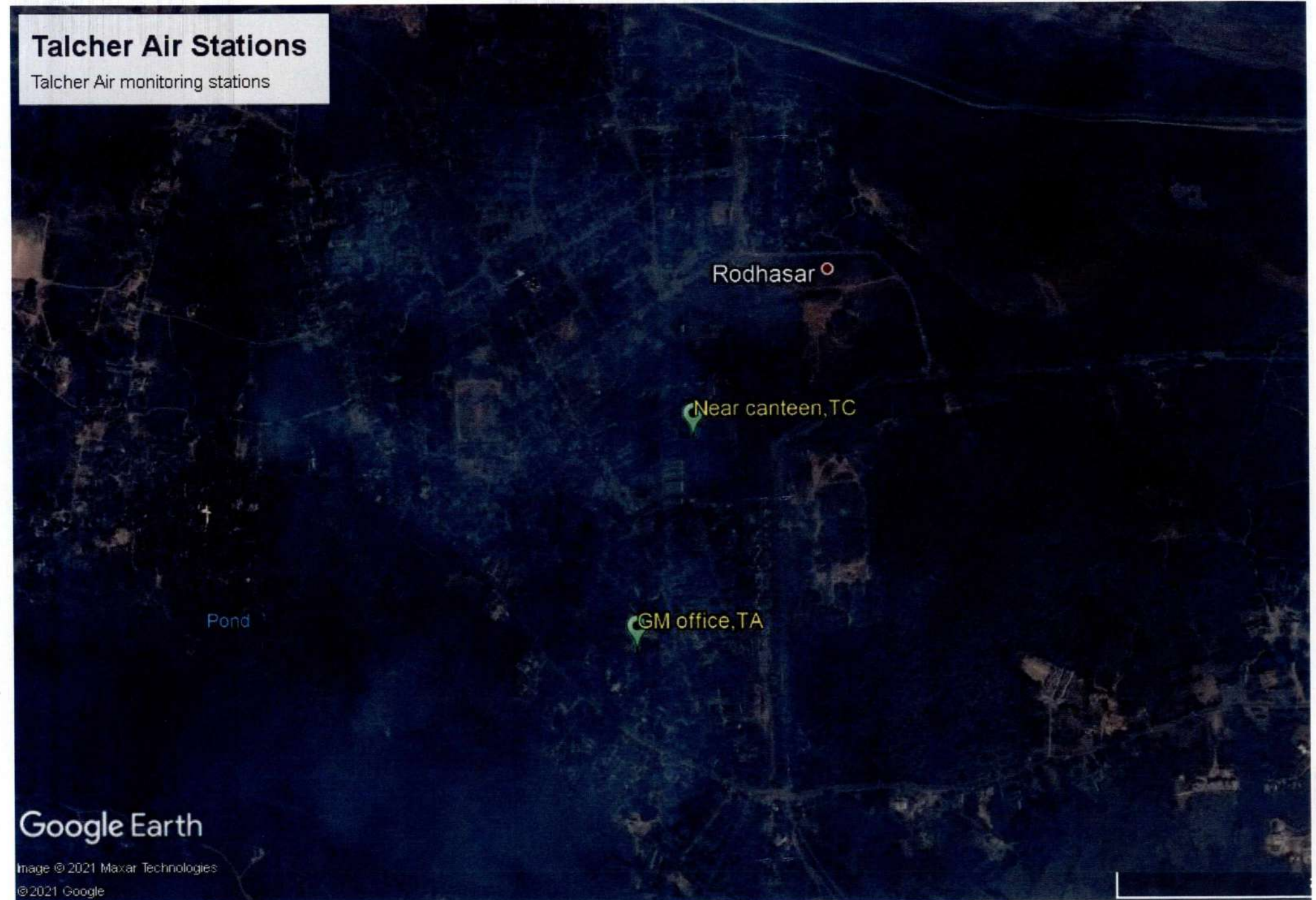
Date of Sampling	Name of the Station	Depth from Water Level (in m. bgl)
07-Nov-23	Deulbera village well (Reported only)	2.08

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## Talcher Air Stations

Talcher Air monitoring stations



Rodhasar

Near canteen, TC

Pond

GM office, TA

Google Earth

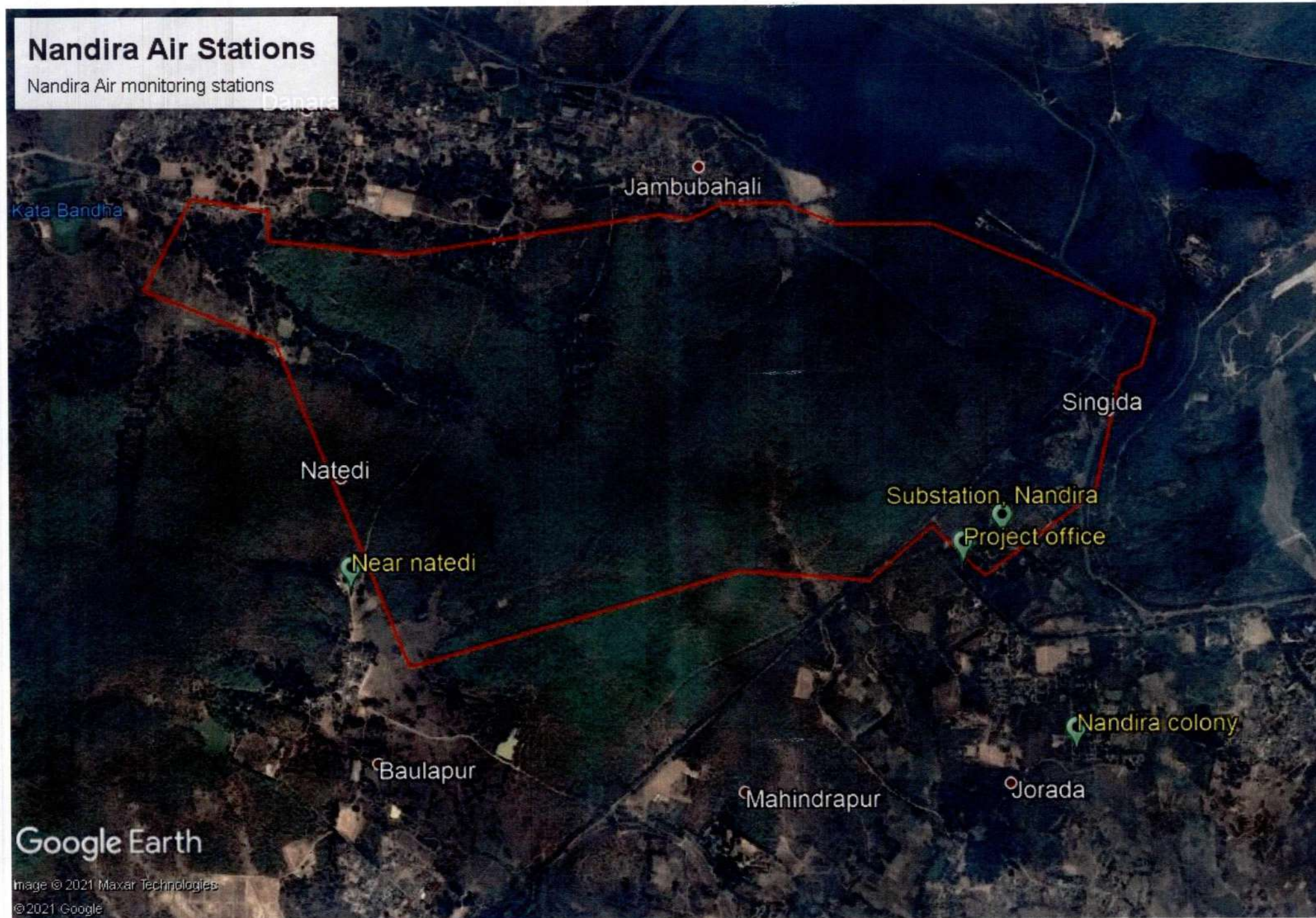
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# Nandira Air Stations

Nandira Air monitoring stations





# Deulbera Air Stations

Deulbera Air monitoring stations



Google Earth

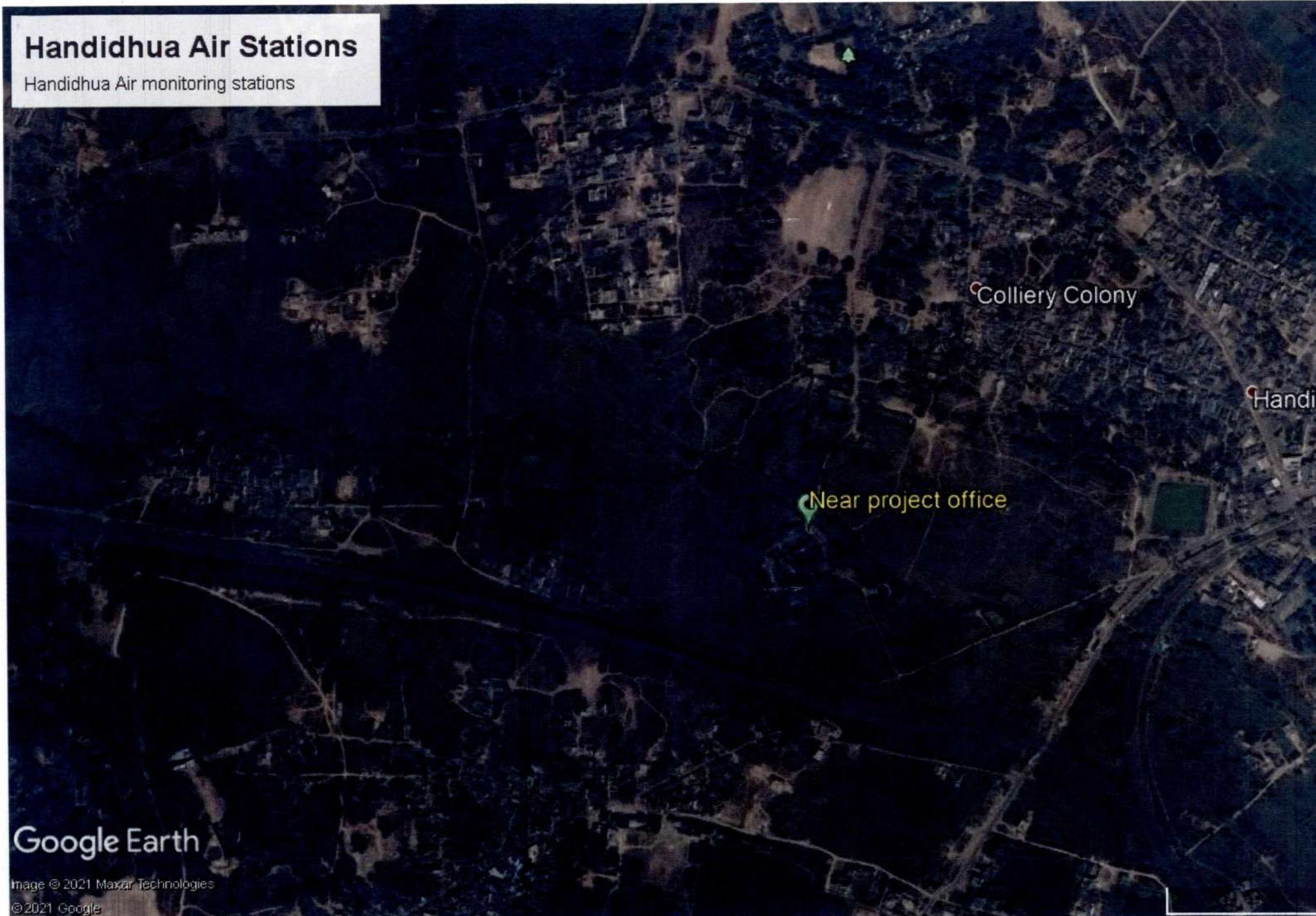
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## Handidhua Air Stations

Handidhua Air monitoring stations



Colliery Colony

Handid

Near project office

Google Earth

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