



Ref No. MCL/PO(BOCP)/Envt./2022-23/302 .

Date:24.05.2022

To,

The Director General of Forest (In-charge),
Ministry of Environment, Forest & Climate Change,
Eastern Regional Office, A/3, Chandrasekharpur,
Bhubaneswar, Odisha- 751023.

Sub: Submission of half yearly compliance report of the Environmental Clearance conditions for the period from **October'21 to April'22** in respect of Bharatpur OCP of M/s. Mahanadi Coalfields Limited.

- Ref: 1. Environmental Clearance Order vide No. J-11015/630/2007-IA.II(M),
dtd: 31.10.2008.
2. Environmental Clearance Amendment vide no. J-11015/630/2007-IA.II(M),
dtd: 27.05.2021.

Dear Sir,

In reference to the above cited subject and EC Order, EC amendment mentioned under reference; enclosed please find herewith the half yearly compliance report of the Environmental Clearance conditions for the period from **October'21 to April'22** in respect of Bharatpur OCP of M/s. Mahanadi Coalfields Limited.

This is for favour of your kind information, please.

Yours faithfully,

Encl: As mentioned above.


G.M (Mining)/ Project Officer
Bharatpur OCP.

Copy to:

1. The General Manager (E&F), MCL HQ, Burla.
2. The general Manager, Bharatpur Area.
3. The Colliery manager, Bharatpur OCP.
4. The Area Evt. Officer, Bharatpur Area.
4. The Project Engineer (Civil/Excav/E&M), Bharatpur OCP.
5. The Project Evt. Officer, Bharatpur OCP.
6. Office Copy.

HALF YEARLY COMPLIANCE REPORT ON CONDITIONS IMPOSED IN THE ENVIRONMENTAL CLEARANCE ORDER IN RESPECT OF BHARATPUR OPENCAST PROJECT

October'2021 to
March'2022

SIX MONTHLY PROGRESS REPORT ON
IMPLEMENTATION OF ENVIRONMENTAL
CLEARANCE CONDITIONS IMPOSED BY
MoEF&CC

Compliance report for the period from October-2021 to March-2022 on conditions imposed in the Environmental Clearance Order Vide No. J-11015/630/2007-IA.II (M) Dated 31.10.2008 and subsequent amendment Dated 27.05.2021 granted by MoEF&CC, GOI in respect of Bharatpur Opencast Project of M/s Mahanadi Coalfields Limited.



BHARATPUR OCP
MAHANADI COALFIELDS LIMITED

Half Yearly Compliance Report of Environmental Clearance for the period October'2021 to
 March'2022 in respect of Bharatpur OCP

A. SPECIFIC CONDITONS:

SI No.	CLEARANCE CONDITIONS	STATUS OF IMPLEMENTATION OF CONDITIONS
(i)	No mining activities shall be undertaken in the forestland for which forestry clearance has not been obtained under the provisions FC Act, 1980.	Presently, mining activities are being undertaken in the area having 134.41 Ha. of forest land, for which stage-II forestry clearance has already been obtained. Vide Letter No-F.NO.8-87/2012-FC Dtd. 07.02.2014, Govt. of India, Ministry of Environment, Forests & Climate Change and Subsequent Letter No.10F (Consent) 440/2012/4050/F&E, Bhubaneswar, Dated. 28.2.2014.
(ii)	Topsoil, if any, shall be stacked properly with proper slope at earmarked site(s) and shall not be kept active and shall be used for reclamation and development of green belt.	Top soil is used concurrently for spreading over the technically reclaimed mined out land for biological reclamation. The Top soil removed up to March'2022 is around 6095980.00 cubic meters. The area over which the said top soil has been spread is about 141.16 Ha for development of green belt and the work has been carried out departmentally.
(iii)	OB shall be simultaneously backfilled in the de-coaled area. No new OB dumps shall be created for the OB to be generated in the balance life of mine.	Over burden is simultaneously back filled in the de-coaled area. No new external OB dump has been created. Total volume of OB generated as on 31.03.2022 is 210.236 million cubic meters, out of which 195.48 million cubic meters has already been used for concurrent back-filling.
(iv)	No modification of natural drainage by construction of an embankment or diversion of nallahs, Jhores, drains shall be undertaken in the expansion project.	No modification of natural drainage has been done in the project area.
(v)	Monitoring and management of existing reclaimed dumpsite shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional office located at Bhubaneswar on yearly basis.	The biological reclamation of overburden dumps is in continuous process. Total 141.16 ha of backfilled area has already been planted. Total 11840 nos of plants over 7.40 Ha of backfilled area were planted by DFO, Angul in 2021. Total 3000 nos. of different variety of fruit bearing plants were distributed to employees and villagers around the mine. There are 05 nos. of external OB dumps with an area of 49.50 ha. Out of which 30.46 ha has already been biologically reclaimed. In the rest area, natural vegetation has been developed and stabilized. The plantation target for the FY 2022-23 is detailed below: Backfilled Area: 05.00 ha Avenue plantation: 2.6 RKM (1.3 kms each side of the village road.
(vi)	Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green	Catch drains have been provided at the toe of OB dumps from where water is collected in different sumps and is utilized for watering the mine area, roads, green belt development etc. The details of capacity of sumps are as follows.

	<p>belt development, etc. The drains shall be regularly de-silted and maintained properly.</p> <p>Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper setting of slit material.</p>	<table border="1" data-bbox="659 219 1497 521"> <thead> <tr> <th>Sump Name</th> <th>Actual Area(m²)</th> <th>Depth (m) (Average)</th> <th>Volume (Lakh m³)</th> </tr> </thead> <tbody> <tr> <td>Main Sump 01</td> <td>47688</td> <td>40</td> <td>19.08</td> </tr> <tr> <td>Main Sump 02</td> <td>17024</td> <td>40</td> <td>6.81</td> </tr> <tr> <td>South Quarry Sump</td> <td>359583</td> <td>40</td> <td>143.83</td> </tr> <tr> <td>Old Quarry Sump</td> <td>47805</td> <td>40</td> <td>19.12</td> </tr> <tr> <td>North Sump</td> <td>64124</td> <td>40</td> <td>25.65</td> </tr> <tr> <td colspan="3">Total</td> <td>214.49</td> </tr> </tbody> </table> <p>Garland drains have been provided as per the requirement and safety margin. About two lakhs liters capacity of sedimentation tank is provided for settling the silt material of mine water.</p>	Sump Name	Actual Area(m ²)	Depth (m) (Average)	Volume (Lakh m ³)	Main Sump 01	47688	40	19.08	Main Sump 02	17024	40	6.81	South Quarry Sump	359583	40	143.83	Old Quarry Sump	47805	40	19.12	North Sump	64124	40	25.65	Total			214.49
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(vii)	<p>Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.</p>	<p>The dumps have been properly planted and the slopes have been spread with grass seeds thus making dumps resistant to soil erosion. The catch drains have been constructed to check the runoff and siltation at toe of the OB dumps.</p>																												
(viii)	<p>Crushers at the CHP shall be operated with high efficiency bag filters, water sprinkling system provided to check fugitive emissions from crushing operations haul roads and at transfer points shall be mist-spray type, and the conveyor system shall be closed type.</p>	<p>Crushers at the C.H.P are operated with high efficiency misters (02 nos. water guns, 26 nos. sprinklers and about 400 misters) to check fugitive dust emission from crushing operation and haul road dust suppression is being done by 5 (five) number of 28 KL departmental mobile Water Tankers and 05 Nos.- 12 KL contractual mobile water tankers. Closed type conveyor system is arranged for coal dispatch.</p> <p>RLS (SILO Loading System) consists of 02 Nos. of loading chutes and each loading chute is provided with 32 Nos. of Misters for suppressing dust. All are working in good condition. New SILO with capacity of 15 MTPA has been commissioned and is equipped with water sprinkling system. This will enable dust free transportation with closed conveyor system.</p> <p>12 nos. of fixed type Fog cannons of 100 mtrs. throw have been installed at different dust prone points such as railway sidings, haul roads, stock yards and transfer points for dust suppression (mist spray type).</p> <p>01 no. mobile fog canon has also been deployed for dust suppression over coal transportation road & coal corridor road.</p>																												
(ix)	<p>Drills shall be wet operated. Approach roads shall be black topped and mechanical sweepers shall be regularly deployed to clear the dust off the main approach roads and mineral transportation roads. Water sprinkling (fixed and mist type, mobile) shall be regularly done along the main haul roads.</p>	<p>Drills are equipped with wet drilling arrangements and are in working order. The haul roads are regularly sprayed with water by mobile tankers (5 nos. 28KL capacity). Around 5.5 km of internal coal transportation road is being made concreted. One mechanical road sweeper is deployed for dust removal from CT roads and approach roads and public road near Mine area</p> <p>Contractual water tankers are also deployed on coal transportation road and railway siding and other mining zones at Bharatpur OCP. Apart from this two numbers of instant water shower system at exit of the mine quarry and 19 nos. of fixed rain gun water sprinklers at</p>																												

		<p>railway sidings VII & VIII are installed.</p> <p>01 no. mobile fog canon has also been deployed for dust suppression over coal transportation road & coal corridor road.</p> <p>02 nos. of mechanical road sweepers have been deployed for dust suppression over coal transportation road, coal corridor road, approach road & nearby village roads.</p>																					
(x)	<p>The total area brought under afforestation shall not be less than 694.28 ha which includes backfilled area (659.14 ha), infrastructure and along roads, safety zone and vacant are (35.14 ha), and area in township outside the lease (4.40 ha) by planting native species in consultation with the local DFO/ Agriculture Department. The density of the trees shall be around 2500 plants per ha.</p>	<p>It is being done as per the norms and afforestation work has been done along the roads, safety zone and vacant area in township etc. in consultation with DFO, Angul / OFDC, Angul. About 185.97 Ha. of land has already been afforested as on 30.09.2020</p> <p>Plantation data of last five years is as follows:</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Planted backfilled area</th> <th>Expenditure (Rs)</th> </tr> </thead> <tbody> <tr> <td>2014-15</td> <td>4.80 Ha.</td> <td>17,21,303.00/-</td> </tr> <tr> <td>2015-16</td> <td>3.2 Ha</td> <td>13,19,363.59/-</td> </tr> <tr> <td>2016-17</td> <td>5.0 Ha</td> <td>19,63,440.20/-</td> </tr> <tr> <td>2017-18</td> <td>6.88 Ha</td> <td>21,20,141.46/-</td> </tr> <tr> <td>2020-21</td> <td>6.5 Ha</td> <td>18,01,000.00/-</td> </tr> <tr> <td>2021-22</td> <td>7.80 Ha</td> <td>3,03,000.00/-</td> </tr> </tbody> </table>	Year	Planted backfilled area	Expenditure (Rs)	2014-15	4.80 Ha.	17,21,303.00/-	2015-16	3.2 Ha	13,19,363.59/-	2016-17	5.0 Ha	19,63,440.20/-	2017-18	6.88 Ha	21,20,141.46/-	2020-21	6.5 Ha	18,01,000.00/-	2021-22	7.80 Ha	3,03,000.00/-
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(xi)	<p>A Progressive Mine Closure plan shall be implemented and OB generated shall be simultaneously backfilled so as to backfill and reclaim 659.14 ha of the de-coaled area and the balance 9.60 ha being converted into a water reservoir shall be protected by peripheral fencing and the upper benches of the reservoir shall be gently sloped and stabilized with plantation.</p>	<p>It is being done as per the plan and balance area will be converted into a water reservoir and protected with peripheral wall and O.B. dumps.</p>																					
(xii)	<p>Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May) monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to MoEF&CC to the Central pollution Control Board quarterly within one month of monitoring.</p>	<p>A network of 23 peizometers has already been established in Talcher Coalfields to monitor and assess the long term water table variation in the aquifers. Out of 23 nos. of peizometers 02 nos. (MTP 09- Inside the premises of Joragarhia Panchayat high school and MTP 10- Inside the premises of Danara high school) are falling under premises of Bharatpur OCP. Apart from this, existed open wells from around three villages are being carried out for groundwater quality monitoring. The monitoring report is enclosed in Annexure-I.</p>																					

(xiii)	The company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities shall continue to meet water requirement of the affected villages in case the village wells go dry due to dewatering of mine.	<p>Five numbers of rainwater harvesting units have been constructed in the premises of the Mine. And also three nos. of ponds are there in the nearby villages i.e. Padmabatipur, Bahal and Rakas village and are being filled with runoff water for ground water recharge and details are as follows:</p> <table border="1" data-bbox="659 365 1525 517"> <thead> <tr> <th>Ponds</th> <th>Capacity</th> </tr> </thead> <tbody> <tr> <td>Padmabatipur village</td> <td>0.5 Mm³</td> </tr> <tr> <td>Bahal Village</td> <td>1.2 Mm³</td> </tr> <tr> <td>Rakas Village</td> <td>0.75 Mm³</td> </tr> </tbody> </table> <p>Apart from this nearby village ponds are de-silted and refilled with water regularly. Besides, there are 02 (two) nos. of dead quarries in which rain water is being collected for ground water recharge.</p>	Ponds	Capacity	Padmabatipur village	0.5 Mm ³	Bahal Village	1.2 Mm ³	Rakas Village	0.75 Mm ³																																				
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(xiv)	Sewage treatment plant shall be installed/ augmented in the existing colony for the expansion project. ETP shall be provided/ augmented for workshop and CHP wastewater.	The STP is in running condition in the existing colony and no new quarters have been constructed for the expansion project. The ETP exists for the workshop & wastewater generated at C.H.P is channelized to South Quarry Sump. The ETP is regularly cleaned & maintained. The treated effluent from ETP is monitored and the parameters are also within the limits prescribed. Monitoring data are provided in Annexure- I.																																												
(xv)	Besides carrying out regular periodic health checkup of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health checkup for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmadabad within a period of one year and the results reported to this Ministry and to DGMS.	<p>IME & PME of workmen are being done as per statutory provision. Medical board for occupational diseases exists as per ILO norms. No cases of occupational diseases have yet been reported. Details of IME & PME conducted for the last 5 years is given below:</p> <table border="1" data-bbox="659 1081 1525 1288"> <thead> <tr> <th></th> <th colspan="2">2017</th> <th colspan="2">2018</th> <th colspan="2">2019</th> <th colspan="2">2020</th> <th colspan="2">2021</th> </tr> <tr> <th></th> <th>IME</th> <th>PME</th> <th>IME</th> <th>PME</th> <th>IME</th> <th>PME</th> <th>IME</th> <th>PME</th> <th>IME</th> <th>PME</th> </tr> </thead> <tbody> <tr> <td>Dept.</td> <td>18</td> <td>449</td> <td>199</td> <td>81</td> <td>450</td> <td>447</td> <td>137</td> <td>173</td> <td>12</td> <td>159</td> </tr> <tr> <td>Contractual</td> <td>233</td> <td>63</td> <td>362</td> <td>Nil</td> <td>65</td> <td>Nil</td> <td>199</td> <td>Nil</td> <td>201</td> <td>Nil</td> </tr> </tbody> </table>		2017		2018		2019		2020		2021			IME	PME	IME	PME	IME	PME	IME	PME	IME	PME	Dept.	18	449	199	81	450	447	137	173	12	159	Contractual	233	63	362	Nil	65	Nil	199	Nil	201	Nil
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(xvi)	For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and report submitted to MOEF and its Regional office at Bhubaneswar.	A copy of Land use maps based on satellite imagery for the year 2018 has already been submitted to Additional PCCF, MoEF&CC, Bhubaneswar by letter vide no- 427 dated. 16.05.19. The work for generation of Land use pattern maps based on satellite imagery for the year 2020 was carried out by CMPDIL. Annual Land use/land cover details of Bharatpur OCP is also available on the website of Mahanadi Coalfields Limited (http://www.mahanadicoal.in/Environment/).																																												
(xvii)	A detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests within 6 months of grant of this letter for approval.	Final mine closure plan has been prepared by CMPDIL. Submitted on 05/12/2015 to The Chief Conservator of Forest, MoEF&CC, Eastern Regional Office, Bhubaneswar, and The Director EIA monitoring cell, Ministry of Environment and Forest, New Delhi.																																												

(xviii)	<p>R&R for the balance 860 PAFs from 3 villages- Padmabatipur (502 including 30 tribal), Dasarathipur (35) and Rakas (353) shall be prepared and implementation within a specified time-frame. R&R norms shall be not less that of the national R&R Policy. The socioeconomic status of the displaced communities should be monitored over the life of the project for all the 17 villages being displaced and a report furnished once every 3 years on the key socioeconomic parameters/indices based on the UNDP Human Development Report in comparison to pre-project scenario.</p>	<p>As per the record the status of Rehabilitation &Resettlement of Bharatpur OCP is as follows.</p> <ol style="list-style-type: none"> 1. Resettlement (Displacement/ plot and building assistance) <ol style="list-style-type: none"> a. Padmabatipur & Dasarathipur <table style="margin-left: 40px;"> <tr> <td>Total Eligible/entitled</td> <td style="text-align: right;">220</td> </tr> <tr> <td> ◆ Already provided</td> <td style="text-align: right;">215</td> </tr> <tr> <td> ◆ Option not yet given</td> <td style="text-align: right;">05</td> </tr> </table> <ol style="list-style-type: none"> 2. Rehabilitation (Employment) <ol style="list-style-type: none"> a. Padmabatipur & Dasarathipur <table style="margin-left: 40px;"> <tr> <td>Total Eligible/entitled</td> <td style="text-align: right;">191</td> </tr> <tr> <td> ◆ Already provided</td> <td style="text-align: right;">178</td> </tr> <tr> <td> ◆ Not eligible/ rejected</td> <td style="text-align: right;">07</td> </tr> <tr> <td> ◆ Cash compensation opted</td> <td style="text-align: right;">05</td> </tr> <tr> <td> ◆ Under process</td> <td style="text-align: right;">01</td> </tr> </table> <p>The R&R of PAFs of Rakas village is now being implemented by adjacent Jagannath OCP mine.</p>	Total Eligible/entitled	220	◆ Already provided	215	◆ Option not yet given	05	Total Eligible/entitled	191	◆ Already provided	178	◆ Not eligible/ rejected	07	◆ Cash compensation opted	05	◆ Under process	01
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B. GENERAL CONDITONS:

(i)	No change in mining technology and scope of working should be made without prior approval of the ministry of Environmental and forests.	The mine is being operated with shovel-dumper combination, dragline along with surface miner. The coal is being dispatched through Rail, MGR (RLS-SILO) and another SILO of 15.00 MTPA capacity has been commissioned for dust free coal dispatch. The surface miner has been introduced to produce coal in eco-friendly manner thereby controlling noise, vibration & dust to a great extent. No change in mining technology and scope of working will be made without prior approval of the MoEF&CC.																					
(ii)	No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.	<p>No change in the calendar plan including excavation, quantum of mineral coal and waste (OB) has been made. However, the details of sanctioned capacity and the actual production of coal for the last 5 years are as follows-</p> <table border="1" data-bbox="730 651 1481 992"> <thead> <tr> <th>Year</th> <th>Sanctioned Capacity</th> <th>Actual Prod. of Coal</th> </tr> </thead> <tbody> <tr> <td>2016-17</td> <td>20 Million Te</td> <td>13.58 M Te</td> </tr> <tr> <td>2017-18</td> <td>20 Million Te</td> <td>15.03 M Te</td> </tr> <tr> <td>2018-19</td> <td>20 Million Te</td> <td>10.63 M Te</td> </tr> <tr> <td>2019-20</td> <td>20 Million Te</td> <td>04.78 M Te</td> </tr> <tr> <td>2020-21</td> <td>20 Million Te</td> <td>07.34 Mt Te.</td> </tr> <tr> <td>2021-22</td> <td>20 Million Te</td> <td>07.43 Mt Te.</td> </tr> </tbody> </table>	Year	Sanctioned Capacity	Actual Prod. of Coal	2016-17	20 Million Te	13.58 M Te	2017-18	20 Million Te	15.03 M Te	2018-19	20 Million Te	10.63 M Te	2019-20	20 Million Te	04.78 M Te	2020-21	20 Million Te	07.34 Mt Te.	2021-22	20 Million Te	07.43 Mt Te.
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(iii)	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for SPM, RPM, SO ₂ and heavy metals such as Hg, Pb, Cr, As, etc. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.	Six ambient air quality monitoring stations in the core zone as well as in the buffer zone have been established under Bharatpur Project in consultation with RO, Angul, OSPCB for monitoring - SPM, RPM, PM _{2.5} , SO ₂ and NO _x . The fortnightly monitoring report of SPM/PM ₁₀ /PM _{2.5} / SO ₂ /NO _x for last six months is given in the monitoring data (Annexure-I).The monitoring report of heavy metals is also enclosed in Annexure-I.																					
(iv)	Data on ambient air quality (SPM, RPM, SO ₂ and NO _x and heavy metals such as Hg, Pb, Cr, As, etc) shall be regularly submitted to the ministry including its Regional Office at Bhubaneswar and to the state Pollution Control Board and the Central Pollution Control Board once in six months.	The Air quality parameters SPM, PM ₁₀ , PM _{2.5} , SO ₂ , & NO _x are being monitored fortnightly. Heavy metals such as Hg, Pb, As, Ni, Cd& Cr are monitored once in six months at six locations. Data on ambient air quality monitoring for SPM, RPM, SO ₂ and NO _x is submitted regularly to MOEF&CC regional office and OSPCB six monthly. Monitoring report for half year ending Sep-2021 is enclosed in Annexure - I.																					
(v)	Fugitive dust emissions (SPM, RPM, SO ₂ , NO _x and heavy metals such as Hg, Pb, Cr, As, etc) from all the sources shall be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul roads, wagon loading, and dump trucks (loading and unloading) points shall be	<p>Dust emission (SPM, RPM, SO₂, NO_x and PM_{2.5}) from all the sources are being regularly monitored and properly recorded. (Monitoring report attached as Annexure - I).</p> <p>Water spraying using (5 Nos 28 KL& 4 12KL)mobile tankers, fixed sprinklers& mist spray system is regularly being done on haul roads, C.H.P, Wagon loading points, railway sidings etc. In addition, Two road Sweeping Machines is also deployed on Coal transportation roads, coal corridor road and approach roads before sprinkling for</p>																					

	provided and properly maintained.	<p>minimizing the airborne dust.</p> <p>Apart from these arrangements, Truck mounted Fog cannons (01 No more than 100 meter throw and 12 nos. less than 100 mtr throw) are deployed (06 nos. already commissioned) for dust suppression over Coal face, OB face, Stock yards, haul road, Siding etc.</p> <p>Continuous efforts are being given to minimize the instances of over limit of the AAQ parameters especially PM2.5 and SPM from prescribed limit. Necessary actions and mitigate measures are continuously being taken to keep the dust emission under the prescribed standards.</p>																																																																								
(vi)	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM etc should be provided with ear plugs/muffs.	<p>During the last six months sufficient Nos. of Ear plugs have been provided to different categories of operators working in the zone of high noise level beyond the threshold limit such as in blasting/drilling operation, CHP & RLS. Monitoring data on noise levels is enclosed in Annexure-I. The details of PPEs provided in last six years at Bharatpur OCP is given in the below table.</p> <table border="1"> <thead> <tr> <th>Sl. No</th> <th>Description</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Canvas Shoe</td> <td>1253</td> <td>2170</td> <td>1466</td> <td>722</td> <td>968</td> <td>848</td> </tr> <tr> <td>2</td> <td>Gum Boot</td> <td>549</td> <td>598</td> <td>362</td> <td>260</td> <td>1650</td> <td>285</td> </tr> <tr> <td>3</td> <td>Helmet</td> <td>50</td> <td>760</td> <td>466</td> <td>576</td> <td>482</td> <td>452</td> </tr> <tr> <td>4</td> <td>Dust mask</td> <td>680</td> <td>820</td> <td>341</td> <td>395</td> <td>6200</td> <td>840</td> </tr> <tr> <td>5</td> <td>Ear plug</td> <td>400</td> <td>Nil</td> <td>83</td> <td>Nil</td> <td>117</td> <td>256</td> </tr> <tr> <td>6</td> <td>Safety Goggles</td> <td>Nil</td> <td>300</td> <td>200</td> <td>143</td> <td>91</td> <td>134</td> </tr> <tr> <td>7</td> <td>Rubber hand glove (pairs)</td> <td>41</td> <td>60</td> <td>46</td> <td>13</td> <td>56</td> <td>21</td> </tr> <tr> <td>8</td> <td>Fluorescent Jackets</td> <td>145</td> <td>350</td> <td>75</td> <td>107</td> <td>185</td> <td>156</td> </tr> </tbody> </table>	Sl. No	Description	2016	2017	2018	2019	2020	2021	1	Canvas Shoe	1253	2170	1466	722	968	848	2	Gum Boot	549	598	362	260	1650	285	3	Helmet	50	760	466	576	482	452	4	Dust mask	680	820	341	395	6200	840	5	Ear plug	400	Nil	83	Nil	117	256	6	Safety Goggles	Nil	300	200	143	91	134	7	Rubber hand glove (pairs)	41	60	46	13	56	21	8	Fluorescent Jackets	145	350	75	107	185	156
Sl. No	Description	2016	2017	2018	2019	2020	2021																																																																			
1	Canvas Shoe	1253	2170	1466	722	968	848																																																																			
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5	Ear plug	400	Nil	83	Nil	117	256																																																																			
6	Safety Goggles	Nil	300	200	143	91	134																																																																			
7	Rubber hand glove (pairs)	41	60	46	13	56	21																																																																			
8	Fluorescent Jackets	145	350	75	107	185	156																																																																			
(vii)	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19 th May 1993 and 31 st December 1993 or as amended from time to time discharge. Oil and grease trap should be installed before discharge of workshop effluents.	<p>Effluent generated in the workshop is treated in workshop Effluent Treatment Plant (ETP) and the treated effluent is recycled for vehicle washing purpose in the workshop. Mine water effluent is being collected in Mine Sumps, where sedimentation of particles takes place and then the treated water is utilized for industrial purpose like dust suppression, HEMM washing etc. Monitoring report of effluent data for half year ending March'22 is enclosed as Annexure - I</p>																																																																								
(viii)	Vehicular emissions should be kept under control and regularly monitored. Vehicles used for transporting the mineral should be covered with tarpaulins and optimally loaded.	<p>Vehicular emission is kept under control and regularly monitored. Emission Test is carrying out for vehicles by certified pollution testing center. Vehicles are issued with valid PUC certificates. Vehicles used for transporting of coal from the mine to outside are loaded optimally and covered with tarpaulin. All the truck owners are taking NOC from SPCB, for their vehicles.</p>																																																																								

(ix)	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	An Environmental Laboratory has been established in consultation with SPCB. Contact details of Laboratory In-charge: U.K. Mohanty, Chief. Manager (Envt.), CMPDIL RI-VII, Bhubaneswar Contact Number: +91 9438881006
(x)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of the workers should be under taken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.	Personnel working in dusty areas are provided with adequate training and information on safety and health aspects and they are regularly provided with dust masks. Occupational health surveillance of workers is under taken periodically. The details of IME & PME report has already given at point No. (xv) of the Specific Condition above. The details of PPEs provided in last six years at Bharatpur OCP is given in point no (vi)
(xi)	A separate environmental management cell with suitable qualified personnel should be set up under the control of a senior executive, who will report directly to the head of the company.	A separate Environmental Department under the control of GM (Envt.) has been set up at HQ level who reports to head of the organization. An executive in the rank of Dy. Manager (Envt.) is posted at area level and Project Environment Officer in the capacity of Dy. Manager (Mining) at Project level is posted to look after the Environmental Compliances.
(xii)	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to this ministry and it's Regional Office at Bhubaneswar.	Financial provisions are made towards environment control measures and are not diverted for any other purpose. The expenditure for implementation of environmental safeguards an amount of Rs. 449.31 lakhs in 2019-20 and in 2020-21 around Rs. 426.34 has been spent for implementation of environmental conditions. During 2021-22 around Rs. 562.67 lakhs have been expended. The details of expenditure are provided in Annexure - II.
(xiii)	A copy of the Environmental clearance letter will be marked to concern Panchayat/local NGO, if any, from whom any suggestion, representation has been received while processing the proposal.	The condition has been complied with. No further suggestion/representation has been received at this end.
(xiv)	State pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/Tahasildar's Office for 30 days.	Action has been taken & the condition has been complied with, by OSPCB.
(xv)	The project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance and a copy of the clearance letter is	The condition has been complied with during the year 2009 and published in three nos. local newspapers in Hindi, Oriya and English languages. The exact date is not traceable.

	available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at http://envfor.nic.in .	
Conditions as per the EC amendment F. No. J-11015/630/2007-I. A-II(M) dt. 27/05/2021		
(i)	PP should adopt in pit conveyor belt for the transportation and fleet size should increase up to 60 Tonne.	Closed conveyor belt system (2.45 km length) with SILO of 15 MTPA capacity has been commissioned and it has been in operation since Oct'2018. Receiving hopper of Conveyor system is located within the quarry area. However, feasibility in adopting in pit conveyor belt for the transportation will be explored as the project is already having running integrated coal contracts including transportation.
(ii)	Progressive reclamation of OB dump shall be conducted and Active OB dump should not be kept barren/open and should be covered by temporary grass to avoid air born of particles.	The biological reclamation of overburden dumps is in continuous process. Total 141.16 ha of backfilled area has already been planted. Total 11840 nos. of plants over 7.40 Ha of backfilled area were planted in 2021-22. Plantation work was carried out by DFO, Angul. The plantation target for the FY 2022-23 is detailed below: Backfilled Area: 05.00 ha Avenue plantation: 2.6 RKM (1.3 kms each side of the village road.
(iii)	10 Fog cannon shall be installed to reduce the impact of air pollution on haul road, OB dump and mining areas.	01 No. Truck mounted (>100mtr throw) Fog cannon has been deployed in the mine for dust suppression over coal corridor road, haul road and Coal face area and OB face area. 12 nos. Fog cannons (<100mtr throw) have already been installed at different locations such as railway sidings, haul roads, stock yards and transfer points for dust suppression (mist spray type).
(iv)	Project proponent shall carry out dense plantation (50,000 nos) in safety zone of these three mines with Sal Forest only.	We have requested to State Forest department and plantation agencies like OFDC and CGRVVNL for taking up Sal plantation in the mine. Safety zone of Bharatpur mine is 7.43 Ha. Plantation of maximum 20000 nos Sal tree @2500 nos/Ha can be done. Already 1.875 ha was planted by DFO, Angul in 2021-22. Rest of the area will be planted with Sal tree in 2022. 9.0 ha of Jagannath OCP was already planted with 18000 Nos plants by DFO, Angul and CGRVVNL in 2020 &2021.
(v)	Project proponent to plant 2,00,000 nos. of Sal trees along the transportation route in two years to prevent the effect of air pollution near managers office. After completion of tree plantation, number of trees shall be duly endorsed from District Forest Officer.	Persuasion with State Forest department and plantation agencies like OFDC and CGRVVNL for taking up the plantation is under progress.. Plantation will be carried out in monsoon season of 2022. Total transportation road including Haul road, CT road and coal corridor road comes to 15.68 Km. Maximum 1,00,000 plants can be planted along the transportation road in the mine at present. Plantation of Sal tree will be completed by Oct'2024. To this effect an endorsement by the DFO, Angul will be communicated to the

		Eastern Regional Office of MoEF&CC, Bhubaneswar. It is requested to kindly consider for plantation of 100000 Nos Sal tree along the transportation roads in the mine.
(vi)	Hon'ble Supreme court in an writ petition(s) civil no.114/2014, common cause vs union of India 7 Ors vide its judgement dt 18.01.2020 has directed the union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been distributed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc., Compliance of this condition after mining activity is over at the cost of the mining lease holders/ project proponent. The implementation report of the above said condition shall be sent to Regional office of the MoEF&CC	Re-grassing and restoration of degraded land due to mining activities is part of progressive mine closure. However, Project will implement re-grassing and restoration of left out land during final mine closure and the implementation report of the said condition will be submitted to the Regional office of the MoEF&CC
(vii)	The permanent haul road shall be constructed of cement concrete and fixed type water shall be installed.	5.5 km of internal coal transportation road and haul road of cement concrete road is completed. 3.5 km of dedicated coal corridor road also made concreted. 5 nos. 28KL Water tankers are being deployed for dust suppression over haul road and coal transportation roads. 1 no. truck mounted mist spray fog cannon (more than 100mtrs throw) is deployed for dust suppression over haul road. 02 nos. mechanical road sweepers have also been deployed for dust suppression.
(viii)	Recommendation of mitigation measures in R&R report shall be implemented within certain timeline.	Rehabilitation & Resettlement is provided as per the R&R policy of Govt. of Odisha. Status on R&R of Bharatpur mine is provided in special condition no xviii

24.05.22.
 Dy. Manager (Mining)/ P.E.O
 Bharatpur Opencast Project

24/5/22
 G.M (Mining)/ Project Officer
 Bharatpur Opencast Project

ANNEXURE – I

ENVIRONMENTAL MONITORING DATA FOR THE PERIOD OF FROM October'2021 TO March'2022

(Annexed at the end of report)

- AAQ MONITORING DATA
- EFFLUENT QUALITY MONITORING DATA
- NOISE LEVEL MONITORING DATA
- DRINKING WATER QUALITY DATA
- GROUND WATER LEVEL & QUALITY

ANNEXURE – II

■ Expenditure on Environment from October'2021 to March'2022

Description of the Work	Amount (in Lakh rupees.)(approx.)
Water Quality Management:	
Expenditure on E.T.P	8.00
Expenditure on STP	5.00
Construction/maintenance of garland drains/catch drains etc.	12.26
Construction/ maintenance of rock fill/ toe wall	3.03
Air Quality Management:	
Expenditure on water tankers for dust suppression (Contractual)	27.31
Expenditure on water tankers for dust suppression (Departmental)	302.73
Expenditure on water sprinklers for dust suppression (fixed type fog canons installed at railway sidings, CHP, SILO and different dust prone chawk)	103.37
Expenditure on mobile fog canon for dust suppression	50.15
Mechanical Road Sweeper	34.88
Routine Environment Monitoring Work	77.39
Plantation on OB dumps (Maintenance activities)	51.57
Expenditure on water supply to nearby villages	44.73
Consent to Operate fees	80.00
Hazardous waste authorization fees	0.07
TOTAL	800.49

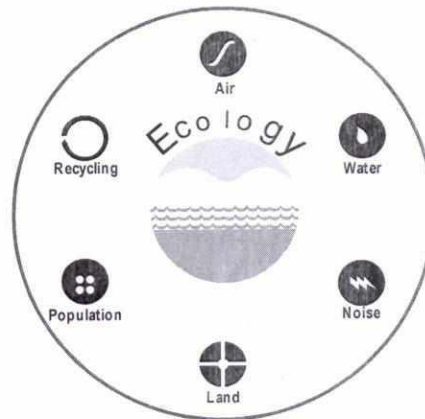
Job No.750001

**Environmental Monitoring Report
Of
Bharatpur Area
For
October- 2021
Talcher Coalfield**



MCL

Mahanadi Coalfields Limited



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

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

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 :

Bharatpur

(Compliance Station)

Project :

Bharatpur OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
11-Oct-21	Near MGR-RLS of Bharatpur	242	161	54	17.29	27.06	Railway Siding	About 500m
11-Oct-21	North-West Point of the Mine	269	175	63	15.96	29.06	Domestic & Mining Activities	About 500m
11-Oct-21	Near ETP/Workshop	229	143	43	18.10	26.69	Mining Activities & Coal Stock	Above 500m
11-Oct-21	Near Regional Store	259	162	59	17.51	29.53	Mining Activities	About 500m
25-Oct-21	Near MGR-RLS of Bharatpur	288	194	63	17.00	25.35	Railway Siding	About 500m
25-Oct-21	North-West Point of the Mine	314	204	66	15.33	25.02	Domestic & Mining Activities	About 500m
25-Oct-21	Near ETP/Workshop	267	169	59	15.24	27.49	Mining Activities & Coal Stock	Above 500m
25-Oct-21	Near Regional Store	308	201	64	13.76	26.29	Mining Activities	About 500m

J. Pattanayak
**Authorised Signatory
CMPDI, RI-VII, LAB
BHUBANESWAR**

[Signature]
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Bhubaneswar**

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

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
01-Oct-21	Near Joragdia Village	119	83	41	17.34	29.23	Transportation, Domestic Kooking	About 1000m
01-Oct-21	Natedi Village (Reported Only)	116	66	30	19.12	28.89	Coal Transportation Road	About 2km
08-Oct-21	Natedi Village (Reported Only)	137	85	44	16.74	31.42	Coal Transportation Road	About 2km
08-Oct-21	Near Joragdia Village	128	69	39	14.03	31.43	Transportation, Domestic Kooking	About 1000m
09-Oct-21	Near Joragdia Village	133	80	45	14.06	25.68	Transportation, Domestic Kooking	About 1000m
09-Oct-21	Natedi Village (Reported Only)	147	81	42	18.63	26.64	Coal Transportation Road	About 2km
14-Oct-21	Near Joragdia Village	153	81	43	17.00	32.16	Transportation, Domestic Kooking	About 1000m
14-Oct-21	Natedi Village (Reported Only)	149	86	44	12.74	29.07	Coal Transportation Road	About 2km
15-Oct-21	Natedi Village (Reported Only)	133	71	38	14.49	28.83	Coal Transportation Road	About 2km
15-Oct-21	Near Joragdia Village	113	68	37	10.66	20.01	Transportation, Domestic Kooking	About 1000m
22-Oct-21	Near Joragdia Village	148	89	47	10.31	37.27	Transportation, Domestic Kooking	About 1000m
22-Oct-21	Natedi Village (Reported Only)	144	79	44	10.35	25.91	Coal Transportation Road	About 2km
23-Oct-21	Near Joragdia Village	158	82	45	11.10	35.45	Transportation, Domestic Kooking	About 1000m
23-Oct-21	Natedi Village (Reported Only)	155	84	46	12.21	25.93	Coal Transportation Road	About 2km
28-Oct-21	Natedi Village (Reported Only)	146	91	52	9.00	17.70	Coal Transportation Road	About 2km
28-Oct-21	Near Joragdia Village	137	77	46	9.64	25.98	Transportation, Domestic Kooking	About 1000m
29-Oct-21	Near Joragdia Village	153	85	49	16.19	28.95	Transportation, Domestic Kooking	About 1000m
29-Oct-21	Natedi Village (Reported Only)	159	86	50	12.63	18.97	Coal Transportation Road	About 2km

*NAAQS, 2009

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

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Near Joragadia Village				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
01-Oct-2021	<20.0	4.73	<0.1	<1.0	<1.0
08-Oct-2021	<20.0	6.02	<0.1	<1.0	<1.0
09-Oct-2021	<20.0	5.23	<0.1	<1.0	<1.0
14-Oct-2021	<20.0	6.23	<0.1	<1.0	<1.0
15-Oct-2021	<20.0	5.88	<0.1	<1.0	<1.0
22-Oct-2021	<20.0	6.24	<0.1	<1.0	<1.0
23-Oct-2021	<20.0	3.81	<0.1	<1.0	<1.0
28-Oct-2021	<20.0	4.15	<0.1	<1.0	<1.0
29-Oct-2021	<20.0	6.08	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

Tattasai B
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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Natedi Village (Reported Only)				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
01-Oct-2021	<20.0	4.55	<0.1	<1.0	<1.0
08-Oct-2021	<20.0	4.52	<0.1	<1.0	<1.0
09-Oct-2021	<20.0	3.87	<0.1	<1.0	<1.0
14-Oct-2021	<20.0	4.46	<0.1	<1.0	<1.0
15-Oct-2021	<20.0	3.94	<0.1	<1.0	<1.0
22-Oct-2021	<20.0	4.73	<0.1	<1.0	<1.0
23-Oct-2021	<20.0	3.86	<0.1	<1.0	<1.0
28-Oct-2021	<20.0	4.05	<0.1	<1.0	<1.0
29-Oct-2021	<20.0	5.66	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Bharatpur

PROJECT :

Bharatpur OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
07-Oct-21	Near MGR-RLS of Bharatpur	65.2	63.5
07-Oct-21	North West Point of the Mine	71.3	68.7
07-Oct-21	Near Regional Store	62.0	58.4
09-Oct-21	Near Wokshop	71.3	65.2
21-Oct-21	Near MGR-RLS of Bharatpur	66.2	68.2
21-Oct-21	North West Point of the Mine	71.1	68.3
21-Oct-21	Near Regional Store	63.1	55.4
21-Oct-21	Near Wokshop	71.5	65.1

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00 PM Leq 75dB(A)

10.00 PM -6.00 AM Leq 70dB(A)

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Bhubaneswar



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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
12-Oct-21	STP Outlet (pH, TSS, Faecal Coliform, BOD)	7.68	-	38	-	<2.0	1.8
12-Oct-21	Workshop ETP Clear Water Tank	6.96	<4.0	34	28	-	
28-Oct-21	Workshop ETP Clear Water Tank	6.87	<4.0	40	32	-	
30-Oct-21	STP Outlet (pH, TSS, Faecal Coliform, BOD)	7.39	-	34	-	<2.0	1.8

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BHUBANESWAR

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Bhubaneswar

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

A Mini Kailash Company

TABLE--

EFFLUENT QUALITY DATA

Area :

Bharatpur

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

Project :

Bharatpur OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
29-Oct-21	Mine Sump Water - Main Sump	7.11	-	-	-	-	
29-Oct-21	Mine Sump Water - Old Quarry Sump	5.83	-	-	-	-	
29-Oct-21	Mine Sump Water - South Quarry Sump	5.99	-	-	-	-	

T. J. Pattnaik
**Authorised Signatory
CMPDI, RI-VII, LAB
BHUBANESWAR**

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

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

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Time Office, BOCP	Acceptable	Permissible
Date of Sampling	1-Oct-2021	Acceptable	Permissible
Colour(Hazen)	2	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	5
pH	7.14	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	64	200	600
Total Hardness (Ca CO ₃)(mg/L)	184	200	600
Iron(mg/L)	<0.1	1.0	No relaxation
Chloride(mg/L)	14	250	1000
Total Dissolve Solid(mg/L)	296	500	2000
Calcium(mg/L)	36.87	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	98.60	200	400
Nitrate(mg/L)	<0.5	45	No relaxation
Fluoride(mg/L)	<0.30	1	1.5
Arsenic(mg/L)	<0.005	0.01	No relaxation
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	2.4
Cadmium(mg/L)	<0.001	0.003	No relaxation

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Drinking Water Quality Data Bharatpur Area

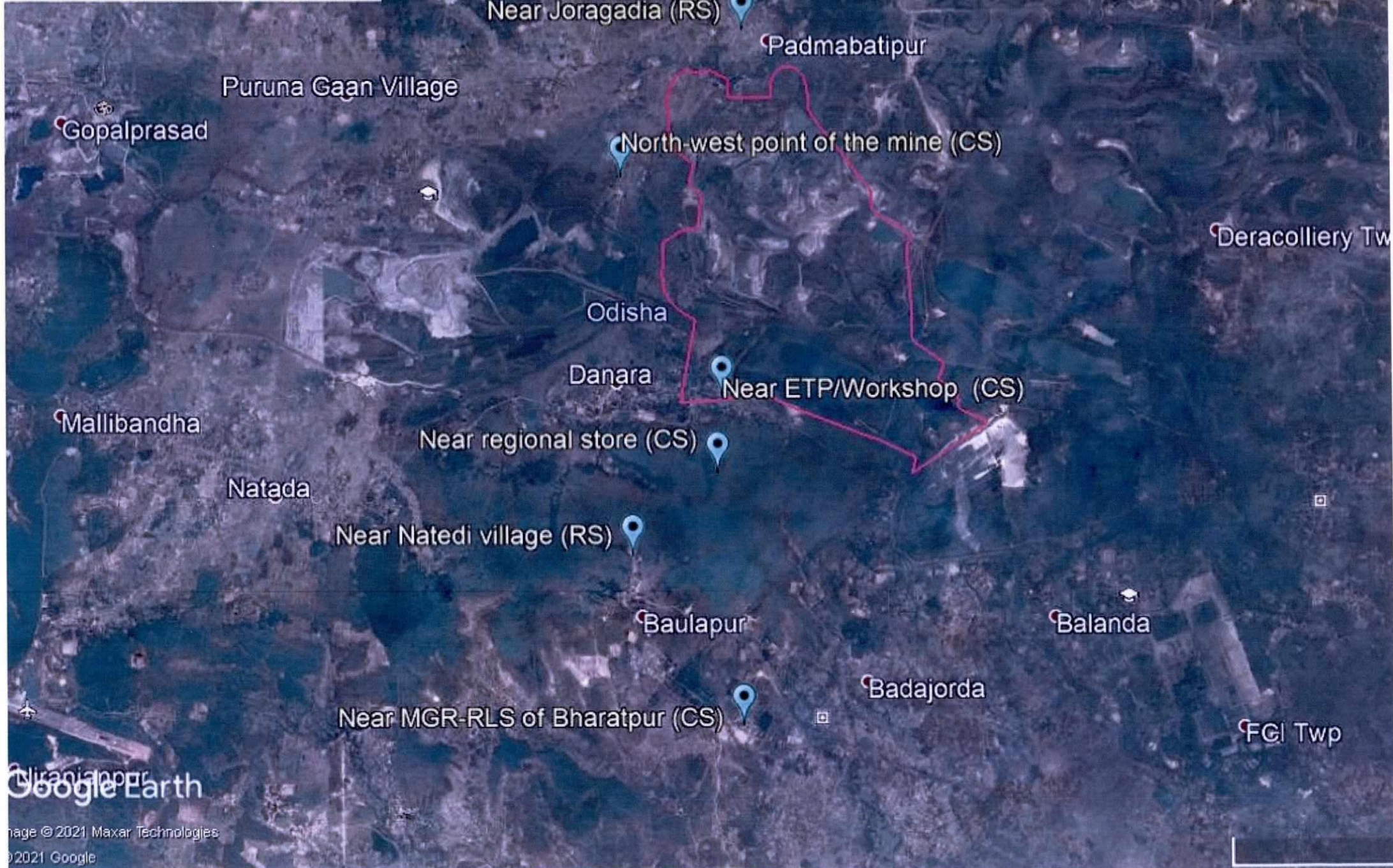
Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Time Office, BOCP	Acceptable	Permissible
Date of Sampling	1-Oct-2021		
MPN (Index/100 ml)	3.7	–	–
Residual Free Chlorine(mg/L)	0.2	0.2	1.0

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Bharatpur Air Stations

Bharatpur Air monitoring stations



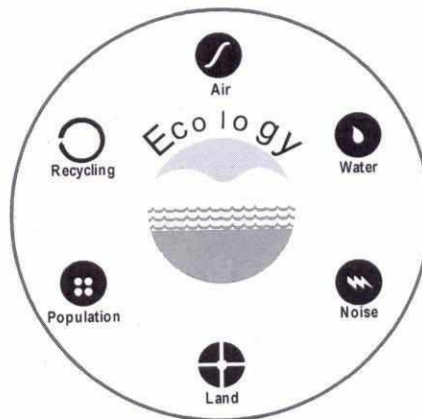
Job No.750001

**Environmental Monitoring Report
Of
Bharatpur Area
For
November- 2021
Talcher Coalfield**



MCL

Mahanadi Coalfields Limited



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

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

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Test Report

AMBIENT AIR QUALITY DATA

Area :

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
10-Nov-21	Near MGR-RLS of Bharatpur	304	191	56	18.42	17.96	Railway Siding	About 500m
10-Nov-21	North-West Point of the Mine	336	184	63	12.39	21.21	Domestic & Mining Activities	About 500m
10-Nov-21	Near ETP/Workshop	289	167	66	17.54	27.30	Mining Activities & Coal Stock	Above 500m
10-Nov-21	Near Regional Store	319	176	64	12.95	28.52	Mining Activities	About 500m
24-Nov-21	Near MGR-RLS of Bharatpur	337	209	65	12.28	20.71	Railway Siding	About 500m
24-Nov-21	North-West Point of the Mine	361	197	67	10.32	17.85	Domestic & Mining Activities	About 500m
24-Nov-21	Near ETP/Workshop	319	194	62	11.78	21.31	Mining Activities & Coal Stock	Above 500m
24-Nov-21	Near Regional Store	347	203	68	11.49	16.52	Mining Activities	About 500m

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

AMBIENT AIR QUALITY DATA

Area :

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
05-Nov-21	Natedi Village (Reported Only)	132	77	40	19.01	31.77	Coal Transportation Road	About 2km
05-Nov-21	Near Joragdia Village	176	94	53	15.09	25.64	Transportation, Domestic Kooking	About 1000m
06-Nov-21	Near Joragdia Village	161	88	50	15.12	32.56	Transportation, Domestic Kooking	About 1000m
06-Nov-21	Natedi Village (Reported Only)	124	70	38	20.86	34.80	Coal Transportation Road	About 2km
12-Nov-21	Natedi Village (Reported Only)	146	83	44	17.73	26.17	Coal Transportation Road	About 2km
12-Nov-21	Near Joragdia Village	139	77	40	15.74	19.76	Transportation, Domestic Kooking	About 1000m
13-Nov-21	Near Joragdia Village	151	84	44	19.04	26.52	Transportation, Domestic Kooking	About 1000m
13-Nov-21	Natedi Village (Reported Only)	155	86	47	18.64	20.77	Coal Transportation Road	About 2km
19-Nov-21	Near Joragdia Village	135	78	41	13.11	35.99	Transportation, Domestic Kooking	About 1000m
19-Nov-21	Natedi Village (Reported Only)	169	83	47	11.50	22.63	Coal Transportation Road	About 2km
20-Nov-21	Natedi Village (Reported Only)	161	88	51	14.70	22.39	Coal Transportation Road	About 2km
20-Nov-21	Near Joragdia Village	143	81	44	14.09	19.07	Transportation, Domestic Kooking	About 1000m
26-Nov-21	Near Joragdia Village	163	88	49	16.83	27.01	Transportation, Domestic Kooking	About 1000m
26-Nov-21	Natedi Village (Reported Only)	173	91	53	11.70	21.60	Coal Transportation Road	About 2km
27-Nov-21	Natedi Village (Reported Only)	158	85	49	15.00	25.48	Coal Transportation Road	About 2km
27-Nov-21	Near Joragdia Village	151	91	47	12.27	22.64	Transportation, Domestic Kooking	About 1000m

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*NAAQS,2009

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

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Near Joragadia Village				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
05-Nov-2021	<20.0	3.84	<0.1	<1.0	<1.0
06- Nov-2021	<20.0	3.78	<0.1	<1.0	<1.0
12- Nov-2021	<20.0	6.56	<0.1	<1.0	<1.0
13- Nov-2021	<20.0	7.13	<0.1	<1.0	<1.0
20- Nov-2021	<20.0	4.86	<0.1	<1.0	<1.0
26- Nov-2021	<20.0	4.57	<0.1	<1.0	<1.0
27- Nov-2021	<20.0	4.71	<0.1	<1.0	<1.0
19- Nov-2021	<20.0	5.16	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Natedi Village (Reported Only)				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
05-Nov-2021	<20.0	5.15	<0.1	<1.0	<1.0
06-Nov-2021	<20.0	4.36	<0.1	<1.0	<1.0
12-Nov-2021	<20.0	3.89	<0.1	<1.0	<1.0
13-Nov-2021	<20.0	6.23	<0.1	<1.0	<1.0
19-Nov-2021	<20.0	6.18	<0.1	<1.0	<1.0
20-Nov-2021	<20.0	7.21	<0.1	<1.0	<1.0
26-Nov-2021	<20.0	6.10	<0.1	<1.0	<1.0
27-Nov-2021	<20.0	5.88	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

Kattawat



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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-21	Near Wokshop	72.6	64.3
09-Nov-21	Near MGR-RLS of Bharatpur	61.6	62.2
09-Nov-21	North West Point of the Mine	70.2	65.8
09-Nov-21	Near Regional Store	60.5	54.7
23-Nov-21	Near MGR-RLS of Bharatpur	64.5	62.7
23-Nov-21	North West Point of the Mine	73.2	65.5
23-Nov-21	Near Regional Store	65.9	58.1
23-Nov-21	Near Wokshop	69.3	59.3

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MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00
PM Leq 75dB(A)

10.00 PM -6.00
AM Leq 70dB(A)

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TABLE--

EFFLUENT QUALITY DATA

Area :

Bharatpur

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

Project :

Bharatpur OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	MPN
13-Nov-21	Workshop ETP Clear Water Tank	6.39	<4.0	26	32	-	
15-Nov-21	STP Outlet (pH, TSS, Faecal Coliform, BOD)	7.24	-	28	-	<2.0	<1.8
30-Nov-21	O & G Trap Inlet	7.60	<4.0	44	32		
30-Nov-21	STP Outlet (pH, TSS, Faecal Coliform, BOD)	7.74	-	38	-	<2.0	<1.8
30-Nov-21	Workshop ETP Clear Water Tank	7.53	<4.0	32	36	-	

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

EFFLUENT QUALITY DATA

Area :

Bharatpur

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

Project :

Bharatpur OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
29-Nov-21	Mine Sump Water - Main Sump	6.48	-	-	-	-	
29-Nov-21	Mine Sump Water - Old Quarry Sump	6.14	-	-	-	-	
29-Nov-21	Mine Sump Water - South Quarry Sump	7.81	-	-	-	-	

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

Project / OCP	Bharatpur OCP			Indian Drinking Standards (IS-10500):2012	
	Tap water in Nehru Satabdi Nagar A Type Quarters	Tap water in Nehru Satabdi Nagar B Type Quarters	Tap water in Nehru Satabdi Nagar C Type Quarters	Acceptable	Permissible
Date of Sampling	13-Nov-2021	13-Nov-2021	13-Nov-2021	5	15
Colour(Hazen)	2	1	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	2	2	1	5
pH	7.88	7.73	7.94	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	184	156	188	200	600
Total Hardness (Ca CO ₃)(mg/L)	156	160	156	200	600
Iron(mg/L)	<0.1	<0.1	<0.1	1.0	No relaxation
Chloride(mg/L)	12	14	10	250	1000
Total Dissolve Solid(mg/L)	240	252	246	500	2000
Calcium(mg/L)	33.6	36.8	35.2	75	200
Copper(mg/L)	<0.03	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	41.12	42.98	10.13	200	400
Nitrate(mg/L)	<0.5	<0.5	<0.5	45	No relaxation
Fluoride(mg/L)	0.45	0.33	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.2	<0.2	<0.2	0.5	2.4
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP			Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Tap water in Nehru Satabdi Nagar Transit House	Joragadia Village Open Well		
Date of Sampling	13-Nov-2021	13-Nov-2021	13-Nov-2021	Acceptable	Permissible
Colour(Hazen)	3	1	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	3	4	1	5
pH	7.95	8.25	7.80	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	180	340	152	200	600
Total Hardness (Ca CO ₃)(mg/L)	144	204	196	200	600
Iron(mg/L)	<0.1	<0.1	<0.1	1.0	No relaxation
Chloride(mg/L)	10	17	47	250	1000
Total Dissolve Solid(mg/L)	238	460	326	500	2000
Calcium(mg/L)	33.60	40	48	75	200
Copper(mg/L)	<0.03	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	7.28	1.428	19.99	200	400
Nitrate(mg/L)	<0.5	<0.5	1.62	45	No relaxation
Fluoride(mg/L)	<0.30	0.45	<0.30	1	1.5
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Lead(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.2	<0.2	<0.2	0.5	2.4
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP			Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Tap water in Nehru Satabdi Nagar A Type Quarters	Tap water in Nehru Satabdi Nagar B Type Quarters		
Date of Sampling	13-Nov-2021	13-Nov-2021	13-Nov-2021	Acceptable	Permissible
MPN (Index/100 ml)	<1.8	<1.8	<1.8	-	-
Residual Free Chlorine(mg/L)	<0.2	<0.2	<0.2	0.2	1.0
Phenolics(mg/L)	<0.001	<0.001	<0.001	0.001	0.002
Selenium(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP			Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Tap water in Nehru Satabdi Nagar Transit House	Joragadia Village Open Well	Time Office, BOCF	
Date of Sampling	13-Nov-2021	13-Nov-2021	13-Nov-2021	Acceptable	Permissible
MPN (Index/100 ml)	<1.8	<1.8	4	–	–
Residual Free Chlorine(mg/L)	<0.2	<0.2	<0.2	0.2	1.0
Phenolics(mg/L)	<0.001	<0.001	<0.001	0.001	0.002
Selenium(mg/L)	<0.005	<0.005	<0.005	0.01	No relaxation

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP		Indian Drinking Standards (IS-10500):2012	
	Badasinga Village Open Well	Taleipasi Village Open Well	Acceptable	Permissible
Monitoring Station				
Date of Sampling	13-Nov-2021	13-Nov-2021	5	15
Colour(Hazen)	1	2	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	1	5
pH	7.88	7.74	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	156	164	200	600
Total Hardness (Ca CO ₃)(mg/L)	272	300	200	600
Iron(mg/L)	<0.1	<0.1	1.0	No relaxation
Chloride(mg/L)	29	12	250	1000
Total Dissolve Solid(mg/L)	898	494	500	2000
Calcium(mg/L)	70.4	72	75	200
Copper(mg/L)	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	79.53	64.11	200	400
Nitrate(mg/L)	36.86	<0.5	45	No relaxation
Fluoride(mg/L)	0.36	0.47	1	1.5
Arsenic(mg/L)	<0.005	<0.005	0.01	No relaxation
Lead(mg/L)	<0.005	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.2	<0.2	0.5	2.4
Cadmium(mg/L)	<0.001	<0.001	0.003	No relaxation

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP		Indian Drinking Standards (IS-10500):2012	
	Badasinga Village Open Well	Taleipasi Village Open Well	Acceptable	Permissible
Monitoring Station				
Date of Sampling	13-Nov-2021	13-Nov-2021	Acceptable	Permissible
MPN (Index/100 ml)	<1.8	<1.8	-	-
Residual Free Chlorine(mg/L)	<0.2	<0.2	0.2	1.0
Phenolics(mg/L)	<0.001	<0.001	0.001	0.002
Selenium(mg/L)	<0.005	<0.005	0.01	No relaxation

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TABLE--

Well Water Level Monitoring Data

Area :

Bharatpur

Project :

Bharatpur OCP

<i>Date of sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
30-Nov-21	Teleipasi village open well	3.41
30-Nov-21	Badasinghada village open well	3.03
30-Nov-21	Danara village well	4.58

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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
27-Nov-21	Piezometer no MTP 10; Inside the premises of Danara high school (reported)	14.46
30-Nov-21	Piezometer no MTP 09; Inside the premises of Joragarhia Panchayat high school	4.75

Project:

Chhendipada OCP

Date of Sampling	Name of the Station	Ground Water level
29-Nov-21	Piezometer no MTP 21; Between Chhendipada weigh bridge and coal stock yard	4.28
29-Nov-21	Piezometer no MTP 23; Inside the premises of Veterinary hospital, Chhendipada	4.71
29-Nov-21	Piezometer no MTP 22 ; Inside the premises of the abundant office of Junior Engineer (MI Section, Chhendipada) (in the safety zone of Chhendipada OCP)	Not accesible, gate locked

Hattanath

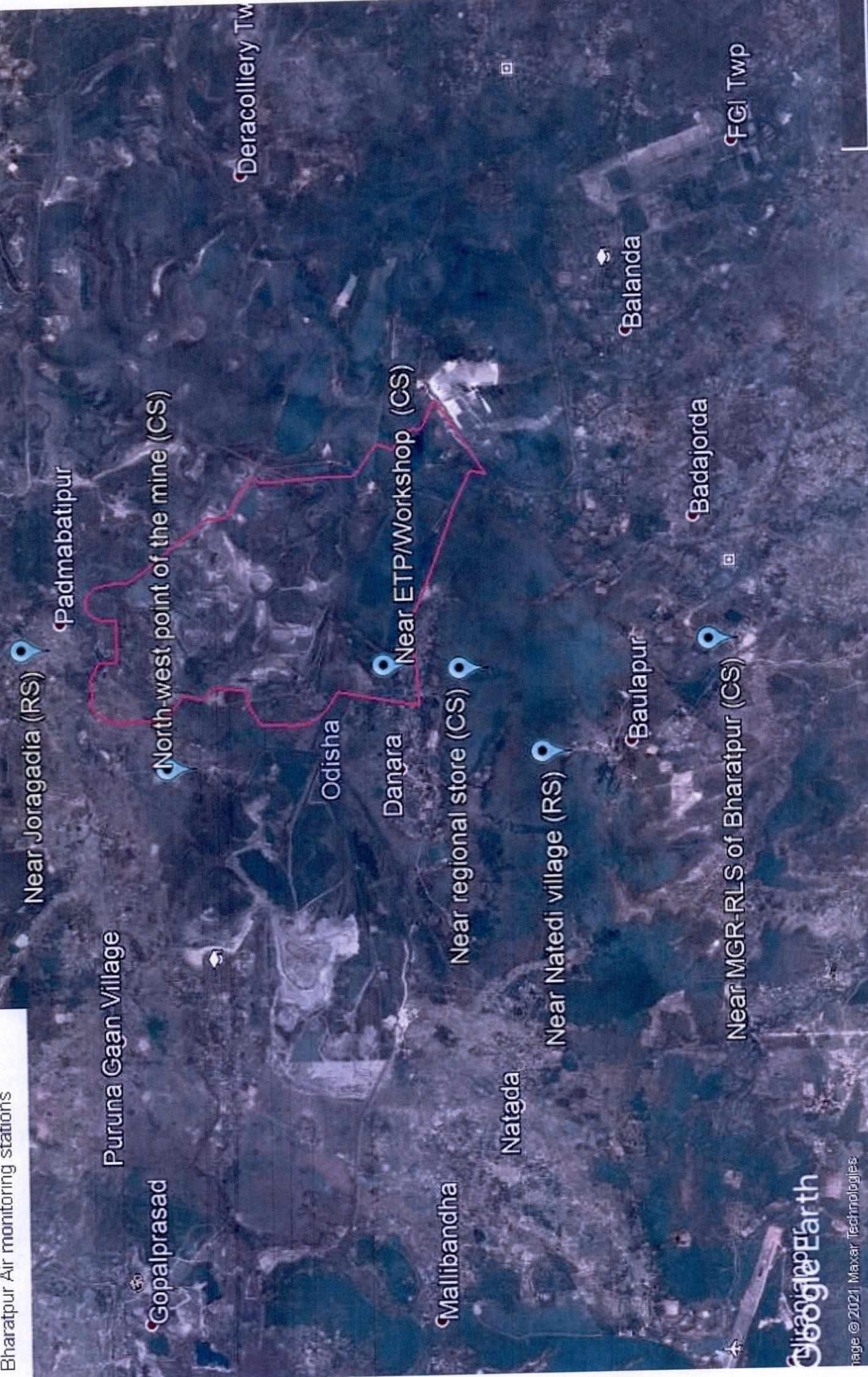
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Bhubaneswar

Barhatpur Air Stations

Barhatpur Air monitoring stations



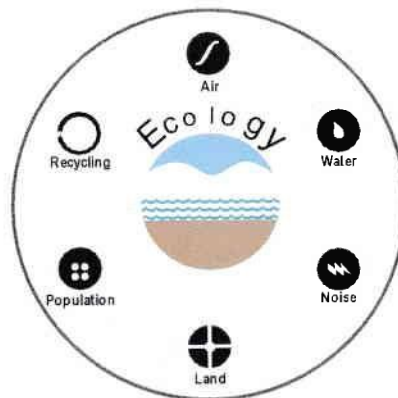
Job No.750001

**Environmental Monitoring Report
Of
Bharatpur Area
For
December- 2020
Talcher Coalfield**



MCL

Mahanadi Coalfields Limited



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

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

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Test Report

AMBIENT AIR QUALITY DATA

Area : **Bharatpur** (Compliance Station)

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

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
07-Dec-20	North-West Point of the Mine	184	92	38	11.00	17.52	Domestic & Mining Activities	About 500m
07-Dec-20	Near MGR-RLS of Bharatpur	277	166	42	9.81	19.43	Railway Siding	About 500m
07-Dec-20	Near ETP/Workshop	290	196	74	18.82	38.24	Mining Activities & Coal Stock	Above 500m
08-Dec-20	Near Regional Store	326	214	76	8.13	25.33	Mining Activities	About 500m
21-Dec-20	Near Regional Store	297	184	66	10.99	26.50	Mining Activities	About 500m
21-Dec-20	North-West Point of the Mine	230	154	47	10.99	24.67	Domestic & Mining Activities	About 500m
21-Dec-20	Near MGR-RLS of Bharatpur	259	167	65	8.93	35.63	Railway Siding	About 500m
21-Dec-20	Near ETP/Workshop	354	247	74	8.54	29.19	Mining Activities & Coal Stock	Above 500m

Project : **Chhendipada 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-Dec-20	Dolamandap Chhak	364	237	67	13.42	30.67	No Mining Activities, Traffic, Domestic	About 500m
01-Dec-20	Mamuria Sahi	326	205	72	11.75	31.26	Domestic Activities, Traffic	About 500m
01-Dec-20	Near Site Office	347	241	74	10.91	18.13	Domestic Activities, Traffic	About 500m
15-Dec-20	Dolamandap Chhak	372	245	78	11.44	28.53	No Mining Activities, Traffic, Domestic	About 500m
15-Dec-20	Mamuria Sahi	389	253	81	20.46	35.63	Domestic Activities, Traffic	About 500m
15-Dec-20	Near Site Office	339	193	78	10.81	37.52	Domestic Activities, Traffic	About 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
04-Dec-20	Natedi Village (Reported Only)	147	80	49	8.71	33.11	Coal Transportation Road	About 2km
05-Dec-20	Natedi Village (Reported Only)	161	92	52	12.09	30.14	Coal Transportation Road	About 2km
05-Dec-20	Near Joragdia Village	160	85	55	14.26	32.17	Transportation, Domestic Kooking	About 1000m
06-Dec-20	Near Joragdia Village	143	80	53	16.58	24.62	Transportation, Domestic Kooking	About 1000m
11-Dec-20	Natedi Village (Reported Only)						Coal Transportation Road	About 2km
11-Dec-20	Near Joragdia Village	148	81	51	15.47	33.28	Transportation, Domestic Kooking	About 1000m
12-Dec-20	Near Joragdia Village	155	76	47	10.30	19.57	Transportation, Domestic Kooking	About 1000m
12-Dec-20	Natedi Village (Reported Only)	178	94	57	13.38	25.95	Coal Transportation Road	About 2km
18-Dec-20	Natedi Village (Reported Only)	172	87	56	14.48	36.11	Coal Transportation Road	About 2km
18-Dec-20	Near Joragdia Village	164	78	46	13.67	30.00	Transportation, Domestic Kooking	About 1000m
19-Dec-20	Near Joragdia Village	153	75	44	18.70	32.98	Transportation, Domestic Kooking	About 1000m
19-Dec-20	Natedi Village (Reported Only)	179	89	52	12.32	40.95	Coal Transportation Road	About 2km
25-Dec-20	Natedi Village (Reported Only)	159	83	47	11.89	26.35	Coal Transportation Road	About 2km
25-Dec-20	Near Joragdia Village	171	82	48	16.31	23.07	Transportation, Domestic Kooking	About 1000m
26-Dec-20	Natedi Village (Reported Only)	166	88	49	9.30	16.74	Coal Transportation Road	About 2km
26-Dec-20	Near Joragdia Village	155	85	50	27.10	42.04	Transportation, Domestic Kooking	About 1000m
30-Dec-20	Near Joragdia Village	142	74	45	14.48	33.88	Transportation, Domestic Kooking	About 1000m
30-Dec-20	Natedi Village (Reported Only)	176	88	54	23.10	39.88	Coal Transportation Road	About 2km

*NAAQS,2009

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

Area: Bharatpur

Project	Bharatpur OCP			
Monitoring Station	Natedi Village (Reported Only)			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
04-Dec-2020	4.01	—	<1.0	<1.0
05-Dec-2020	4.12	—	<1.0	<1.0
11-Dec-2020	4.20	—	<1.0	<1.0
12-Dec-2020	4.17	—	<1.0	<1.0
18-Dec-2020	2.38	—	<1.0	<1.0
19-Dec-2020	2.41	—	<1.0	<1.0
25-Dec-2020	2.46	—	<1.0	<1.0
26-Dec-2020	2.50	—	<1.0	<1.0
30-Dec-2020	2.44	—	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Bharatpur

Project	Bharatpur OCP			
Monitoring Station	Near Joragadia			
Date of sampling	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
05-Dec-2020	3.89	-	<1.0	<1.0
06-Dec-2020	3.91	-	<1.0	<1.0
11-Dec-2020	3.74	-	<1.0	<1.0
12-Dec-2020	3.84	-	<1.0	<1.0
18-Dec-2020	3.86	-	<1.0	<1.0
19-Dec-2020	3.80	-	<1.0	<1.0
25-Dec-2020	3.91	-	<1.0	<1.0
26-Dec-2020	3.78	-	<1.0	<1.0
30-Dec-2020	3.86	-	<1.0	<1.0
Standard	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Bharatpur

PROJECT :

Bharatpur OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
07-Dec-20	Near MGR-RLS of Bharatpur	69.7	65.8
07-Dec-20	North West Point of Mine	67.8	66.7
07-Dec-20	Near Regional Store	60.4	58.4
07-Dec-20	Near ETP/Workshop	65.4	63.1

MoEF Standard Notification dated 25th September, 2000

6.00 AM - 10.00 PM Leq 75dB(A)

10.00 PM - 6.00 AM Leq 70dB(A)

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EFFLUENT QUALITY 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
14-Dec-20	STP Inlet	6.78		52		<2.0	
14-Dec-20	STP OUTLET (Ph, TSS, Faecal Colli, BOD)	6.89		44		<2.0	
31-Dec-20	STP OUTLET (Ph, TSS, Faecal Colli, BOD)	6.72		44		<2.0	

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

5.5-9.0	10	100	250	30
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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP			Indian Drinking Standards (IS-10500):2012	
	Monitoring Station	Time Office, BOCF	Badasinga Village Open Well	Telepasi Village Open Well	
Date of Sampling	1/Dec/2020	1/Dec/2020	1/Dec/2020	Acceptable	Permissible
Colour(Hazen)	2	3	3	5	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	2	2	1	5
pH	7.27	7.57	7.65	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	204	232	292	200	600
Total Hardness (Ca CO ₃)(mg/L)	225.1	225.1	284.4	200	600
Iron(mg/L)	<0.1	<0.1	<0.1	0.3	No relaxation
Chloride(mg/L)	28	139	110	250	1000
Total Dissolve Solid(mg/L)	338	816	67.4	500	2000
Calcium(mg/L)	66.53	61.78	56.52	75	200
Copper(mg/L)	<0.03	<0.03	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	<0.04	<0.04	0.1	0.3
Sulphate(mg/L)	17.18	70.43	60.28	200	400
Nitrate(mg/L)	1.69	31.88	8.9	45	No relaxation
Fluoride(mg/L)	<0.3	<0.3	<0.3	1	1.5
Arsenic(mg/L)	<0.005	<0.005	<0.005	0.01	0.05
Lead(mg/L)	—	—	—	0.01	No relaxation
Zinc(mg/L)	<0.04	<0.04	<0.04	5	15
Total Chromium (mg/L)	<0.01	<0.01	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	<0.1	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	<0.001	<0.001	0.003	No relaxation

S. S. M.

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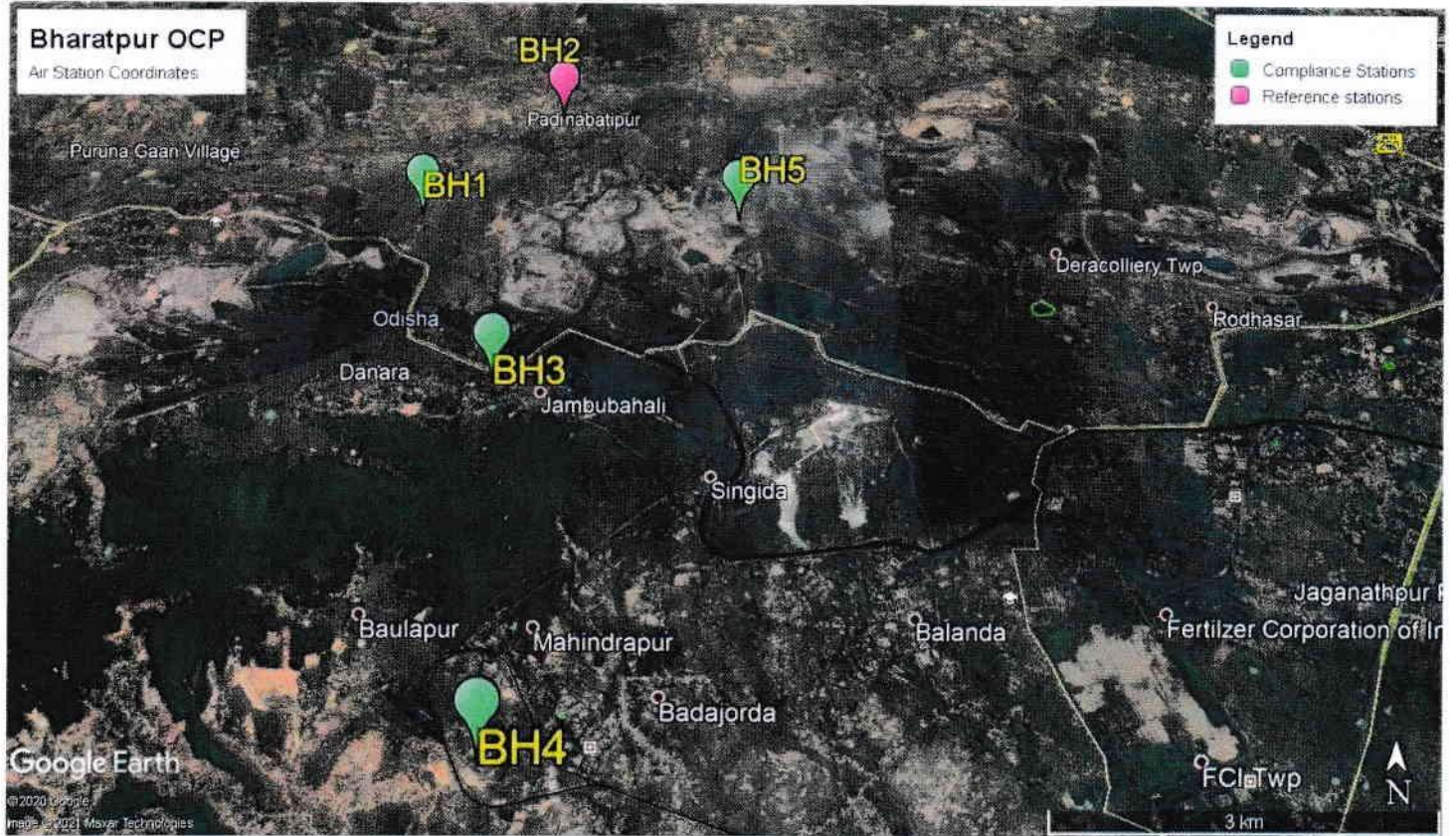
Drinking Water Quality Data Bharatpur Area

Project / OCP	Chhendipada	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Bore Well Water at Site Office		
Date of Sampling	1/Dec/2020	Acceptable	Permissible
Colour(Hazen)	3	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	5
pH	7.41	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	396	200	600
Total Hardness (Ca CO ₃)(mg/L)	312	200	600
Iron(mg/L)	<0.1	0.3	No relaxation
Chloride(mg/L)	111	250	1000
Total Dissolve Solid(mg/L)	688	500	2000
Calcium(mg/L)	31.68	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	11.97	200	400
Nitrate(mg/L)	2.4	45	No relaxation
Fluoride(mg/L)	<0.3	1	1.5
Arsenic(mg/L)	<0.005	0.01	0.05
Lead(mg/L)	—	0.01	No relaxation
Zinc(mg/L)	<0.004	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	1.0
Cadmium(mg/L)	<0.001	0.003	No relaxation

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Name of the Project	Name of the stations	PID	Latitude	Longitude
Bharatpur OCP	North-West Point of the Mine (Compliance Station)	BH1	20.965408 N	85.097906 E
	Near Joragdia Village (Reference Station)	BH2	20.980278 N	85.111389 E
	Near ETP/Workshop (Compliance Station)	BH3	20.944253 N	85.107819 E
	Near Near MGR-RLS of Bharatpur(Compliance Station)	BH4	20.909742 N	85.110967 E
	Near Regional Store (Compliance Station)	BH5	20.964811 N	85.131083 E

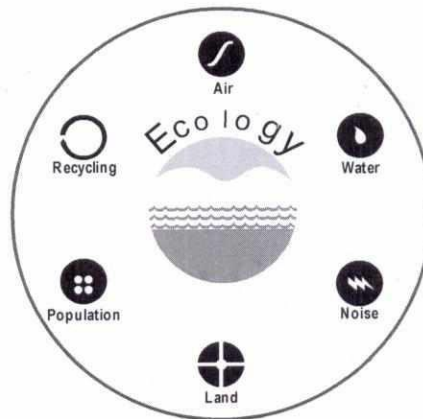
Job No.750001

**Environmental Monitoring Report
Of
Bharatpur Area
For
January- 2022
Talcher Coalfield**



MCL

Mahanadi Coalfields Limited



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

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

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Test Report

AMBIENT AIR QUALITY DATA

Area :

Bharatpur

(Compliance Station)

Project :

Bharatpur OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
06-Jan-22	Near MGR-RLS of Bharatpur	147	86	44	15.84	21.54	Railway Siding	About 500m
06-Jan-22	North-West Point of the Mine	196	90	36	16.15	21.19	Domestic & Mining Activities	About 500m
06-Jan-22	Near ETP/Workshop	210	127	49	18.20	26.94	Mining Activities & Coal Stock	Above 500m
06-Jan-22	Near Regional Store	165	82	36	14.06	23.92	Mining Activities	About 500m
20-Jan-22	Near MGR-RLS of Bharatpur	133	77	36	20.31	39.28	Railway Siding	About 500m
20-Jan-22	North-West Point of the Mine	149	100	44	17.53	23.33	Domestic & Mining Activities	About 500m
20-Jan-22	Near ETP/Workshop	226	144	55	18.39	30.62	Mining Activities & Coal Stock	Above 500m
20-Jan-22	Near Regional Store	150	70	33	24.61	32.37	Mining Activities	About 500m

Kattarwik

Mishra

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

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
07-Jan-22	Natedi Village (Reported Only)	135	77	33	21.17	39.32	Coal Transportation Road	About 2km
07-Jan-22	Near Joragdia Village	147	76	33	21.86	26.29	Transportation, Domestic Kooking	About 1000m
08-Jan-22	Near Joragdia Village	148	87	29	18.22	26.29	Transportation, Domestic Kooking	About 1000m
08-Jan-22	Natedi Village (Reported Only)	145	85	36	23.16	40.68	Coal Transportation Road	About 2km
13-Jan-22	Natedi Village (Reported Only)	192	90	32	20.11	36.72	Coal Transportation Road	About 2km
13-Jan-22	Near Joragdia Village	133	76	26	13.74	23.72	Transportation, Domestic Kooking	About 1000m
14-Jan-22	Near Joragdia Village	165	93	32	18.80	31.30	Transportation, Domestic Kooking	About 1000m
14-Jan-22	Natedi Village (Reported Only)	141	82	37	22.25	33.90	Coal Transportation Road	About 2km
21-Jan-22	Natedi Village (Reported Only)	145	83	30	22.03	26.93	Coal Transportation Road	About 2km
21-Jan-22	Near Joragdia Village	166	88	31	10.54	37.60	Transportation, Domestic Kooking	About 1000m
22-Jan-22	Near Joragdia Village	155	90	37	20.84	26.38	Transportation, Domestic Kooking	About 1000m
22-Jan-22	Natedi Village (Reported Only)	155	72	38	19.55	21.38	Coal Transportation Road	About 2km
28-Jan-22	Near Joragdia Village	143	80	35	25.82	23.53	Transportation, Domestic Kooking	About 1000m
28-Jan-22	Natedi Village (Reported Only)	166	96	39	20.15	40.87	Coal Transportation Road	About 2km
29-Jan-22	Natedi Village (Reported Only)	177	100	47	22.13	34.55	Coal Transportation Road	About 2km
29-Jan-22	Near Joragdia Village	155	97	40	19.52	30.38	Transportation, Domestic Kooking	About 1000m

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IS:AAQS,2009

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

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Near Joragadia Village				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
07-Jan-2022	<20.0	6.15	<0.1	<1.0	<1.0
08-Jan-2022	<20.0	5.70	<0.1	<1.0	<1.0
13-Jan-2022	<20.0	6.19	<0.1	<1.0	<1.0
14-Jan-2022	<20.0	7.18	<0.1	<1.0	<1.0
21-Jan-2022	<20.0	6.86	<0.1	<1.0	<1.0
22-Jan-2022	<20.0	4.15	<0.1	<1.0	<1.0
28-Jan-2022	<20.0	4.86	<0.1	<1.0	<1.0
29-Jan-2022	<20.0	3.96	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

H. Patra
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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Natedi Village (Reported Only)				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
07-Jan-2022	<20.0	5.70	<0.1	<1.0	<1.0
08-Jan-2022	<20.0	6.52	<0.1	<1.0	<1.0
13-Jan-2022	<20.0	4.32	<0.1	<1.0	<1.0
14-Jan-2022	<20.0	5.34	<0.1	<1.0	<1.0
21-Jan-2022	<20.0	7.01	<0.1	<1.0	<1.0
22-Jan-2022	<20.0	5.15	<0.1	<1.0	<1.0
28-Jan-2022	<20.0	4.81	<0.1	<1.0	<1.0
29-Jan-2022	<20.0	6.12	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Bharatpur

PROJECT :

Bharatpur OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
05-Jan-22	Near Wokshop	66.2	62.5
05-Jan-22	Near MGR-RLS of Bharatpur	58.5	55.8
05-Jan-22	North West Point of the Mine	71.1	60.9
05-Jan-22	Near Regional Store	56.0	51.2
19-Jan-22	Near Wokshop	61.2	57.3
19-Jan-22	Near MGR-RLS of Bharatpur	60.7	51.0
19-Jan-22	North West Point of the Mine	56.5	54.1
19-Jan-22	Near Regional Store	57.3	54.2

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00
PM Leq 75dB(A)

10.00 PM -6.00
AM Leq 70dB(A)

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TABLE--

EFFLUENT QUALITY DATA

Area :

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
31-Jan-22	Mine Sump Water - Main Sump	6.71	-	-	-	-	
31-Jan-22	Mine Sump Water - Old Quarry Sump	6.70	-	-	-	-	
31-Jan-22	Mine Sump Water - South Quarry Sump	6.87	-	-	-	-	

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

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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
14-Jan-22	Workshop ETP Clear Water Tank	6.87	<4.0	52	44	-	
15-Jan-22	<i>5g^m</i> STP Inlet <i>x</i>	6.72		64		<2.0	
15-Jan-22	STP Outlet (pH, TSS, Faecal Coliform, BOD)	7.18	<4.0	46	40	<2.0	1.8
28-Jan-22	STP Outlet (pH, TSS, Faecal Coliform, BOD)	-	-	-	-	-	DRY
28-Jan-22	Workshop ETP Clear Water Tank	7.15	<4.0	16	32	-	

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

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Time Office, BOCP		
Date of Sampling	14-Jan-2022	Acceptable	Permissible
Colour(Hazen)	<2.0	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	5
pH	7.07	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	213.6	200	600
Total Hardness (Ca CO ₃)(mg/L)	168	200	600
Iron(mg/L)	<0.1	1.0	No relaxation
Chloride(mg/L)	27	250	1000
Total Dissolve Solid(mg/L)	330	500	2000
Calcium(mg/L)	57.6	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	19.44	200	400
Nitrate(mg/L)	4.32	45	No relaxation
Fluoride(mg/L)	0.79	1	1.5
Arsenic(mg/L)	<0.005	0.01	No relaxation
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	0.07	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	2.4
Cadmium(mg/L)	<0.001	0.003	No relaxation

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Time Office, BOCP	Acceptable	Permissible
Date of Sampling	14-Jan-2022		
MPN (Index/100 ml)	8	-	-
Residual Free Chlorine(mg/L)	<0.2	0.2	1.0
Phenolics(mg/L)	<0.001	0.001	0.002
Selenium(mg/L)	<0.005	0.01	No relaxation

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Piezometer Water Quality Data: Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Piezometer no. MTP 10, GW level, quantity & quality(Reported Only)		
Date of Sampling	29-Jan-2022	Acceptable	Permissible
MPN (Index/100ml)	<1.8	-	-
Residual Free Chlorine (mg/L)	<0.2	0.2	1
Phenolics (mg/L)	<0.001	0.001	0.002
Selenium (mg/L)	<0.005	0.01	No relaxation

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Piezometer Water Quality Data: Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Piezometer no. MTP 10, GW level, quantity & quality(Reported Only)	Acceptable	Permissible
Date of Sampling	29-Jan-2022		
Colour(Hazen)	8	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	5
pH	7.12	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	24	200	600
Total Hardness (Ca CO ₃)(mg/L)	68	200	600
Iron(mg/L)	<0.1	0.3	No relaxation
Chloride(mg/L)	25	250	1000
Total Dissolve Solid(mg/L)	143	500	2000
Calcium(mg/L)	20.8	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	6.12	200	400
Nitrate(mg/L)	20.24	45	No relaxation
Fluoride(mg/L)	<0.3	1	1.5
Arsenic(mg/L)	<0.005	0.01	0.05
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	1
Cadmium(mg/L)	<0.001	0.003	No relaxation

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Piezometer Water Quality Data: Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Piezometer no. MTP 09, GW level, quantity & quality	Acceptable	Permissible
Date of Sampling	24-Jan-2022	Acceptable	Permissible
Colour(Hazen)	6	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	3	1	5
pH	7.31	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	240	200	600
Total Hardness (Ca CO ₃)(mg/L)	268	200	600
Iron(mg/L)	<0.1	0.3	No relaxation
Chloride(mg/L)	44	250	1000
Total Dissolve Solid(mg/L)	490	500	2000
Calcium(mg/L)	49.6	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	87.1	200	400
Nitrate(mg/L)	<0.5	45	No relaxation
Fluoride(mg/L)	<0.3	1	1.5
Arsenic(mg/L)	<0.005	0.01	0.05
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	1
Cadmium(mg/L)	<0.001	0.003	No relaxation

add. MTP 10 (2 Page) Report

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Piezometer Water Quality Data: Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
		Acceptable	Permissible
Monitoring Station	Piezometer no. MTP 09, GW level, quantity & quality		
Dt. of Sampling	24-Jan-2022		
MPN (Index/100ml)	<1.8	-	-
Residual Free Chlorine (mg/L)	<0.2	0.2	1
Phenolics (mg/L)	<0.001	0.001	0.002
Selenium (mg/L)	<0.005	0.01	No relaxation

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TABLE--

Well Water Level Monitoring Data

Area :

Bharatpur

Project :

Bharatpur OCP

<i>Date of Sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
24-Jan-22	Danara village well	4.58

Project :

Bharatpur OCP

<i>Date of Sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
25-Jan-22	Teleipasi village open well	3.41
25-Jan-22	Badasinghada village open well	3.03

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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
24-Jan-22	Piezometer no MTP 09; Inside the premises of Joragarhia Panchayat high school	4.75
29-Jan-22	Piezometer no MTP 10; Inside the premises of Danara high school (reported)	14.43

Project:

Chhendipada OCP

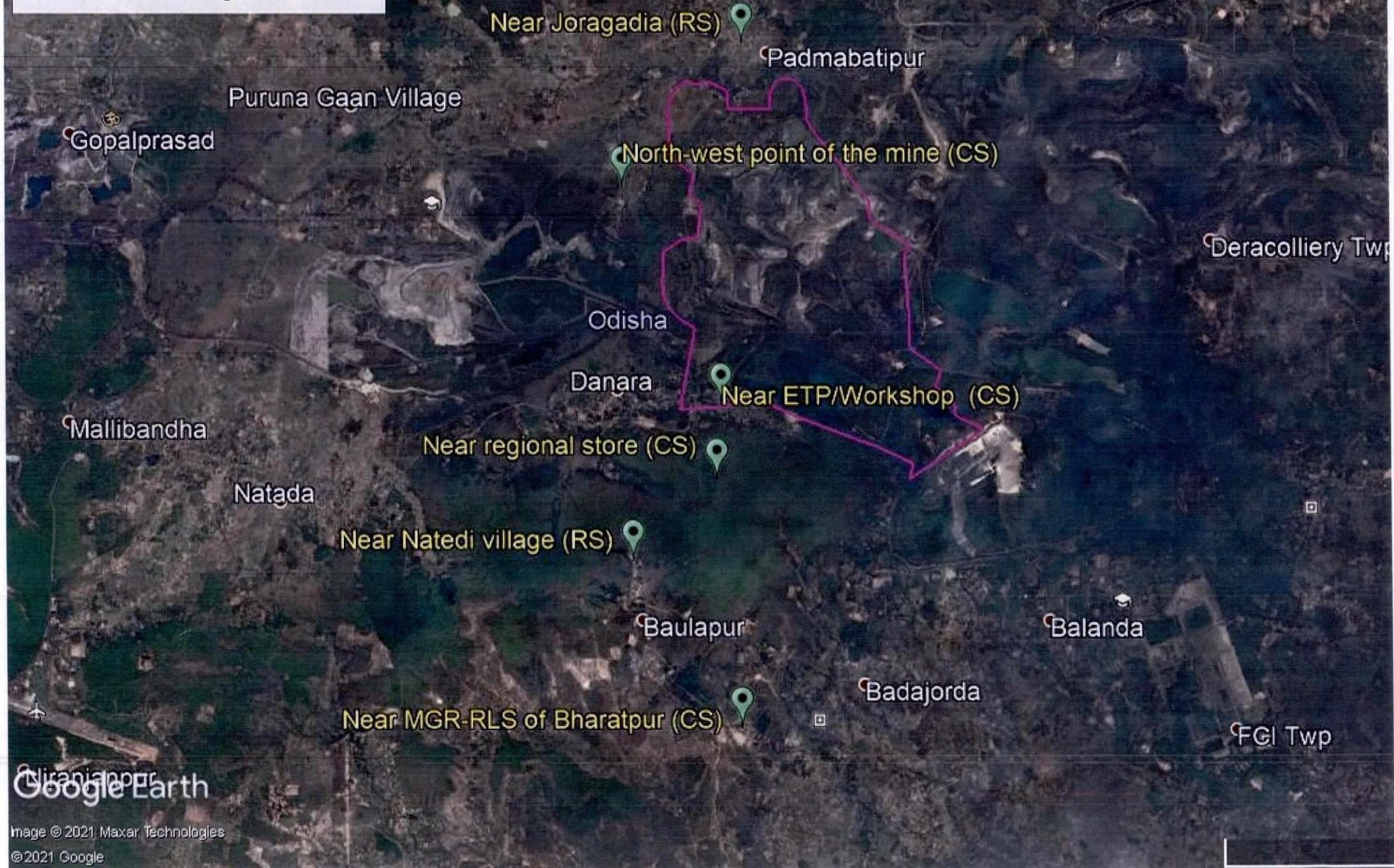
Date of Sampling	Name of the Station	Ground Water level
25-Jan-22	Piezometer no MTP 21; Between Chhendipada weigh bridge and coal stock yard	4.29
25-Jan-22	Piezometer no MTP 23; Inside the premises of Vetenary hospital, Chhendipada	4.43
25-Jan-22	Piezometer no MTP 22 ; Inside the premises of the abundant office of Junior Engineer (MI Section, Chhendipada) (in the safety zone of Chhendipada OCP)	Site inaccessible, Gate Locked

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Bharatpur Air Stations

Bharatpur Air monitoring stations



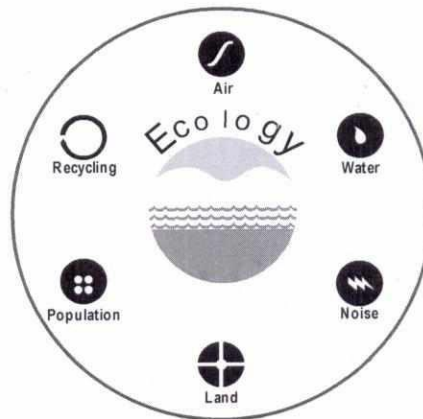
Job No.750001

**Environmental Monitoring Report
Of
Bharatpur Area
For
January- 2022
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 :

Bharatpur

(Compliance Station)

Project :

Bharatpur OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
06-Jan-22	Near MGR-RLS of Bharatpur	147	86	44	15.84	21.54	Railway Siding	About 500m
06-Jan-22	North-West Point of the Mine	196	90	36	16.15	21.19	Domestic & Mining Activities	About 500m
06-Jan-22	Near ETP/Workshop	210	127	49	18.20	26.94	Mining Activities & Coal Stock	Above 500m
06-Jan-22	Near Regional Store	165	82	36	14.06	23.92	Mining Activities	About 500m
20-Jan-22	Near MGR-RLS of Bharatpur	133	77	36	20.31	39.28	Railway Siding	About 500m
20-Jan-22	North-West Point of the Mine	149	100	44	17.53	23.33	Domestic & Mining Activities	About 500m
20-Jan-22	Near ETP/Workshop	226	144	55	18.39	30.62	Mining Activities & Coal Stock	Above 500m
20-Jan-22	Near Regional Store	150	70	33	24.61	32.37	Mining Activities	About 500m

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

AMBIENT AIR QUALITY DATA

Area :

Bharatpur

(Reference 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
07-Jan-22	Natedi Village (Reported Only)	135	77	33	21.17	39.32	Coal Transportation Road	About 2km
07-Jan-22	Near Joragdia Village	147	76	33	21.86	26.29	Transportation, Domestic Kooking	About 1000m
08-Jan-22	Near Joragdia Village	148	87	29	18.22	26.29	Transportation, Domestic Kooking	About 1000m
08-Jan-22	Natedi Village (Reported Only)	145	85	36	23.16	40.68	Coal Transportation Road	About 2km
13-Jan-22	Natedi Village (Reported Only)	192	90	32	20.11	36.72	Coal Transportation Road	About 2km
13-Jan-22	Near Joragdia Village	133	76	26	13.74	23.72	Transportation, Domestic Kooking	About 1000m
14-Jan-22	Near Joragdia Village	165	93	32	18.80	31.30	Transportation, Domestic Kooking	About 1000m
14-Jan-22	Natedi Village (Reported Only)	141	82	37	22.25	33.90	Coal Transportation Road	About 2km
21-Jan-22	Natedi Village (Reported Only)	145	83	30	22.03	26.93	Coal Transportation Road	About 2km
21-Jan-22	Near Joragdia Village	166	88	31	10.54	37.60	Transportation, Domestic Kooking	About 1000m
22-Jan-22	Near Joragdia Village	155	90	37	20.84	26.38	Transportation, Domestic Kooking	About 1000m
22-Jan-22	Natedi Village (Reported Only)	155	72	38	19.55	21.38	Coal Transportation Road	About 2km
28-Jan-22	Near Joragdia Village	143	80	35	25.82	23.53	Transportation, Domestic Kooking	About 1000m
28-Jan-22	Natedi Village (Reported Only)	166	96	39	20.15	40.87	Coal Transportation Road	About 2km
29-Jan-22	Natedi Village (Reported Only)	177	100	47	22.13	34.55	Coal Transportation Road	About 2km
29-Jan-22	Near Joragdia Village	155	97	40	19.52	30.38	Transportation, Domestic Kooking	About 1000m

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IS:AAQS,2009

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

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Near Joragadia Village				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
07-Jan-2022	<20.0	6.15	<0.1	<1.0	<1.0
08-Jan-2022	<20.0	5.70	<0.1	<1.0	<1.0
13-Jan-2022	<20.0	6.19	<0.1	<1.0	<1.0
14-Jan-2022	<20.0	7.18	<0.1	<1.0	<1.0
21-Jan-2022	<20.0	6.86	<0.1	<1.0	<1.0
22-Jan-2022	<20.0	4.15	<0.1	<1.0	<1.0
28-Jan-2022	<20.0	4.86	<0.1	<1.0	<1.0
29-Jan-2022	<20.0	3.96	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Natedi Village (Reported Only)				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
07-Jan-2022	<20.0	5.70	<0.1	<1.0	<1.0
08-Jan-2022	<20.0	6.52	<0.1	<1.0	<1.0
13-Jan-2022	<20.0	4.32	<0.1	<1.0	<1.0
14-Jan-2022	<20.0	5.34	<0.1	<1.0	<1.0
21-Jan-2022	<20.0	7.01	<0.1	<1.0	<1.0
22-Jan-2022	<20.0	5.15	<0.1	<1.0	<1.0
28-Jan-2022	<20.0	4.81	<0.1	<1.0	<1.0
29-Jan-2022	<20.0	6.12	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Bharatpur

PROJECT :

Bharatpur OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
05-Jan-22	Near Wokshop	66.2	62.5
05-Jan-22	Near MGR-RLS of Bharatpur	58.5	55.8
05-Jan-22	North West Point of the Mine	71.1	60.9
05-Jan-22	Near Regional Store	56.0	51.2
19-Jan-22	Near Wokshop	61.2	57.3
19-Jan-22	Near MGR-RLS of Bharatpur	60.7	51.0
19-Jan-22	North West Point of the Mine	56.5	54.1
19-Jan-22	Near Regional Store	57.3	54.2

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00
PM Leq 75dB(A)

10.00 PM -6.00
AM Leq 70dB(A)

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TABLE--

EFFLUENT QUALITY DATA

Area :

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
31-Jan-22	Mine Sump Water - Main Sump	6.71	-	-	-	-	
31-Jan-22	Mine Sump Water - Old Quarry Sump	6.70	-	-	-	-	
31-Jan-22	Mine Sump Water - South Quarry Sump	6.87	-	-	-	-	

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

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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
14-Jan-22	Workshop ETP Clear Water Tank	6.87	<4.0	52	44	-	
15-Jan-22	<i>5g^m</i> STP Inlet <i>x</i>	6.72		64		<2.0	
15-Jan-22	STP Outlet (pH, TSS, Faecal Coliform, BOD)	7.18	<4.0	46	40	<2.0	1.8
28-Jan-22	STP Outlet (pH, TSS, Faecal Coliform, BOD)	-	-	-	-	-	DRY
28-Jan-22	Workshop ETP Clear Water Tank	7.15	<4.0	16	32	-	

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

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Time Office, BOCP		
Date of Sampling	14-Jan-2022	Acceptable	Permissible
Colour(Hazen)	<2.0	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	5
pH	7.07	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	213.6	200	600
Total Hardness (Ca CO3)(mg/L)	168	200	600
Iron(mg/L)	<0.1	1.0	No relaxation
Chloride(mg/L)	27	250	1000
Total Dissolve Solid(mg/L)	330	500	2000
Calcium(mg/L)	57.6	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	19.44	200	400
Nitrate(mg/L)	4.32	45	No relaxation
Fluoride(mg/L)	0.79	1	1.5
Arsenic(mg/L)	<0.005	0.01	No relaxation
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	0.07	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	2.4
Cadmium(mg/L)	<0.001	0.003	No relaxation

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Drinking Water Quality Data Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Time Office, BOCP	Acceptable	Permissible
Date of Sampling	14-Jan-2022		
MPN (Index/100 ml)	8	-	-
Residual Free Chlorine(mg/L)	<0.2	0.2	1.0
Phenolics(mg/L)	<0.001	0.001	0.002
Selenium(mg/L)	<0.005	0.01	No relaxation

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Piezometer Water Quality Data: Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Piezometer no. MTP 10, GW level, quantity & quality(Reported Only)		
Date of Sampling	29-Jan-2022	Acceptable	Permissible
MPN (Index/100ml)	<1.8	-	-
Residual Free Chlorine (mg/L)	<0.2	0.2	1
Phenolics (mg/L)	<0.001	0.001	0.002
Selenium (mg/L)	<0.005	0.01	No relaxation

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Piezometer Water Quality Data: Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Piezometer no. MTP 10, GW level, quantity & quality(Reported Only)	Acceptable	Permissible
Date of Sampling	29-Jan-2022	Acceptable	Permissible
Colour(Hazen)	8	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	2	1	5
pH	7.12	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	24	200	600
Total Hardness (Ca CO ₃)(mg/L)	68	200	600
Iron(mg/L)	<0.1	0.3	No relaxation
Chloride(mg/L)	25	250	1000
Total Dissolve Solid(mg/L)	143	500	2000
Calcium(mg/L)	20.8	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	6.12	200	400
Nitrate(mg/L)	20.24	45	No relaxation
Fluoride(mg/L)	<0.3	1	1.5
Arsenic(mg/L)	<0.005	0.01	0.05
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	1
Cadmium(mg/L)	<0.001	0.003	No relaxation

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Piezometer Water Quality Data: Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Piezometer no. MTP 09, GW level, quantity & quality	Acceptable	Permissible
Date of Sampling	24-Jan-2022	Acceptable	Permissible
Colour(Hazen)	6	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	3	1	5
pH	7.31	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	240	200	600
Total Hardness (Ca CO ₃)(mg/L)	268	200	600
Iron(mg/L)	<0.1	0.3	No relaxation
Chloride(mg/L)	44	250	1000
Total Dissolve Solid(mg/L)	490	500	2000
Calcium(mg/L)	49.6	75	200
Copper(mg/L)	<0.03	0.05	1.5
Manganese(mg/L)	<0.04	0.1	0.3
Sulphate(mg/L)	87.1	200	400
Nitrate(mg/L)	<0.5	45	No relaxation
Fluoride(mg/L)	<0.3	1	1.5
Arsenic(mg/L)	<0.005	0.01	0.05
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	<0.04	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.1	0.5	1
Cadmium(mg/L)	<0.001	0.003	No relaxation

add. MTP 10 (2 Page) Report

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Piezometer Water Quality Data: Bharatpur Area

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
		Acceptable	Permissible
Monitoring Station	Piezometer no. MTP 09, GW level, quantity & quality		
Dt. of Sampling	24-Jan-2022		
MPN (Index/100ml)	<1.8	-	-
Residual Free Chlorine (mg/L)	<0.2	0.2	1
Phenolics (mg/L)	<0.001	0.001	0.002
Selenium (mg/L)	<0.005	0.01	No relaxation

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TABLE--

Well Water Level Monitoring Data

Area :

Bharatpur

Project :

Bharatpur OCP

<i>Date of Sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
24-Jan-22	Danara village well	4.58

Project :

Bharatpur OCP

<i>Date of Sampling</i>	<i>Name of the Station</i>	<i>Depth from Water Level (in m. bgl)</i>
25-Jan-22	Teleipasi village open well	3.41
25-Jan-22	Badasinghada village open well	3.03

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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
24-Jan-22	Piezometer no MTP 09; Inside the premises of Joragarhia Panchayat high school	4.75
29-Jan-22	Piezometer no MTP 10; Inside the premises of Danara high school (reported)	14.43

Project:

Chhendipada OCP

Date of Sampling	Name of the Station	Ground Water level
25-Jan-22	Piezometer no MTP 21; Between Chhendipada weigh bridge and coal stock yard	4.29
25-Jan-22	Piezometer no MTP 23; Inside the premises of Vetenary hospital, Chhendipada	4.43
25-Jan-22	Piezometer no MTP 22 ; Inside the premises of the abundant office of Junior Engineer (MI Section, Chhendipada) (in the safety zone of Chhendipada OCP)	Site inaccessible, Gate Locked

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Bharatpur Air Stations

Bharatpur Air monitoring stations



Google Earth

Job No.750001

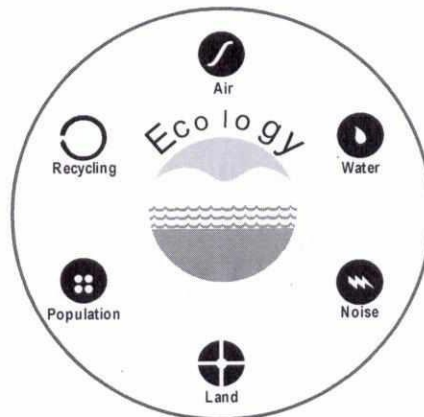
**Environmental Monitoring Report
Of
Bharatpur Area
For
March- 2022**

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 :

Bharatpur

(Compliance Station)

Project :

Bharatpur OCP

(conc. in µg/cu.m.)

Date of Sampling	Monitoring Station	SPM	PM10	PM2.5	SO2	NOx	Dust Generating Source(DGS)	Distance from DGS
08-Mar-22	Near MGR-RLS of Bharatpur	196	122	59	16.36	25.81	Railway Siding	About 500m
08-Mar-22	North-West Point of the Mine	170	108	48	14.74	28.28	Domestic & Mining Activities	About 500m
08-Mar-22	Near ETP/Workshop	189	119	56	15.74	36.42	Mining Activities & Coal Stock	Above 500m
08-Mar-22	Near Regional Store	174	111	49	18.00	29.88	Mining Activities	About 500m
22-Mar-22	Near MGR-RLS of Bharatpur	149	95	36	11.20	18.39	Railway Siding	About 500m
22-Mar-22	North-West Point of the Mine	163	100	40	12.03	19.36	Domestic & Mining Activities	About 500m
22-Mar-22	Near ETP/Workshop	175	110	44	14.25	24.23	Mining Activities & Coal Stock	Above 500m
22-Mar-22	Near Regional Store	188	112	45	10.25	21.23	Mining Activities	About 500m

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MoEF Standards Notification dated 25th September, 2000

600	300		120	120
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Test Report

AMBIENT AIR QUALITY DATA

Area :

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
04-Mar-22	Natedi Village (Reported Only)	166	90	34	13.02	31.89	Coal Transportation Road	About 2km
04-Mar-22	Near Joragdia Village	144	85	27	20.16	25.60	Transportation, Domestic Kooking	About 1000m
05-Mar-22	Natedi Village (Reported Only)	148	78	30	19.05	27.55	Coal Transportation Road	About 2km
05-Mar-22	Near Joragdia Village	124	74	23	19.03	25.62	Transportation, Domestic Kooking	About 1000m
10-Mar-22	Near Joragdia Village	127	83	30	19.83	30.58	Transportation, Domestic Kooking	About 1000m
10-Mar-22	Natedi Village (Reported Only)	150	83	33	14.39	30.04	Coal Transportation Road	About 2km
11-Mar-22	Near Joragdia Village	120	77	34	15.79	29.58	Transportation, Domestic Kooking	About 1000m
11-Mar-22	Natedi Village (Reported Only)	133	74	26	24.17	28.41	Coal Transportation Road	About 2km
17-Mar-22	Natedi Village (Reported Only)	123	63	23	16.39	32.26	Coal Transportation Road	About 2km
17-Mar-22	Near Joragdia Village	115	67	31	20.90	27.89	Transportation, Domestic Kooking	About 1000m
18-Mar-22	Near Joragdia Village	126	70	29	14.26	22.38	Transportation, Domestic Kooking	About 1000m
18-Mar-22	Natedi Village (Reported Only)	134	70	25	12.05	19.03	Coal Transportation Road	About 2km
24-Mar-22	Near Joragdia Village	145	84	33	11.23	19.36	Transportation, Domestic Kooking	About 1000m
24-Mar-22	Natedi Village (Reported Only)	128	74	35	14.08	21.37	Coal Transportation Road	About 2km
25-Mar-22	Natedi Village (Reported Only)	121	68	30	12.38	22.39	Coal Transportation Road	About 2km
25-Mar-22	Near Joragdia Village	145	63	30	14.25	23.98	Transportation, Domestic Kooking	About 1000m

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*NAAQS,2009

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Near Joragadia Village				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
04-Mar-2022	<20.0	5.73	<0.1	<1.0	<1.0
05-Mar-2022	<20.0	6.26	<0.1	<1.0	<1.0
10-Mar-2022	<20.0	7.46	<0.1	<1.0	<1.0
11-Mar-2022	<20.0	5.91	<0.1	<1.0	<1.0
17-Mar-2022	<20.0	4.82	<0.1	<1.0	<1.0
18-Mar-2022	<20.0	5.89	<0.1	<1.0	<1.0
24-Mar-2022	<20.0	6.12	<0.1	<1.0	<1.0
25-Mar-2022	<20.0	6.83	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

Jasmati

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AMBIENT AIR QUALITY DATA (NAAQS PARAMETER)

Area: Bharatpur

Project	Bharatpur OCP				
Monitoring Station	Natedi Village (Reported Only)				
Date of sampling	Ammonia (NH ₃)	Ozone (O ₃)	Lead (Pb)	Arsenic (As)	Nickel (Ni)
	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(ng/m^3)	(ng/m^3)
04-Mar-2022	<20.0	4.88	<0.1	<1.0	<1.0
05-Mar-2022	<20.0	5.45	<0.1	<1.0	<1.0
10-Mar-2022	<20.0	6.26	<0.1	<1.0	<1.0
11-Mar-2022	<20.0	6.31	<0.1	<1.0	<1.0
17-Mar-2022	<20.0	5.16	<0.1	<1.0	<1.0
18-Mar-2022	<20.0	5.23	<0.1	<1.0	<1.0
24-Mar-2022	<20.0	5.44	<0.1	<1.0	<1.0
25-Mar-2022	<20.0	5.86	<0.1	<1.0	<1.0
Standard	400(24hours)	180(hour)	1.0(24hours)	6.0(Annual)	20(Annual)

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TABLE--

NOISE LEVEL MONITORING DATA

AREA :

Bharatpur

PROJECT :

Bharatpur OCP

DATE OF SAMPLING	STATION	Noise Level Measurement in Leq dB(A)	
		DAY	NIGHT
07-Mar-22	Near Wokshop	57.6	54.2
07-Mar-22	Near MGR-RLS of Bharatpur	58.9	55.8
07-Mar-22	North West Point of the Mine	65.0	60.1
07-Mar-22	Near Regional Store	46.5	44.7
21-Mar-22	Near Wokshop	58.3	55.1
21-Mar-22	Near MGR-RLS of Bharatpur	51.0	49.2
21-Mar-22	North West Point of the Mine	56.5	53.0
21-Mar-22	Near Regional Store	50.1	44.2

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00
PM Leq 75dB(A)

10.00 PM -6.00
AM Leq 70dB(A)

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TABLE--

EFFLUENT QUALITY DATA

Area :

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
14-Mar-22	STP Outlet pH, TSS (Faecal Coliform)MPN,COD,BOD,O&G	-	-	-	-	-	Maintenance
14-Mar-22	Workshop ETP Clear Water Tank	7.45	<4.0	32	24	-	
29-Mar-22	Workshop ETP Clear Water Tank	7.32	<4.0	38	24	-	
30-Mar-22	STP Inlet	6.30		44		<2	
30-Mar-22	STP Outlet pH, TSS (Faecal Coliform)MPN,COD,BOD,O&G	7.50	<4.0	30	20	<2	<1.8

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

EFFLUENT QUALITY DATA

Area :

Bharatpur

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

Project :

Bharatpur OCP

Date of Sampling	Sampling Station	pH	Oil & Grease	TSS	COD	BOD	Remarks
29-Mar-22	Mine Sump Water - Main Sump	6.58	-	-	-	-	
29-Mar-22	Mine Sump Water - Old Quarry Sump	6.67	-	-	-	-	
29-Mar-22	Mine Sump Water - South Quarry Sump	6.34	-	-	-	-	

Jyoti
 Authorized Signatory
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 BHUBANESWAR

Kattavach
 O.I.C.
 Env. Lab
 CMPDI, RI-VI
 BHUBANESWAR

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

Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Time Office, BOCP		
Date of Sampling	14-Mar-2022	Acceptable	Permissible
Colour(Hazen)	3	5	15
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity(NTU)	1	1	5
pH	7.51	6.5-8.5	No relaxation
Total Alkalinity(mg/L)	59.6	200	600
Total Hardness (Ca CO ₃)(mg/L)	52	200	600
Iron(mg/L)	<0.1	1.0	No relaxation
Chloride(mg/L)	6	250	1000
Total Dissolve Solid(mg/L)	98	500	2000
Calcium(mg/L)	14.4	75	200
Copper(mg/L)	<0.04	0.05	1.5
Manganese(mg/L)	<0.07	0.1	0.3
Sulphate(mg/L)	7.57	200	400
Nitrate(mg/L)	0.71	45	No relaxation
Fluoride(mg/L)	0.27	1	1.5
Arsenic(mg/L)	<0.005	0.01	No relaxation
Lead(mg/L)	<0.005	0.01	No relaxation
Zinc(mg/L)	0.11	5	15
Total Chromium (mg/L)	<0.01	0.05	No relaxation
Boron(mg/L)	<0.2	0.5	2.4
Cadmium(mg/L)	<0.001	0.003	No relaxation

Jasmat
Authorised Signatory
CMPDI, RI-VII, LAS
BHUBANESWAR

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Drinking Water Quality Data Bharatpur Area

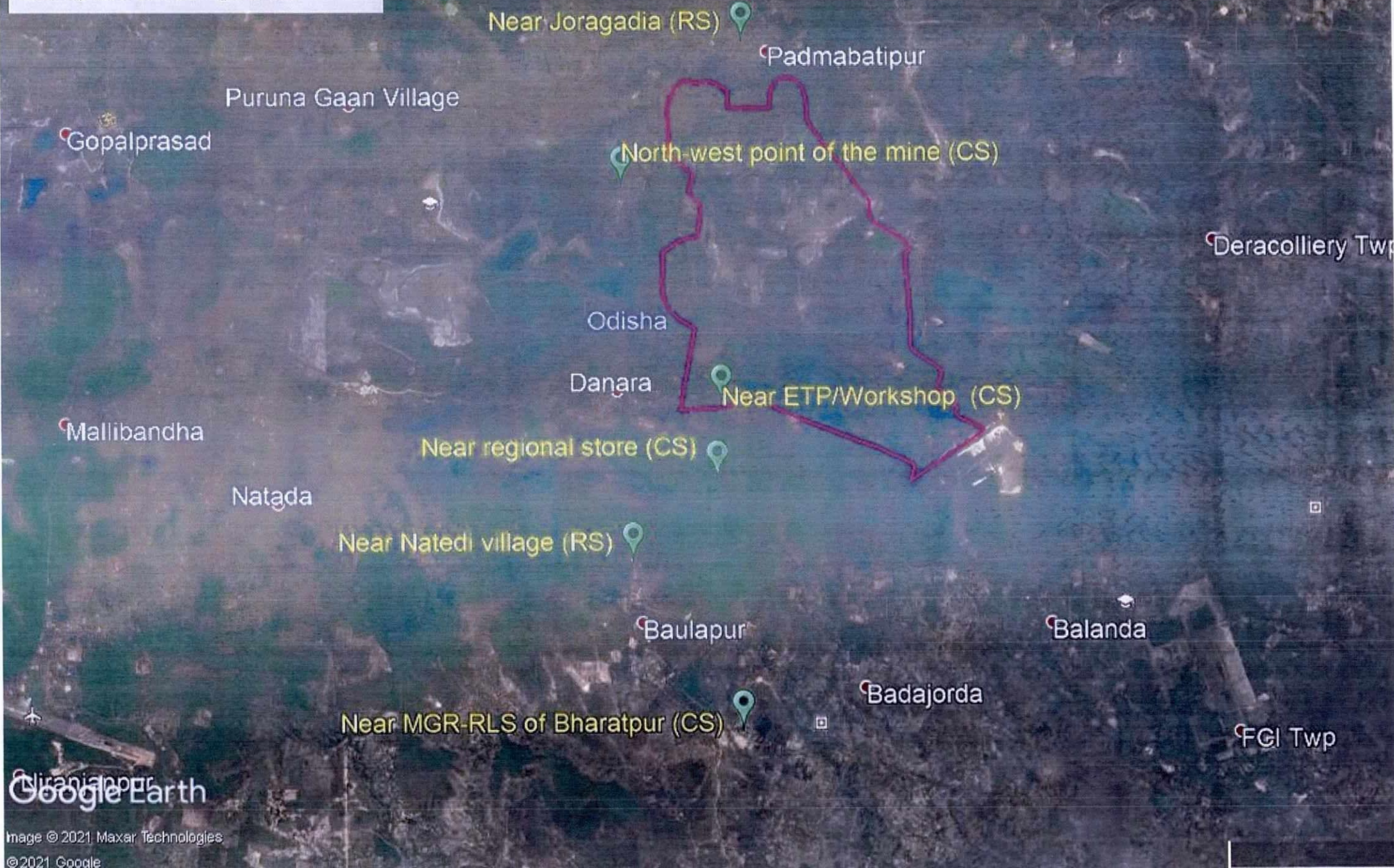
Project / OCP	Bharatpur OCP	Indian Drinking Standards (IS-10500):2012	
Monitoring Station	Time Office, BOCP	Acceptable	Permissible
Date of Sampling	14-Mar-2022	Acceptable	Permissible
MPN (Index/100 ml)	4.0	–	–
Residual Free Chlorine(mg/L)	0.2	0.2	1.0
Phenolics(mg/L)	<0.001	0.001	0.002
Selenium(mg/L)	<0.005	0.01	No relaxation

Jamali
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Bharatpur Air Stations

Bharatpur Air monitoring stations



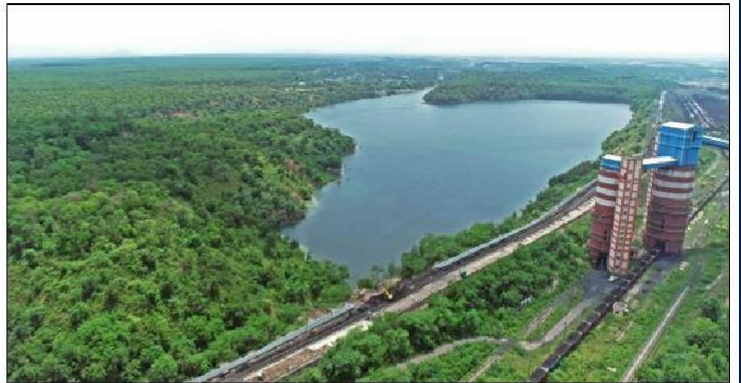
Aerial view of Plantation sites at Bharatpur OCP



Plantation over OB dump Old Quarry sump



Plantation around South Quarry Sump.

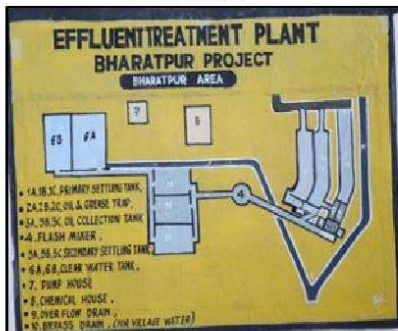


Fog cannon installed at Railway siding no 7 of Bharatpur OCP



Effluent treatment plant at Bharatpur Area

Flow chart



Primary settling tank



Oil and grease tank

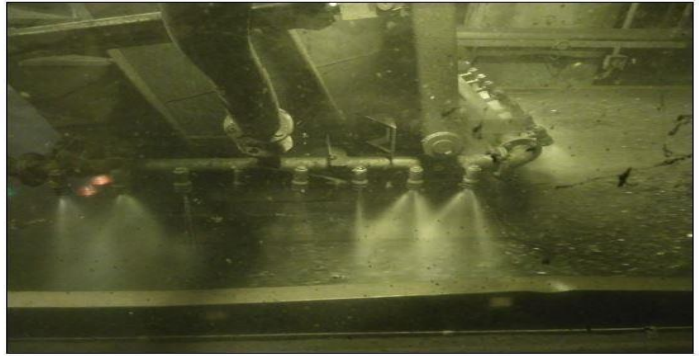


Clear water tank

Automatic sensor based mist spray system arranged at coal receiving hopper of CHP.



Mist spray arrangement inside closed conveyor system of CHP



Truck Mounted Fog cannons for dust Suppression at Coal face area



Mechanical Road Sweeping Machine



