

ମହାନଦୀ କୋଲ୍‌ଫିଲ୍ଡ୍‌ସ୍ ଲିମିଟେଡ୍  
महानदी कोलफील्ड्स लिमिटेड  
Mahanadi Coalfields Limited  
(A subsidiary of Coal India Limited)

OFFICE OF THE PROJECT OFFICER  
LINGARAJ OPENCAST PROJECT  
P.O.: DEULBERA COLLIERY, TALCHER  
DIST: ANGUL (ODISHA), PIN: 759102  
PHONE: 06760 - 241270, FAX: 06760 -241269



**MCL**

Ref. No.: MCL/LOCP/ENV/22-23/608

Date: 31.05.2021

To

The Deputy Director General of Forests (C),  
Eastern Regional Office,  
Ministry of Environment, Forest and Climate Change,  
Integrated Regional Office, A/3, Chandrasekharpur,  
Bhubaneswar, Odisha, PIN- 751023  
Email: roez.bsr-mef@nic.in

Sub.: Half yearly compliance report (01.10.2021 to 31.03.2022) on implementation of Environmental Clearance conditions imposed by MOEF&CC, Government of India, in respect of Lingaraj Opencast Project of M/s. Mahanadi Coalfields Limited

Dear Sir,

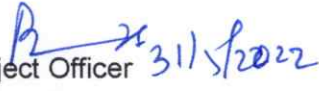
Please find enclosed herewith the Half yearly compliance report for the period from 01.10.2021 to 31.03.2022 on implementation of Environmental Clearance conditions imposed by Ministry of Environment, Forest & Climate Change, Government of India, in respect of Lingaraj Opencast Project of Mahanadi Coalfields Limited.

This is for your kind information please.

Encl.: As above.

With regards,

Yours faithfully,

  
Project Officer 31/5/2022  
Lingaraj OCP, MCL

Copy to:

1. The Director, EIA Monitoring Cell, Ministry of Environment, Forest & Climate Change, Paryavaran Bhawan, CGO Complex, New Delhi, PIN-110003
2. The Member Secretary, State Pollution Control Board, Odisha, Paribesh Bhawan, Unit-VIII, Nilkantha Nagar, Bhubaneswar, Odisha, PIN-751023.
3. The Regional Director, Central Pollution Control Board Zonal Office, Kolkata, South end Conclave Block-502, 5<sup>th</sup> and 6<sup>th</sup> floor, 1582, Razidanga, Main Road, Kolkata, West Bengal, PIN-700107
4. The Regional Officer, Angul, Odisha State Pollution Control Board, S-3/3, Industrial Estate, Hakimpada, Angul, Odisha, PIN-759143
5. The General Manager, Lingaraj Area
6. The General Manager (Environment), MCL HQ., Burla
7. The Staff Officer (Environment), Lingaraj Area
8. The Project Environment Officer, Lingaraj OCP

**HALF YEARLY (01.10.2021 TO 31.03.2022) EC COMPLIANCE REPORT OF  
LINGARAJ OPENCAST PROJECT, M/S MAHANADI COALFIELDS LIMITED**

|  |  |
|--|--|
| <b>Project Details:</b>  |  |
| Name of the project  | Lingaraj Opencast Project  |
| Name of subsidiary company   | Mahanadi Coalfields Limited  |
| Location of project  | At/PO- Deulbera, Talcher<br>Distt.- Angul, Odisha, PIN-759102<br><br>Latitude - 20° 57' 39" N to 20° 58' 18" N<br>Longitude - 85° 09' 33" E to 85° 12' 12" E |
| Period of Half Yearly EC Compliance  | 01.10.2021 to 31.03.2022   |
| Ref. No. & Date Environmental Clearance letter issued by of MOEF&CC, Government of India | Ref. No. J-11015/174/2010-IA.II(M) dated 27.11.2015  |
| Project approval   | Approved by Department of Coal, Ministry of Energy Government of India vide No. 43011/20/86- CPA dated - 21.02.1991.   |
| <b>Present status of the project:</b>  |  |
| Type of Mine   | Opencast   |
| Mining operation   | Continuing   |
| Total coal raised till 31.03.2022  | 262.30 Mil. Te.  |
| Total overburden removed till 31.03.2022   | 202.504 Mil. m <sup>3</sup>  |
| Actual date of commencement  | 17.04.1991   |
| Project Capacity   | 20 MTY   |
| Life of the project  | 21 years from 01.04.2010 (as per EMP)  |

**COMPLIANCE STATUS OF CONDITIONS OF ENVIRONMENTAL CLEARANCE  
GRANTED BY MOEF&CC, GOVERNMENT OF INDIA VIDE LETTER NO. J-  
11015/174/2010-IA.II(M) DATED 27.11.2015 IN RESPECT OF LINGARAJ OPENCAST  
PROJECT, MAHANADI COALFIELDS LIMITED**

**(A) Compliance Status of Specific Conditions**

| <b>S. No.</b> | <b>Condition</b>  | <b>Compliance Status</b>  |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
|---------------|---|---|-------------|--------------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|
| i             | The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.  | The production of coal was within the permissible limit as specified in EC. The last five years production is mentioned below.<br><br><table border="0"> <thead> <tr> <th><u>Year</u></th> <th><u>Production</u></th> </tr> </thead> <tbody> <tr> <td>2016-17</td> <td>- 14.80 Mil. Te.</td> </tr> <tr> <td>2017-18</td> <td>- 14.28 Mil. Te.</td> </tr> <tr> <td>2018-19</td> <td>- 13.57 Mil. Te.</td> </tr> <tr> <td>2019-20</td> <td>- 14.01 Mil. Te.</td> </tr> <tr> <td>2020-21</td> <td>- 13.33 Mil. Te.</td> </tr> <tr> <td>2021-22</td> <td>- 14.46 Mil. Te.</td> </tr> </tbody> </table>                  | <u>Year</u> | <u>Production</u>        | 2016-17 | - 14.80 Mil. Te. | 2017-18 | - 14.28 Mil. Te. | 2018-19 | - 13.57 Mil. Te. | 2019-20 | - 14.01 Mil. Te. | 2020-21 | - 13.33 Mil. Te. | 2021-22 | - 14.46 Mil. Te. |         |                  |
| <u>Year</u>   | <u>Production</u>   |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2016-17       | - 14.80 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2017-18       | - 14.28 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2018-19       | - 13.57 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2019-20       | - 14.01 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2020-21       | - 13.33 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2021-22       | - 14.46 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| ii            | The validity of the EC is for the life of the Mine or as specified in the EIA Notification, 2006, whichever earlier.                                  | Agreed.   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| iii           | Periodically monitoring of WHS constructed / maintained and study their effectiveness, and all the works should be completed by monsoon of year 2016. | The water harvesting structures are periodically monitored and maintained every year.   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| iv            | Silo should be commissioned by the year 2016.   | Silo 2 was commissioned on 27 <sup>th</sup> March 2020 and Silo 1 was commissioned on 25 <sup>th</sup> April 2020.  |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| v             | Dispatch of 18.87 MT of Coal will be started from January, 2017.  | Details of year wise dispatch of the years from 2015-16 to 2021-22 is given below.<br><br><table border="0"> <thead> <tr> <th><u>Year</u></th> <th><u>Dispatch Quantity</u></th> </tr> </thead> <tbody> <tr> <td>2015-16</td> <td>- 14.52 Mil. Te.</td> </tr> <tr> <td>2016-17</td> <td>- 14.51 Mil. Te.</td> </tr> <tr> <td>2017-18</td> <td>- 13.71 Mil. Te.</td> </tr> <tr> <td>2018-19</td> <td>- 13.32 Mil. Te.</td> </tr> <tr> <td>2019-20</td> <td>- 13.31 Mil. Te.</td> </tr> <tr> <td>2020-21</td> <td>- 13.38 Mil. Te.</td> </tr> <tr> <td>2021-22</td> <td>- 20.58 Mil. Te.</td> </tr> </tbody> </table> | <u>Year</u> | <u>Dispatch Quantity</u> | 2015-16 | - 14.52 Mil. Te. | 2016-17 | - 14.51 Mil. Te. | 2017-18 | - 13.71 Mil. Te. | 2018-19 | - 13.32 Mil. Te. | 2019-20 | - 13.31 Mil. Te. | 2020-21 | - 13.38 Mil. Te. | 2021-22 | - 20.58 Mil. Te. |
| <u>Year</u>   | <u>Dispatch Quantity</u>  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2015-16       | - 14.52 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2016-17       | - 14.51 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2017-18       | - 13.71 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2018-19       | - 13.32 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2019-20       | - 13.31 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2020-21       | - 13.38 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |
| 2021-22       | - 20.58 Mil. Te.  |   |             |                          |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |         |                  |

|      |   |  |
|------|---|--|
| vi   | Initial OB will be filled in. Out of 538.851 ha excavated area of 292.18 ha will be filled in and brought to the ground level, and balance 246.71 ha shall remain as partially filled void 185 m deep.  | Overburden is concurrently being backfilled.<br><br>Total area of backfilling is 137 Ha. as on 31.03.2022 out of 415.70 Ha. excavated area.  |
| vii  | There will be no external OBD in post mine closure. OB from Alkhalpal and Sakshi Gopal OCP under formulation having a stripping ratio-more than 2-3 m <sup>3</sup> /T initial OBD will be filled in this mine void and brought to the Ground Level. This refilling is expected by 8 <sup>th</sup> year when the mine is in operation. | Overburden is concurrently being backfilled.<br><br>Alkhalpal and Sakshigopal OCP has not been started yet.  |
| viii | The wild life conservation plan should be reworked out with time bound and site specific action plan and got approved from the PCCF wild life and be submitted to MoEF&CC within 3 months.  | The wild life conservation plan has been approved by PCCF (Wildlife) / Chief Wildlife Warden, Odisha vide Ref. No. 594/1WL-SSP-235/2016 dated 19.01.2017.<br><br>Copy of approval has been submitted to Eastern Regional Office, MOEF&CC, Government of India. |
| ix   | Efforts be made to explore the availability of mechanically covered trucks.   | All the trucks which are going outside of mine are being covered by tarpaulin cover.   |
| x    | Total excavated area of 538.851 ha, shall be backfilled. With the available OB up to ground level to the tune of 292.141 ha and balance 246.710 ha shall remain as partially filled void which will be developed as water body with maximum depth 185 m.  | Overburden is concurrently being backfilled.<br><br>Total area of backfilling is 137 Ha. as on 31.03.2022 out of 415.70 Ha. excavated area.  |
| xi   | There shall not be any external OB dump post mine closure. Out of a total 292.141 ha backfilled area 186.311 ha shall be afforested and balance 105.83 ha shall be developed for agriculture purpose.   | Agreed to comply as required post mine closure. Post mine closure activities will be carried out as per the Mine closure plan.<br><br>Plantation is being carried out on the backfilled area on regular basis. 103102 Nos. of plants                           |

|       |  |   |
|-------|--|---|
|       |  | have been planted over 37.23 Ha. backfilled area till date.   |
| xii   | Coal transportation in pit by dumper, Surface to Siding by dumper and siding at loading by pay loader.   | Coal transportation is being carried out in pit by tipper, Surface to Siding by tipper and loading at siding by pay loader.   |
| xiii  | The production shall be within the same Mining Lease area.   | Production is being carried out within the mine lease area.   |
| xiv   | The OB shall be complete re-handled at the end of the mining.  | It will be complied.  |
| xv    | Final mine void depth will not be more than 40 m. The void area will be converted into water body. The rest of the area will be back filled up to the ground level and covered with about a meter thick top soil and put to use. | It will be complied.<br>Backfilling is continuously going on. Total backfilling area as 137 Ha. as on 31.03.2022. Top soil is being spread over the backfilled area for the purpose of biological reclamation.          |
| xvi   | Garland drains be provided.  | 8 KM long earthen garland drain has been provided around External OB dumps.<br>4.6 KM long garland drain (3.8 KM long earthen garland drain and 0.8 KM long concrete garland drain) have been provided around mine pit. |
| xvii  | Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine.  | There is no river / nallah flowing adjacent to the mine.  |
| xviii | The land after mining shall be brought back for agriculture purpose.   | The land after mining shall be brought back for agricultural purpose.   |
| xix   | Mine water should be treated for discharge into the lagoon. The quality of lagoon water shall be regularly monitored and mitigation measures taken.  | Mine water is being treated and recycled.<br>Lingaraj OCP has implemented Zero Discharge System and so, mine discharge is not being made to outside of the mine premises.   |
| xx    | The CSR cost should be Rs.5 per Tonnes of Coal produced which  | CSR expenditure is being made as per  |

|             | should be adjusted as per the annual inflation.   | <p>Schedule-VII of Companies Act, 2014.</p> <p>The last three years CSR expenditure is given below.</p> <table border="1"> <thead> <tr> <th><u>Year</u></th> <th><u>CSR Expenditure</u></th> </tr> </thead> <tbody> <tr> <td>2021-22</td> <td>- Rs. 282.71 lakhs</td> </tr> <tr> <td>2020-21</td> <td>- Rs. 442.84 lakhs</td> </tr> <tr> <td>2019-20</td> <td>- Rs. 381.32 lakhs</td> </tr> </tbody> </table> | <u>Year</u> | <u>CSR Expenditure</u> | 2021-22 | - Rs. 282.71 lakhs | 2020-21 | - Rs. 442.84 lakhs | 2019-20 | - Rs. 381.32 lakhs |
|-------------|---|---|-------------|------------------------|---------|--------------------|---------|--------------------|---------|--------------------|
| <u>Year</u> | <u>CSR Expenditure</u>  |   |             |                        |         |                    |         |                    |         |                    |
| 2021-22     | - Rs. 282.71 lakhs  |   |             |                        |         |                    |         |                    |         |                    |
| 2020-21     | - Rs. 442.84 lakhs  |   |             |                        |         |                    |         |                    |         |                    |
| 2019-20     | - Rs. 381.32 lakhs  |   |             |                        |         |                    |         |                    |         |                    |
| xxi         | Everybody in the core area should be provided with mask for protection against fugitive dust emissions.   | <p>Everybody in the core area is provided with mask for protection against fugitive dust pollution.</p> <p>The issue of dust mask to employees is a continuous process.</p> <p>50 nos. of dust masks have been issued to employees during October 2021 to March 2022.</p>   |             |                        |         |                    |         |                    |         |                    |
| xxii        | Dust Mask to be provided to everyone working in the mining area.  | <p>Everybody in the core area is provided with mask for protection against fugitive dust pollution.</p> <p>The issue of dust mask to employees is a continuous process.</p> <p>50 nos. of dust masks have been issued to employees during October 2021 to March 2022.</p>   |             |                        |         |                    |         |                    |         |                    |
| xxiii       | The supervisory staff should be held personally responsible for ensuring compulsory regarding wearing of dust mask in the core area.                    | <p>Dust masks are provided too all the workers working in the core area. The supervisory staffs are tasked with the responsibility of ensuring wearing of dust masks by the workers while working in the core area.</p>   |             |                        |         |                    |         |                    |         |                    |
| xxiv        | People working in the core area should be periodically tested for the lung diseases and the burden of cost on account of working in the coal mine area. | <p>People working in the core area are periodically tested for the lung diseases for which the expenditure is borne by MCL.</p> <p>Periodic Medical Examination of 65 nos. of persons was carried out during October 2021 to March 2022.</p>  |             |                        |         |                    |         |                    |         |                    |
| xxv         | The mining area should be surrounded by green belt having thick closed thick canopy of the  | <p>Except for the moving front of the mine, plantation has been carried out at all feasible sides of mine for development of green belt.</p>  |             |                        |         |                    |         |                    |         |                    |

|        |   |  |
|--------|---|--|
|        | tree cover.   | <p>Till 31.03.2022, a total of 504334 nos. of saplings have been planted over an area of 184.02 Ha. at Lingaraj OCP.</p> <p>Further details in this regard are mentioned in Annexure-II.</p>   |
| xxvi   | The embankment constructed along the river boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side and stabilized with plantation so as to withstand the peak water flow and prevent mine inundation.   | There is no river adjacent to mine and hence, there is no chance of mine inundation.   |
| xxvii  | There shall be no overflow of OB into the river and into the agricultural fields and massive plantation of native species shall be taken up in the area between the river and the project.  | <p>There is no river adjacent to mine and hence, there is no possibility of overflow of OB into river.</p> <p>Overburden has never been disposed in agricultural fields. Currently, the overburden generated is being backfilled in the mine void.</p>   |
| xxviii | OB shall be stacked at two earmarked external OB dumpsite(s) only. The ultimate slope of the dump shall not exceed 28°. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forests & Climate Change and its concerned Regional office on yearly basis. | OB is stacked at the earmarked sites. No external dumping has been done after the year 2015-16. Terracing/ benching/ stepping/ re-sloping as required has been done to keep the overall slope angle of the dump within 28°. Monitoring and management of the vegetation is being done for four or more years by which the vegetation becomes self-sustaining. Compliance status is submitted to the Ministry of Environment, Forest & Climate Change and its concerned Regional office on half yearly basis. |
| xxix   | 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 belt development, etc. The   | <p>17.8 KM long catch drain (12.3 KM long earthen catch drain and 5.3 KM long concrete catch drain) have been provided along the approach / haul roads.</p> <p>8 KM long earthen garland drain has been provided around External OB dumps.</p>   |

|     |  |  |
|-----|--|--|
|     | <p>drains shall be regularly desalted and maintained properly. Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and 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 settling of silt material.</p> | <p>4.6 KM long garland drain (3.8 KM long earthen garland drain and 0.8 KM long concrete garland drain) have been provided around mine pit.</p> <p>The water so collected is utilized for watering the mine area, roads, green belt development, etc.</p> <p>Sumps of around 36 lakh m<sup>3</sup> capacity combined are available for proper settling of silt material.</p> <p>Mine Discharge Treatment Plant comprising of two settling tanks of size 40 m. x 80 m. x 4 m. each and a clear water reservoir of size 40 m. x 40 m. x 6 m. have been constructed near dumper parking for the settling of mine water.</p> <p>Two settling tanks of size 40 m. x 80 m. x 4 m. each and a clear water reservoir of size 40 m. x 40 m. x 6 m. have been constructed near Deulbera Siding for the management of Surface Runoff generated around Deulbera Siding.</p> <p>Two settling tanks (of size ST<sub>1</sub>: 46 m. x 16 m. x 4 m. ; ST<sub>2</sub>: 38.40 m. x 17.50 m. x 4 m.) and one clear water reservoir (of size 13.60 m. x 9.30 m. x 3.20 m.) have been constructed near Project Office for settling of overflow runoff water and its reuse.</p> <p>Four settling tanks (of size ST<sub>1</sub>: 35 m. x 33 m. x 2 m. ; ST<sub>2</sub>: 33 m. x 34 m. x 2 m. ; ST<sub>3</sub> 36 m. x 35 m. x 2 m. &amp; ST<sub>4</sub>: 34 m. x 36 m. x 2 m.) &amp; one clear water reservoir (size 48 m. x 48 m. x 1.5 m.) also are available near Lingaraj siding for proper management of surface run off generated near Lingaraj Siding and its reuse.</p> |
| xxx | <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>4.19 km long toe wall / retaining wall of 1.2 mtr. width and 1 mtr. height has been provided along External OB Dumps.</p> <p>145 mtr. long retaining wall has been provided in the backfilled area.</p>   |

|        |   |  |
|--------|---|--|
| xxxii  | Crushers at the CHP of adequate capacity for the expansion project shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc | <p>During the year 2021-22, 91% of coal was produced by Surface Miners at Lingaraj OCP. Only minimal quantity of Coal produced by conventional methods is being routed through CHPs which has rendered the use of CHPs at minimum level. Furthermore, the only working CHPs are located inside the pit. The following pollution control measures are at place at CHP.</p> <ul style="list-style-type: none"> <li>• The CHP feeder breaker, belt conveyor, coal bunker are covered by G.I. sheet to prevent propagation of dust. Mist fogger system has been installed at CHPs.</li> <li>• Fixed sprinklers are provided around the CHPs.</li> <li>• Mobile water tankers and mobile fog canon are also used for controlling dust around the CHP.</li> </ul> <p>With the abovementioned pollution control arrangements the dust is arrested at CHP.</p> |
| xxxiii | Drills shall be wet operated.   | Drills are wet operated.   |
| xxxiv  | The project authorities shall undertake regular repairing and tarring of roads used for mineral transportation. A 3-tier green belt comprising of a mix of native species shall be developed all along the major approach roads.  | <p>Regular maintenance of temporary roads is being carried out by using graders.</p> <p>The permanent coal transportation road has been made concrete (work order value – Rs. 20.47 Cr.).</p> <p>26752 Nos. of saplings have been planted in avenue plantation as on 31.03.2022.</p>   |
| xxxv   | Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.  | Controlled blasting is being practiced with the use of electronic delay detonators for control of ground vibration and to arrest fly rocks and boulders. Blasting is carried out only during the day time. Vibrometer is being used to monitor the vibration readings and all readings are found to be within stipulated standards.  |
| xxxvi  | A Progressive afforestation plan shall be implemented covering an area of 256.03 ha at the end of   | Plantation has been carried out at all available places such as along the periphery of the mine, inactive dumps, backfilled area, vacant   |

|        |   |  |
|--------|---|--|
|        | <p>mining, Green belt and in township located outside the lease by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. Massive plantation shall be carried out in open spaces in and around the mine and a 3-tier avenue plantation along the main approach roads to the mine.</p>  | <p>area and colony.</p> <p>Till 31.03.2022, a total of 504334 nos. of saplings have been planted over an area of 184.02 Ha. at Lingaraj OCP out of which 26752 nos. of saplings have been planted in avenue plantation. Three tier plantation exists around the quarry area.</p> <p>Further details in this regard are mentioned in Annexure-II.</p>   |
| xxxvi  | <p>An estimated total 222.23 Mm<sup>3</sup> (for the proposed expansion project) of OB will be generated during the entire life of the mine. Out of which 8.18 Mm<sup>3</sup> of OB will be dumped in nine external OB Dumps an earmarked area covering 256.03 ha of land. There will be one internal OB dump covering an area of 292.141 ha. The maximum height of external OB dumps will not exceed 80 m. The maximum slope of the dump shall not exceed 28 degrees. Monitoring and management of reclaimed dump sites shall continue till the vegetation becomes self-sustaining and compliance status shall be submitted to MOEFCC and its Regional Office on yearly basis.</p> | <p>OB is stacked at the earmarked sites. No external dumping has been done after the year 2015-16. Terracing / benching / stepping / re-sloping has been done to maintain the overall slope of OB dumps within the specified limit. As on 31.03.2022, the total External OB Dump area is 108.88 Ha. Maximum height of OB dump is less than 80 mtr. Plantation is being carried out over the external and internal OB dumps. A total of 107.05 Ha. of External OB dump and 37.23 Ha. of internal OB dump (backfilled area) have been technically and biologically reclaimed. Monitoring and management of the vegetation is being done for four or more years by which the vegetation becomes self-sustaining. Compliance status is being submitted to MOEF&amp;CC and its Regional Office.</p> |
| xxxvii | <p>The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.</p>  | <p>Restoration and reclamation plan has been prepared and incorporated in the EMP.</p> <p>Mine closure plan has also been prepared to devise the measures for sustainable phasing out of mine and productive &amp; sustainable use of land.</p> <p>Concurrent backfilling of mine void is carried out and subsequently, technical and biological reclamation of the backfilled area is being done.</p>   |

|         |  |  |
|---------|--|--|
| xxxviii | Compensatory Ecological & Restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land be carried out.  | <p>Concurrent backfilling of the mine void is being carried out.</p> <p>Reclamation of the backfilled area and other degraded area such as External OB dumps is being carried out continuously. A total of 504334 nos. of plants has been planted over 184.02 Ha. area at Lingaraj OCP as on 31.03.2022. In addition to above, 7000 nos. of plants have been planted on Government land under urban plantation scheme.</p> |
| xxxix   | The mining should be phased out in sustainable manner.   | <p>Mine closure plan has also been prepared to devise the measures for sustainable phasing out of mine and productive &amp; sustainable use of land.</p> <p>Technical and biological reclamation of backfilled area and other degraded areas such as External OB dump is being carried out.</p>  |
| xli     | No groundwater shall be used for mining operations.  | Ground water is not being used for mining purpose. Only mine sump water is being used for industrial purposes. Permission from CGWA has also been obtained vide NOC No. CGWA/NOC/MIN/ORIG/2020/9454 dated 17.12.2020 for abstraction of mine sump water which is being used in industrial purposes.  |
| xlii    | The total quarry area of 538.85 ha. A void of 246.709 ha at a depth of 40 m which is proposed to be converted into a water body having gently sloped and the upper benches shall be terraced and stabilized with plantation/afforestation by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. | <p>415.70 Ha. area out of planned 538.85 Ha. area has been excavated as on 31.03.2022.</p> <p>Plantation is being carried out on backfilled area. A total of 103102 Nos. of plants have been planted over 37.23 Ha. backfilled area till 31.03.2022.</p> <p>Further details of plantation are mentioned in Annexure-II.</p>  |
| xlii    | Regular monitoring of groundwater level and quality shall be carried out by establishing a network of  | Monitoring of ground water level is being carried out from existing wells by CMPDIL. The details in this regard are enclosed as  |

|       |   |   |
|-------|---|---|
|       | <p>existing wells and construction of new piezometers. 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 the Ministry of Environment, Forest &amp; Climate Change and to the Central Pollution Control Board quarterly within one month of monitoring.</p> | <p>Annexure-V for reference. A network of 23 piezometers has also been established in Talcher Coalfields to monitor and assess the long term water table variation in the aquifers. The details in this regard are enclosed as Annexure-VI for reference.</p>   |
| xliii | <p>The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring indicates a decline in water table. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.</p>  | <p>From the water level monitoring reports it is observed that there is no decline in water table.</p> <p>Drinking Water is supplied to 43 nos. of villages through water tankers. In addition to above, piped water supply arrangement is made for supply of drinking water to 17 villages.</p> <p>7 nos. of roof top rain water harvesting structures have also been done at 7 point. Details in this regard are mentioned below.</p> <p>a) 2 nos. each at GM Office &amp; Regional Store complex, Lingaraj area.</p> <p>b) 1 no. each at Project Office, Deulbera Dispensary and Lingaraj Township Dispensary.</p> |
| xliv  | <p>Sewage treatment plant shall be installed the existing colony. ETP shall also be provided for workshop and CHP wastewater.</p>   | <p>Septic tanks and soak pits as per BIS specifications are provided in all blocks of quarters. Construction work of STP is under progress. Work order amounting to Rs. 2.32 Cr. has been given to M/s Enhance Ecotech Solution Private Limited on 31.05.2021 for construction of STP.</p> <p>Effluent Treatment Plant of 100 KLD capacity is provided at Lingaraj OCP for treatment of waste water containing oil and grease. The Effluent Treatment Plant comprises of 2 nos. of Primary Settling Tanks, an Oil and Grease</p>  |

|              |  |   |
|--------------|--|---|
|              |  | <p>Trap equipped with oil skimmer, aeration tank, a clear water reservoir and a pressure filter. The treated clear water generated from Effluent Treatment Plant is completely reused in vehicle washing. No wastewater from the Effluent Treatment Plant is discharged to outside. No wastewater is generated at CHP.</p>  |
| <p>xliv</p>  | <p>Besides carrying out regular Periodic health check-up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check up for occupational diseases and hearing impairment, if any through an specialized agency /institution within the District/State and the results reported to this Ministry and to DGMS.</p> | <p>Occupational health surveillance program of the workers are being carried out regularly.</p> <p>Periodic Medical Examination of 65 no. of persons was carried out during October 2021 to March 2022.</p> <p>Facilities such as dispensaries at townships and Central Hospital, Talcher are also available for the purpose of health check up of employees.</p> <p>Regional Hospital, Dera is manned with Doctor and paramedical staffs who are trained in carrying out health check up for occupational diseases.</p> <p>Provision of referral of employees to outside hospitals for further treatment as required is also available.</p> <p>In addition to above, health check up of 976 nos. of contractual employees, engaged in active mining operations, was carried out during the year 2018-19 by ILO certified doctors for occupational diseases including hearing impairment.</p> |
| <p>xlvi</p>  | <p>Land Oustees shall be compensated as per the norms laid out R&amp;R Policy of CIL or the National R&amp;R Policy or R&amp;R Policy of the State Government whichever is higher.</p>   | <p>Land oustees are being compensated as per R&amp;R policy of Govt. of Odisha and R&amp;R guidelines of CIL &amp; MCL.</p>   |
| <p>xlvii</p> | <p>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:</p>  | <p>Digital processing of the entire lease area using remote sensing technique is being done regularly and the report is submitted to the MOEF&amp;CC and its regional office on regular</p>   |

|                  | <p>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 the report submitted to MOEFCC and its concerned Regional office</p>   | <p>basis.</p> <p>The important parameters of land use patterns are given below.</p> <table border="1" data-bbox="774 309 1449 857"> <thead> <tr> <th>Land use</th> <th>Area (km<sup>2</sup>) during the year 2020</th> </tr> </thead> <tbody> <tr> <td>Open forest</td> <td>0.03</td> </tr> <tr> <td>Scrubs</td> <td>0.56</td> </tr> <tr> <td>Plantation</td> <td>0.80</td> </tr> <tr> <td>Agriculture land</td> <td>0.36</td> </tr> <tr> <td>Waste land</td> <td>0.70</td> </tr> <tr> <td>Mining area</td> <td>4.50</td> </tr> <tr> <td>Settlements</td> <td>0.26</td> </tr> <tr> <td>Water body</td> <td>0.05</td> </tr> </tbody> </table> | Land use | Area (km <sup>2</sup> ) during the year 2020 | Open forest | 0.03 | Scrubs | 0.56 | Plantation | 0.80 | Agriculture land | 0.36 | Waste land | 0.70 | Mining area | 4.50 | Settlements | 0.26 | Water body | 0.05 |
|------------------|--|--|----------|--|-------------|------|--------|------|------------|------|------------------|------|------------|------|-------------|------|-------------|------|------------|------|
| Land use         | Area (km <sup>2</sup> ) during the year 2020   |  |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| Open forest      | 0.03   |  |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| Scrubs           | 0.56   |  |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| Plantation       | 0.80   |  |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| Agriculture land | 0.36   |  |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| Waste land       | 0.70   |  |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| Mining area      | 4.50   |  |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| Settlements      | 0.26   |  |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| Water body       | 0.05   |  |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| <p>xlvi</p>      | <p>A detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forest &amp; climate Change within 6 months of grant of Environmental Clearance.</p>  | <p>As per Mine Closure Plan of Lingaraj OCP the total mine closure cost is Rs. 12319.77 lakhs.</p> <p>Copy of the Mine Closure Plan has been submitted to MoEF&amp;CC.</p>   |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |
| <p>xlx</p>       | <p>The project authorities shall in consultation with the Panchayats of the local villages and administration identify socio-economic and welfare measures under CSR to be carried out over the balance life of the mine.</p> <p>I - Corporate Environment Responsibility:</p> <p>a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.</p> <p>b) The Environment Policy shall prescribe for standard operating process/ procedures to bring in to focus any infringements/ deviation/ violation of the environmental or forest norms/</p> | <p>CSR works are being carried out in consultation with Panchayats of the local villages.</p> <p>a) The company has a well laid down Environment Policy.</p> <p>b) The Environment Policy prescribes for standard operating process / procedures to bring in to focus any infringements / deviation / violation of the environmental or forest norms / conditions.</p>   |          |  |             |      |        |      |            |      |                  |      |            |      |             |      |             |      |            |      |

|  |   |  |
|--|---|--|
|  | <p>conditions.</p> <p>c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/ violations of environmental norms to the Board of Directors of the company and/ or shareholders or stakeholders at large.</p> | <p>c) Environmental Monitoring Cell / Environment Department exists at Project Level, Area Level and at Headquarter Level. The hierarchical system or administrative order is given below.<br/>Project Officer → General Manager → Director (Tech./P&amp;P) → CMD</p> <p>d) Inter Area Inspection is carried out on quarterly basis to assess the status of compliance of conditions of Environmental Clearance and Forest Clearance and also to bring in to focus any non-compliance / infringements / deviation / violation of the environmental or forest norms / conditions. The status of compliance along with any such non-compliance / infringement / deviation / violation is reported to Environment Department, MCL Hq. and to the Board of Directors of the company.</p> |
|--|---|--|

**(B) Compliance Status of General Conditions**

| S. No. | Condition   | Compliance Status  |
|--------|---|--|
| i      | No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forest & Climate Change.   | No change in mining technology and scope of working will be made without prior approval of the Ministry of Environment, Forest & Climate Change.   |
| ii     | No change in the calendar plan of production for quantum of mineral coal shall be made.   | The production of coal was within the permissible limit as specified in EC.  |
| iii    | Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> monitoring. 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. Monitoring of heavy | Four ambient air quality monitoring stations have been established whose locations were decided in consultation with State Pollution Control Board, Odisha. Detailed monitoring report of ambient air quality is enclosed as Annexure-III for reference. Monitoring of details of heavy metals is also carried out. Detailed report of monitoring of heavy metals is enclosed herewith as Annexure-IV. |

|    |   |   |
|----|---|---|
|    | Metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.   |   |
| iv | Data on ambient air quality (PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> ) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its concerned Regional Office and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report. | Data on ambient air quality (PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> ) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data are submitted to MoEF&CC including Eastern Regional Office, Bhubaneswar and to the State Pollution Control Board, Odisha and to the Zonal Office of Central Pollution Control Board once in six months.<br><br>Analysis report of the air quality is also submitted as part of the compliance report.   |
| v  | Adequate measures shall 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 shall be provided with ear plugs/muffs.   | Noise levels are controlled to the minimum with improved blasting technique & improved machineries.<br><br>Drilling and blasting have been minimized as more than 91% of coal is produced by surface miners leading to reduction in noise level. However, persons those who are working near high noise level zone like the HEMM, CHP & blasting etc. are provided with ear plugs/muffs. 25 nos. of ear plugs were given to employees October 2021 to March 2022. Detailed report regarding noise level is enclosed herewith as Annexure – VII. |
| vi | Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 <sup>th</sup> May 1993 and 31 <sup>st</sup> December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.   | Effluent Treatment Plant (100 KLD capacity) comprising of Primary Settling Tanks, Oil and Grease Trap, Aeration Tank, Clear Water Reservoir and Pressure Filter has been installed to treat the workshop effluent.<br><br>The treated effluent is completely being reused in washing of HEMMs and no discharge is being made to outside.  |

|      |  |  |
|------|--|--|
| vii  | <p>Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.</p>  | <p>The PUC certificates of the vehicles are being checked regularly.</p> <p>Vehicles used for transporting the mineral are covered with tarpaulins and overloading is avoided.</p>   |
| viii | <p>Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analyzed through a laboratory recognized under EPA Rules, 1986.</p>  | <p>Central Mine Planning and Design Institute Limited (CMPDIL) has been assigned with the task of monitoring and analysis of environmental quality parameters.</p> <p>Environmental laboratory with adequate number and type of pollution monitoring and analysis equipments has been established by CMPDIL. It is accredited by NABL and is recognized under EPA Rules, 1986.</p>   |
| ix   | <p>Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.</p>   | <p>Persons working near to the dust generation source are provided with Dust Masks.</p> <p>50 nos. of dust masks have been issued to 1650 nos. of employees during October 2021 to March 2022.</p> <p>All the employees are undergone through regular training and are provided with information on safety and health aspects.</p>   |
| x    | <p>Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.</p> | <p>Occupational health surveillance program of the workers are being made regularly. Periodic medical examinations of 65 persons were examined during October 2021 to March 2022.</p> <p>In addition to above, health check up of 976 nos. of contractual employees, engaged in active mining operations, was carried out during the year 2018-19 by ILO certified doctors for occupational diseases including hearing impairment.</p> |
| xi   | <p>A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior</p>  | <p>Environmental Monitoring Cells have been set up at Project Level, Area Level and at Headquarter Level.</p>  |

|  | <p>Executive, who will report directly to the Head of the company.</p>  | <p>The Project Level Environmental Management Cell is headed by Project Officer of Lingaraj OCP who functions as Chairman of Project level Environmental Monitoring Cell (EMC).</p> <p>The Project Environment Officer of Lingaraj OCP functions as Secretary of Project level Environmental Monitoring Cell.</p> <p>The Colliery Manager, Project Engineer (Excavation), Project Engineer (Electrical &amp; Mechanical), Safety Officer, Deputy Manager (Finance), Medical Officer, Project Engineer (Civil), Depot Officer of HSD-Dispensing Unit and Dy. Manager (Survey) are the other members of the Environmental Monitoring Cell of Lingaraj OCP.</p> <p>The Area level Environmental Monitoring Cell is coordinated by Staff Officer (Environment) of Lingaraj Area. The Headquarter level Environmental Monitoring Cell is coordinated by General Manager (Environment), MCL.</p> <p>The General Manager (Environment), MCL reports to Director (Technical/P&amp;P), MCL and the Director (Technical/P&amp;P), MCL reports to Chairman-cum-Managing Director of MCL.</p> |             |             |                 |                 |   |                 |  |                   |
|--|---|---|-------------|-------------|-----------------|-----------------|---|-----------------|--|-------------------|
| <p>Xii</p>   | <p>The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its concerned Regional Office.</p> | <p>Fund earmarked for environmental protection measures is not diverted for any other purpose. The following expenditures have been made during the year 2021-22.</p> <table border="1" data-bbox="799 1608 1449 2054"> <thead> <tr> <th data-bbox="799 1608 1158 1686">Particulars</th> <th data-bbox="1158 1608 1449 1686">Expenditure</th> </tr> </thead> <tbody> <tr> <td data-bbox="799 1686 1158 1765">Tree plantation</td> <td data-bbox="1158 1686 1449 1765">Rs. 83.90 lakhs</td> </tr> <tr> <td data-bbox="799 1765 1158 1877">CGWA NOC charges and CTO fees &amp; HW authorization fees</td> <td data-bbox="1158 1765 1449 1877">Rs. 95.28 lakhs</td> </tr> <tr> <td data-bbox="799 1877 1158 2054">Dust suppression by mobile water tankers, mobile fog canon &amp; mechanical road sweeper</td> <td data-bbox="1158 1877 1449 2054">Rs. 1457.49 lakhs</td> </tr> </tbody> </table>   | Particulars | Expenditure | Tree plantation | Rs. 83.90 lakhs | CGWA NOC charges and CTO fees & HW authorization fees | Rs. 95.28 lakhs | Dust suppression by mobile water tankers, mobile fog canon & mechanical road sweeper | Rs. 1457.49 lakhs |
| Particulars  | Expenditure   |   |             |             |                 |                 |   |                 |  |                   |
| Tree plantation  | Rs. 83.90 lakhs   |   |             |             |                 |                 |   |                 |  |                   |
| CGWA NOC charges and CTO fees & HW authorization fees                                | Rs. 95.28 lakhs   |   |             |             |                 |                 |   |                 |  |                   |
| Dust suppression by mobile water tankers, mobile fog canon & mechanical road sweeper | Rs. 1457.49 lakhs   |   |             |             |                 |                 |   |                 |  |                   |

|      |  |  |                   |
|------|--|--|-------------------|
|      |  | Other works related to air quality management  | Rs. 77.36 lakhs   |
|      |  | Works related to water quality management  | Rs. 12.33 lakhs   |
|      |  | Environment monitoring cost  | Rs. 99.87 lakhs   |
|      |  | Other environmental expenses   | Rs. 1.78 lakhs    |
|      |  | Total  | Rs. 1828.01 lakhs |
|      |  | Year-wise expenditure is reported to Eastern Regional Office of MOEF&CC.   |                   |
| xiii | 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 letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the Ministry of Environment, Forest & Climate Change at <a href="http://envfor.nic.in">http://envfor.nic.in</a> . | Advertisement was put up in New Indian Express and Dharitri (in Odia language) dated 09.12.2015 informing that Lingaraj OCP has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board, Odisha and may also be seen at the website of the Ministry of Environment, Forest & Climate Change at <a href="http://envfor.nic.in">http://envfor.nic.in</a> .                                  |                   |
| xiv  | A copy of the environmental clearance letter shall be marked to concern Panchayat/ Zila Parishad, Municipal Corporation or Urban local body and, local NGO, if any, from whom any suggestion/ representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website.   | Copy of Environmental Clearance letter was marked to the Sarpanch of concerned Panchayats (Dera G.P., Ghantapada G.P., Hensmul G.P., Kandhal G.P. and Kankili G.P.) vide letter No. MCL/PO(LOCP)/ENVT/2015-16/4738 dated 21.12.2015, to the President, Zila Parishad, Angul vide letter No. MCL/PO(LOCP)/ENVT/2015-16/4734 dated 21.12.2015 and to the Executive Officer, Talcher Municipality vide letter No. MCL/PO(LOCP)/ENVT/2015-16/4737 dated 21.12.2015 |                   |
| xv   | A copy of the environmental clearance letter shall also be   | A letter requesting to display a copy of Environmental Clearance letter was written to   |                   |

|       |  |  |
|-------|--|--|
|       | displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Sector and Collector's Office / Tahsildar's Office for 30 days.   | State Pollution Control Board, Odisha vide letter No. MCL/PO(LOCP)/ENVT/2015-16/4736 dated 21.12.2015.<br><br>A letter was also written to the Collector cum District Magistrate vide letter No. MCL/PO(LOCP)/ENVT/2015-16/4735 dated 21.12. 2015 requesting to display a copy of Environmental Clearance letter in Collector's Office, Tehsildar's Office and Regional Office, District Industry Sector.  |
| xvi   | The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website. | The environmental clearance letter has been uploaded on website of MCL. The compliance status of the stipulated environmental clearance conditions mentioned in the EC letter is uploaded MCL website and updated once every six months.<br><br>The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> (ambient) etc. are also displayed at Office of the General Manager, Lingaraj Area. |
| xvii  | The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Offices of CPCB and the SPCB.   | Six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) are submitted to the respective Regional Office of the Ministry, respective Zonal Offices of CPCB and the SPCB.  |
| xviii | The Regional Office of this Ministry located in the Region shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by   | Full cooperation will be extended to the Regional Office of MOEF&CC for monitoring the compliance of the stipulated conditions by furnishing the requisite data / information / monitoring reports.  |

|  |  |   |
|--|--|---|
|  | furnishing the requisite data/ information/ monitoring reports.  |   |
| xix  | The Environmental statement for each financial year ending 31 March in Form-V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Office of the MoEF&CC by e-mail. | Environmental statement for the year 2020-21 ending on 31st March 2021 in Form-V is submitted to the State Pollution Control Board, Odisha vide letter No. एम.सी.एल/मुख्यालय/पर्यावरण एव वन/2021/65 dated 21.09.2021 and is also enclosed herewith as Annexure-VIII. The Environment Statement has also been uploaded on the company's website. |
| <b>(C) Compliance Status of Other Conditions</b> |  |   |
| <b>S. No.</b>                                    | <b>Condition</b>   | <b>Compliance Status</b>  |
| 5  | The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report so also during presentation to EAC.  | All commitments and recommendations made in the EIA / EMP report as presented to EAC are being implemented.   |
| 6  | The commitment made by the proponent to the issues raised during Public Hearing shall be implemented by the Proponent.   | The commitment made by the Lingaraj OCP to the issues raised during Public Hearing is being implemented.  |
| 7  | The proponent is required to obtain all necessary clearances / approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection.   | Consent to Establish, Consent to Operate and Hazardous waste authorization have been accorded to Lingaraj OCP.<br><br>Any condition when stipulated by Ministry or any other competent authority shall be complied.   |
| 8  | The proponent shall setup an Environmental Audit Cell with responsibility and accountability to ensure implementation of all EC conditions   | Environmental Management Cell has been set up at Lingaraj OCP which monitors the implementation of EC conditions. The respective departments are also accountable for implementation of EC conditions as applicable to them.  |
| 9  | Concealing factual data or submission of false / fabricated data   | No factual data have not been concealed and no false / fabricate data has been submitted.   |

|    |   |   |
|----|---|---|
|    | and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.  |   |
| 10 | The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of ground water and surface water, and occupational and other diseases due to the mining operations. | Lingaraj OCP is to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of ground water and surface water, and occupational and other diseases due to the mining operations. |
| 11 | Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act.   | No appeal against the Environmental Clearance accorded to Lingaraj OCP was made.  |
| 12 | The EC supersedes the earlier EC issued vide letter No. J-11015/223/2005-IA.II (M) dated 02.02.2006 for 13 MTPA capacity.   | Agreed.   |

*R. K. 31/5/2022*  
**Project Officer**  
**Lingaraj OCP, MCL**

*31/05/22*

**ANNEXURE - I**

**DATASHEET OF LINGARAJ OCP (PART - I)**

**(PROGRESSIVE AS ON 31.03.2022)**

| <b>(A) Land details:</b>                             |   |
|--|---|
| Total land involved                                  | 1493.200 Ha. (as per EMP)                             |
| Non- Forest land (Govt. + Tenancy)                   | 1306.889 Ha. (as per EMP)                             |
| Forest land  | 186.311 Ha. (as per EMP)                              |
| Total Mine Lease Area                                | 1410.01 Ha. (as per EMP)                              |
| <b>(B) Coal production &amp; OB removal details:</b> |   |
| Project Capacity                                     | 20 MTY  |
| Life of the project                                  | 21 years from 01.04.2010 (as per EMP)                 |
| Total mineable reserve                               | 321 MT as on 01.04.2010 (as per EMP)                  |
| Total coal extracted till 31.03.2022 since inception | 271.019 Million Te.                                   |
| Coal production during 01.04.2021 to 31.03.2022      | 14,457,887.197 Te.                                    |
| Coal dispatch during 01.04.2021 to 31.03.2022        | 20,578,342,540 Te.                                    |
| Opening coal stock (as on 01.04.2021)                | 3,335,509.28 Te.                                      |
| Closing coal stock (as on 31.03.2022)                | 1,739,657.606 Te.                                     |
| Total OB to be removed                               | 222.23 M.m <sup>3</sup> as on 01.04.2010 (as per EMP) |
| Total OB removed till 31.03.2022 since inception     | 212.116 Million m <sup>3</sup>                        |
| OB removal during 01.04.2021 to 31.03.2022           | 14,500,509.47 m <sup>3</sup>                          |

| <b>(C) External OB Dump details:</b>         |         |
|--|---------|
| Total no of External OB dumps (Active+ Dead) | 11 Nos. |
| No. of External OB dump (Active)             | Nil     |
| No. of external OB dumps (Dead)              | 11 Nos. |

|   |  |
|---|--|
| Total area of External OB dump  | 108.88 Ha  |
| Area of External OB dumps biologically reclaimed  | 102.05 Ha.   |
| Total volume of External OB dumps   | 47.98 M.m <sup>3</sup> (approx.)   |
| <b>(D) Excavation / Decoaled / Backfilling details:</b>   |  |
| Total broken area / excavated area  | 415.70 Ha.   |
| Total used forest area (excavation and other purpose)   | 95.56 Ha.  |
| Broken forest area by excavation  | 67.38 Ha.  |
| Backfilling area (active)   | 39 Ha.   |
| Area already backfilled   | 98 Ha.   |
| Decoaled area to be back filled (vacant at coal face)   | 21 Ha.   |
| Area occupied by CHP, sump, haul road etc in the decoaled area  | 26 Ha.   |
| Total backfilling area  | 137 Ha.  |
| Total decoaled area   | 184 Ha.  |
| Present quarry depth (max.) from surface  | 150 mtr. from surface (-) 32 mtr. R.L.   |
| <b>(E) Control of Air Pollution:</b>  |  |
| Drilling with dust extractors   | Being done with NVE system   |
| Wet drilling  | Being done   |
| Control blasting  | Controlled blasting is being carried out with time delay technique.  |
| Deployment of surface Miner (It eliminates drilling and blasting in coal extraction. No blasting, noise & vibration, minimum air pollution) | 7 Nos. with water spraying facility  |
| Fixed water sprinkler   | Nos. of sprinklers- 102 Nos.   |
| Dust suppression at CHP   | By perforated pipes, fixed sprinklers and mist spray arrangement   |
| Instant shower system   | 1 No.  |
| Mobile water tanker   | Departmental: 28 KL water tanker - 11 nos.<br>Contractual: 20 KL water tankers - 4 nos., 18 KL- 2 nos., 17.5 KL- 1 no. |

|  |   |
|--|---|
| Mechanical Road Sweeper                | 2 nos.  |
| Truck chassis mounted Mobile fog canon | 1 no.   |
| <b>(F) Control of water pollution:</b> |   |
| Sump pit/pre settling pond             | <p>Sumps of around 36 lakh m<sup>3</sup> capacity combined are available for proper settling of silt material.</p> <p>Mine discharge treatment plant comprising of Two settling tanks of size 40 m. x 80 m. x 4 m. each and a clear water reservoir of size 40 m. x 40 m. x 6 m. have been constructed near Dumper parking for the settling of mine water.</p> <p>Two settling tanks of size 40 m. x 80 m. x 4 m. each and a clear water reservoir of size 40 m. x 40 m. x 6 m. have been constructed near Deulbera Siding for the management of Surface Runoff generated near Deulbera Siding.</p> <p>Two settling tanks (of size ST<sub>1</sub>: 46 m. x 16 m. x 4 m. ; ST<sub>2</sub>: 38.40 m. x 17.50 m. x 4 m.) and one clear water reservoir (of size 13.60 m. x 9.30 m. x 3.20 m.) have been constructed near Project Office for settling of overflow water and its reuse.</p> <p>Four settling tanks (of size ST<sub>1</sub>: 35 m. x 33 m. x 2 m. ; ST<sub>2</sub>: 33 m. x 34 m. x 2 m. ; ST<sub>3</sub> 36 m. x 35 m. x 2 m. &amp; ST<sub>4</sub>: 34 m. x 36 m. x 2 m.) &amp; one clear water reservoir (size 48 m. x 48 m. x 1.5 m.) also are available near Lingaraj siding for proper management of surface run off and settling.</p> |
| Effluent Treatment Plant               | <p>Effluent Treatment Plant of 100 KLD capacity is provided at Lingaraj OCP for treatment of waste water containing oil and grease. The Effluent Treatment Plant comprises of 2 nos. of Primary Settling Tanks, an Oil and Grease Trap equipped with oil skimmer, aeration tank, a clear water reservoir and a pressure filter. The treated clear water generated from Effluent Treatment Plant is completely reused</p>  |

|  |   |
|--|---|
|  | in vehicle washing. No wastewater from the Effluent Treatment Plant is discharged to outside. No wastewater is generated at CHP.  |
| Garland drain                                  | 8 KM long earthen garland drain has been provided around External OB dumps.<br>4.6 KM long garland drain (3.8 KM long earthen garland drain and 0.8 KM long concrete garland drain) have been provided around mine pit. |
| Catch drain / storm drain                      | 17.8 KM long catch drain (12.3 KM long earthen catch drain and 5.3 KM long concrete catch drain) have been provided along the approach / haul roads.  |
| Septic tank/ soak pit / sewage treatment plant | Septic tanks and soak pits as per BIS specifications are provided in all blocks of quarters. Sewage treatment plant is under construction.  |
| Zero Discharge System                          | Implemented.  |
| <b>(G) Control of noise pollution:</b>         |   |
| Ear muff / Ear plugs provided                  | Provided to all personnel exposed to excess noise.  |
| Green belt                                     | Provided between mine infrastructure and the colony to curb noise / dust pollution.   |
| Sound proof cabin (HEMM)                       | Provided in HEMMs.  |

**DATASHEET OF LINGARAJ OCP (PART - II)**

**INFORMATION ON REHABILITATION  
(PROGRESSIVE AS ON 31.03.2022)**

|          |   |   |
|----------|---|---|
| <b>1</b> | <b>No. of villages affected:</b>                | 23  |
| <b>2</b> | <b>Families affected:</b>                       | 3125 (Displaced + land loser only)  |
| <b>3</b> | <b>Compensation package offered per family:</b> | As per the norms of Government of Odisha and R&R guidelines of CIL / MCL. |
| <b>4</b> | <b>Budget estimate for rehabilitation:</b>      |   |
| a)       | Total outlay                                    | 899.41 Lakhs (revised)  |
| b)       | Amount paid/used                                | 467.40 Lakhs.   |
| <b>5</b> | <b>Employment details:</b>                      |   |
| a)       | Total employment to be provided                 | 1271 (Approx.)  |
| b)       | Employment given so far                         | 1088  |
| <b>6</b> | <b>Rehabilitation and Resettlement details:</b> |   |
| a)       | No. of families rehabilitated.                  | 1088  |
| b)       | Name of the site                                | Site of own choice / Cash compensation in lieu of plots.                  |
| c)       | Families resettled                              | 1092  |
| d)       | Total   | 1092 resettled & 1088 Rehabilitation with employment.                     |
| e)       | Families yet to be rehabilitated:               | 55 to be resettled & 16 to be rehabilitated.                              |
| <b>7</b> | <b>Any other information:</b>                   | R & R package is being offered according to progress of land acquisition. |

**ANNEXURE - II**

**PARTICULARS OF GREEN BELT/ PLANTATION UNDER F(C) ACT 1980 AND E(P) ACT 1986 IN RESPECT OF LINGARAJ OCP, M/S MAHANADI COALFIELDS LIMITED**

**1. a) Name of the Project:**

Lingaraj Opencast Project

**b) Environment / Forest Clearance No.:**

- i) Environmental Clearance vide letter No. J-11015/174/2010-IA.II(M) dated 27.11.2015
- ii) Forest Clearance vide letter No. 8-99/87-FC 2/7-03-1989

**2. Location, Block / Sub-division / Dist. / State:**

P.O.- Deulbera Colliery, Block- Talcher, Sub-division- Talcher, Dist.- Angul, State- Odisha, PIN-759102

**3. Address for communication:**

Office of the Project Officer  
Lingaraj Opencast Project  
Mahanadi Coalfields Limited  
PO- Deulbera Colliery, Talcher  
Distt.- Angul, Odisha, PIN-759102

**4. Existing vegetation in the area/region:**

**a) Species:**

Trees, Shrubs and Herbs are the most common types.

**b) Major prevalent species of each type:**

| <b>Tree</b>  | <b>Shrub</b>  | <b>Herb</b>   |
|--|---|---|
| Jackfruit, Mango, Sal, Bamboo, Papal, Mahul, Akasia, Neem, Big Neem, Karanj, Jamun | Barkoli, Arakh, Amari, Wile jujube, Rabjada, Coromandel ebony | Duba, Lajakuli, Bisalyakarani, Banasorisa, Bichhamalia, Bajramuli |

## 5. Land coverage by the project:

### a) Total area under the project:

Total area as per EMP - 1493.20 Ha.

Total Mine Lease area as per EMP - 1410.01 Ha.

### b) Area covered for basic infrastructure (roads/buildings/factory etc.):

Area as per EMP - 145.60 Ha. (including residential colony, rehabilitation site and other infrastructure)

## 6. Details about natural vegetation:

### a) Name and number of tree/species felled:

| Sl. No. | Name of tree | Nos. of trees felled | Sl. No. | Name of tree | Nos. of trees felled |
|---------|--------------|----------------------|---------|--------------|----------------------|
| 1       | Sal          | 26527                | 14      | Mango        | 267                  |
| 2       | Char         | 2426                 | 15      | Acasia       | 1775                 |
| 3       | Sidha        | 199                  | 16      | Cashew       | 37                   |
| 4       | Mahula       | 1102                 | 17      | Chakunda     | 25                   |
| 5       | Asan         | 1717                 | 18      | Eucalyptus   | 146                  |
| 6       | Kendu        | 814                  | 19      | Nimba        | 14                   |
| 7       | Bahada       | 208                  | 20      | Gamhari      | 1512                 |
| 8       | Kumbhi       | 338                  | 21      | Balia        | 96                   |
| 9       | Kuchia       | 1                    | 22      | Jamun        | 57                   |
| 10      | Sunari       | 13                   | 23      | Palasa       | 13                   |
| 11      | Kuruma       | 65                   | 24      | Ghantal      | 2                    |
| 12      | Mai          | 1                    | 25      | Patamasu     | 1                    |
| 13      | Patuli       | 1                    | TOTAL   |              | 37357                |

**b) Name and number of plant species still available in the area:**

Not enumerated.

**c) By protecting the area will indigenous stock come up:**

Yes.

**d) Extent of green belt developed:**

Plantation over 15.68 Ha. along road side and 24.14 Ha. over vacant area.  
Total planted area – 184.10Ha. (504534 Nos. of plants planted till date).

**7. Plantations required to be carried out as per:**

**a) Conditions of Environmental Clearances in Ha./ Nos.:**

Plantation is to be carried out in 687.831 Ha. (till post-mining period)

**b) Conditions for Forest Act (c) clearance in Ha./Nos.:**

Plantation has already been carried out for the diverted forest area of 186.311 Ha.

**c) Voluntarily in Ha./Nos.:**

Not applicable.

**8. Details of plantation:**

**a) Total area available for plantation in each category:**

| <b>i) Green belt</b>  | <b>ii) Dumps</b>                     | <b>iii) Backfilled area</b>                                   | <b>iv) Road sides</b>  | <b>v) Others</b>                                      |   |
|---|--------------------------------------|---|--|---|---|
| 110.58 Ha.<br><br>(Safety zone for expansion including green belt & undisturbed area) | 256.03 Ha.<br><br>(External OB dump) | 292.141 Ha.<br><br>(Backfilled area including top soil dumps) | 10.36 Ha.<br><br>(Road sides, CHP, Railway sidings, workshop and office buildings) | 2.08 Ha.<br><br>(Rationalization of project boundary) | 16.64 Ha.<br><br>(Residential colony and resettlement site) |

**b) Plantation details (category wise and methodology used):**

| Year of plantation | Nos. of plants | Species planted   | Spacing   | Height attained | Total area covered | Area still available |
|--------------------|----------------|---|---|-----------------|--------------------|----------------------|
| 2021-22            | 8225           | Mixed plantation (Mango Sisoo Siris Karanja Teak Gamhari Arjun Neem Babul Chakunda Kutikuyan Kadamba, Lemon Jamun Bigneem Guava Banyan Petafarm Gulmohar Cashew etc.) | 2.0 m c/c and 2.5 m. c/c for OB dump, Backfilled area and block plantation<br><br>2.5 m. c/c and 4 m. c/c for avenue plantation | 1.2 m. max.     | 5.09 Ha.           | 570.731 Ha.          |
| 2020-21            | 49903          |   |   | 1.5 m. max.     | 20.86 Ha.          | 575.821 Ha.          |
| 2019-20            | 5470           |   |   | 1.5 m. max.     | 3.10 Ha.           | 529.681 Ha.          |
| 2018-19            | 100            |   |   | 1.8 m. max.     | 0.06 Ha.           | 532.781 Ha.          |
| 2017-18            | 19127          |   |   | 2.5 m. max.     | 7.66 Ha.           | 532.841 Ha.          |
| 2016-17            | 70100          |   |   | 3 m. max.       | 28.06 Ha.          | 540.501 Ha.          |
| 2015-16            | 22000          |   |   | 3.5 m. max.     | 8.8 Ha.            | 568.561 Ha.          |
| 2014-15            | 3000           |   |   | 3.5 m. max.     | 1.2 Ha.            | 577.361 Ha.          |
| 1991-92 to 2013-14 | 326609         |   |   | 6.25 m. max.    | 109.27 Ha.         | 578.561 Ha.          |

In addition to above, 7000 Nos. of plants were planted on 4.375 Ha. of Govt. land at Handidhua during 2016-17 under Urban Plantation Scheme (spacing - 2.5 m

c/c, density of plantation - 1600 Nos. of plants per Ha., maximum height attained - 2.5 m. species planted - mixed plantation as mentioned in the table above).

**c) Survival of plantation:**

| Survival of plantation*        | 1 <sup>st</sup> year (2021-22)                  | 2 <sup>nd</sup> year (2020-21)                   | 3 <sup>rd</sup> year (2019-20)                           | 4 <sup>th</sup> year (2018-19)                          | 5 <sup>th</sup> year (2017-18)                            |
|--------------------------------|---|--|--|---|---|
| <b>Total plantation (Nos.)</b> | 8225 nos. of plants were planted during 2021-22 | 49903 nos. of plants were planted during 2020-21 | 5470 nos. of plants were planted during the year 2019-20 | 100 nos. of plants were planted during the year 2018-19 | 19127 nos. of plants were planted during the year 2017-18 |
| <b>Survival (%)</b>            | More than 95%                                   | More than 87%                                    | More than 93%  | More than 85%   | More than 80%   |

(\*as per available enumeration report)

**9. Agency carrying out plantation and maintenance:**

Plantation was carried out by Forest Department, Government of Odisha during the year 2021-22. Plantation was carried out by Chattisgarh Rajya Vanvikas Nigam Limited from the year 2014-15 to 2020-21. Few plantation works have also been carried out by departmentally by employees and by private agencies. The work was being carried out by Odisha Forest Development Corporation, CFRI and Private Agencies prior to 2014-15.

**10. Financial details (year wise) plantation wise and item wise:**

| Sl. No. | Year of Plantation | Funds allocated (Rs.)  |
|---------|--------------------|--|
| 1       | 2021-22            | Rs. 4979072.90 was allocated for plantation works of 8225 nos. of saplings planted at Lingaraj OCP during 2021-22 and its maintenance.   |
| 2       | 2020-21            | Rs. 24292883.08 was allocated for plantation works of 49903 Nos. of saplings planted at Lingaraj OCP during 2020-21 and its maintenance. |
| 3       | 2019-20            | Rs. 2024712.63 was allocated for plantation works of 5470 Nos. of saplings planted at Lingaraj OCP during 2019-20 and its maintenance.   |
| 4       | 2018-19            | Rs. 66583.57 was allocated for plantation of 100 Nos. of saplings planted at Lingaraj OCP during 2018-19.                                |
| 5       | 2017-18            | Rs. 4120076.02 was allocated for plantation of 19127 Nos. of saplings planted at Lingaraj OCP during 2017-18 and its maintenance.        |

## **11. Inspection of plantation by field experts and their comments and follow up actions:**

Inspection of plantation is being carried out by 'General Manager (Environment), MCL', 'General Manager, Lingaraj Area', 'Project Officer, Lingaraj OCP', 'Staff Officer (Environment), Lingaraj Area', 'Project Environment Officer, Lingaraj OCP' and 'Officers from Environment Department of MCL HQ.'. The plantation is also inspected by various officials from Chattisgarh Rajya Vanvikas Nigam Limited. The officials from 'State Pollution Control Board, Odisha' and 'Department of Forest & Environment of Government of Odisha' also visit plantation sites for inspection. Necessary actions are taken as per the suggestions of the inspecting officials.

**ANNEXURE - III**



**cmpdi**

A Miniratna Company

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

(Compliance Station)

Project :

**Lingaraj OCP**

(conc. in µg/cu.m.)

| Date of Sampling | Monitoring Station                            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS)                        | Distance from DGS |
|------------------|---|-----|------|-------|-------|-------|--|-------------------|
| 06-Oct-21        | Near OB Dump No. 10 (Near North Side of Mine) | 249 | 174  | 62    | 13.60 | 22.13 | Mining Activities, Coal Corridor                   | About 500m        |
| 06-Oct-21        | Near Lingaraj to Dera Road                    | 284 | 176  | 68    | 12.59 | 23.85 | Coal Transportation Road                           | Less than 500m    |
| 06-Oct-21        | IWSS  | 236 | 151  | 46    | 15.24 | 26.34 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 06-Oct-21        | Near OB Dump No. 5 (South Side of the Mine)   | 237 | 162  | 57    | 16.97 | 21.24 | Transportation Road, Mining Activities             | About 500m        |
| 20-Oct-21        | Near OB Dump No. 10 (Near North Side of Mine) | 277 | 195  | 59    | 13.47 | 25.74 | Mining Activities, Coal Corridor                   | About 500m        |
| 20-Oct-21        | Near Lingaraj to Dera Road                    | 339 | 214  | 65    | 15.97 | 26.94 | Coal Transportation Road                           | Less than 500m    |
| 20-Oct-21        | IWSS  | 291 | 177  | 56    | 16.21 | 21.58 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 20-Oct-21        | Near OB Dump No. 5 (South Side of the Mine)   | 298 | 206  | 65    | 10.95 | 22.27 | Transportation Road, Mining Activities             | About 500m        |

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

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

|  |     |     |  |     |     |
|--|-----|-----|--|-----|-----|
| MoEF Standards Notification dated 25th September, 2000 | 500 | 250 |  | 120 | 120 |
|--|-----|-----|--|-----|-----|



**cmpdi**

A Bharat Coal Company

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

**(Reference Station)**

Project :

**Lingaraj OCP**

(conc. in µg/cu.m.)

| Date of Sampling | Monitoring Station            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS) | Distance from DGS |
|------------------|-------------------------------|-----|------|-------|-------|-------|-----------------------------|-------------------|
| 01-Oct-21        | Near Kankili Community Centre | 109 | 66   | 32    | 14.50 | 23.96 | Mining Activity             | Within 10km       |
| 08-Oct-21        | Near Kankili Community Centre | 129 | 73   | 36    | 12.63 | 19.24 | Mining Activity             | Within 10km       |
| 09-Oct-21        | Near Kankili Community Centre | 143 | 81   | 38    | 14.94 | 21.57 | Mining Activity             | Within 10km       |
| 13-Oct-21        | Near Kankili Community Centre | 97  | 63   | 31    | 10.18 | 22.04 | Mining Activity             | Within 10km       |
| 14-Oct-21        | Near Kankili Community Centre | 109 | 69   | 36    | 11.50 | 20.35 | Mining Activity             | Within 10km       |
| 21-Oct-21        | Near Kankili Community Centre | 91  | 59   | 30    | 12.19 | 20.12 | Mining Activity             | Within 10km       |
| 22-Oct-21        | Near Kankili Community Centre | 115 | 68   | 36    | 14.33 | 22.08 | Mining Activity             | Within 10km       |
| 27-Oct-21        | Near Kankili Community Centre | 111 | 74   | 40    | 10.25 | 22.63 | Mining Activity             | Within 10km       |
| 28-Oct-21        | Near Kankili Community Centre | 128 | 80   | 37    | 9.41  | 14.39 | Mining Activity             | Within 10km       |

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

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

\*NAAQS,2009

|     |    |    |    |
|-----|----|----|----|
| 100 | 60 | 80 | 80 |
|-----|----|----|----|



**cmpdi**

A Mini Kailash Company

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

Lingaraj

(Compliance Station)

Project :

Lingaraj OCP

(conc. in µg/cu.m.)

| Date of Sampling | Monitoring Station                            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS)                        | Distance from DGS |
|------------------|---|-----|------|-------|-------|-------|--|-------------------|
| 08-Nov-21        | Near OB Dump No. 10 (Near North Side of Mine) | 397 | 241  | 75    | 13.08 | 26.40 | Mining Activities, Coal Corridor                   | About 500m        |
| 08-Nov-21        | Near Lingaraj to Dera Road                    | 337 | 205  | 68    | 14.88 | 25.80 | Coal Transportation Road                           | Less than 500m    |
| 08-Nov-21        | IWSS  | 367 | 226  | 77    | 14.94 | 24.50 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 08-Nov-21        | Near OB Dump No. 5 (South Side of the Mine)   | 386 | 235  | 69    | 12.60 | 31.00 | Transportation Road, Mining Activities             | About 500m        |
| 22-Nov-21        | Near OB Dump No. 10 (Near North Side of Mine) | 367 | 233  | 70    | 14.04 | 18.92 | Mining Activities, Coal Corridor                   | About 500m        |
| 22-Nov-21        | Near Lingaraj to Dera Road                    | 366 | 219  | 72    | 9.87  | 21.77 | Coal Transportation Road                           | Less than 500m    |
| 22-Nov-21        | IWSS  | 373 | 208  | 69    | 10.27 | 14.44 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 22-Nov-21        | Near OB Dump No. 5 (South Side of the Mine)   | 349 | 217  | 63    | 12.20 | 22.51 | Transportation Road, Mining Activities             | About 500m        |

*Hattanaik*

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

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

MoEF Standards Notification dated 25th September, 2000

|     |     |  |     |     |
|-----|-----|--|-----|-----|
| 500 | 250 |  | 120 | 120 |
|-----|-----|--|-----|-----|



**cmpdi**

A Tata Steel Company

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

(Reference Station)

Project :

**Lingaraj OCP**

(conc. in µg/cu.m.)

| Date of Sampling | Monitoring Station            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS) | Distance from DGS |
|------------------|-------------------------------|-----|------|-------|-------|-------|-----------------------------|-------------------|
| 04-Nov-21        | Near Kankili Community Centre | 87  | 59   | 37    | 13.99 | 18.27 | Mining Activity             | Within 10km       |
| 05-Nov-21        | Near Kankili Community Centre | 107 | 71   | 40    | 13.80 | 19.22 | Mining Activity             | Within 10km       |
| 11-Nov-21        | Near Kankili Community Centre | 109 | 68   | 41    | 14.39 | 23.15 | Mining Activity             | Within 10km       |
| 12-Nov-21        | Near Kankili Community Centre | 121 | 76   | 44    | 11.47 | 14.82 | Mining Activity             | Within 10km       |
| 18-Nov-21        | Near Kankili Community Centre | 112 | 67   | 38    | 9.05  | 19.40 | Mining Activity             | Within 10km       |
| 19-Nov-21        | Near Kankili Community Centre | 125 | 73   | 40    | 9.48  | 19.22 | Mining Activity             | Within 10km       |
| 25-Nov-21        | Near Kankili Community Centre | 136 | 79   | 44    | 8.20  | 20.88 | Mining Activity             | Within 10km       |
| 26-Nov-21        | Near Kankili Community Centre | 129 | 82   | 41    | 10.01 | 18.30 | Mining Activity             | Within 10km       |

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

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

|             |  |     |    |    |    |
|-------------|--|-----|----|----|----|
| *NIQS, 2009 |  | 100 | 60 | 80 | 80 |
|-------------|--|-----|----|----|----|



**cmpdi**

*A Min. Kibasi Company*

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

**(Compliance Station)**

Project :

**Lingaraj OCP**

(conc. in µg/cu.m.)

| Date of Sampling | Monitoring Station                            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS)                        | Distance from DGS |
|------------------|---|-----|------|-------|-------|-------|--|-------------------|
| 06-Dec-21        | Near OB Dump No. 10 (Near North Side of Mine) | 272 | 240  | 66    | 23.26 | 28.58 | Mining Activities, Coal Corridor                   | About 500m        |
| 06-Dec-21        | Near Lingaraj to Dera Road                    | 120 | 80   | 54    | 17.11 | 43.34 | Coal Transportation Road                           | Less than 500m    |
| 06-Dec-21        | IWSS  | 126 | 53   | 26    | 24.96 | 23.15 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 06-Dec-21        | Near OB Dump No. 5 (South Side of the Mine)   | 393 | 350  | 60    | 20.05 | 33.25 | Transportation Road, Mining Activities             | About 500m        |
| 20-Dec-21        | Near OB Dump No. 10 (Near North Side of Mine) | 220 | 83   | 40    | 15.85 | 35.89 | Mining Activities, Coal Corridor                   | About 500m        |
| 20-Dec-21        | Near Lingaraj to Dera Road                    | 275 | 133  | 52    | 10.31 | 28.06 | Coal Transportation Road                           | Less than 500m    |
| 20-Dec-21        | IWSS  | 237 | 156  | 69    | 10.90 | 28.53 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 20-Dec-21        | Near OB Dump No. 5 (South Side of the Mine)   | 211 | 84   | 47    | 13.06 | 34.84 | Transportation Road, Mining Activities             | About 500m        |

*Kapraale*  
 UNIT VI, RI-VII, LAB  
 BHUBANESWAR

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

|  |     |     |  |     |     |
|--|-----|-----|--|-----|-----|
| MoEF Standards Notification dated 25th September, 2000 | 500 | 250 |  | 120 | 120 |
|--|-----|-----|--|-----|-----|



**cmpdi**

A More Kadam Company

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

**(Reference Station)**

Project :

**Lingaraj OCP**

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

| Date of Sampling | Monitoring Station            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS) | Distance from DGS |
|------------------|-------------------------------|-----|------|-------|-------|-------|-----------------------------|-------------------|
| 02-Dec-21        | Near Kankili Community Centre | 132 | 51   | 26    | 17.66 | 36.54 | Mining Activity             | Within 10km       |
| 03-Dec-21        | Near Kankili Community Centre | 129 | 40   | 25    | 19.16 | 24.26 | Mining Activity             | Within 10km       |
| 09-Dec-21        | Near Kankili Community Centre | 180 | 60   | 30    | 14.21 | 21.34 | Mining Activity             | Within 10km       |
| 10-Dec-21        | Near Kankili Community Centre | 110 | 74   | 33    | 16.51 | 28.61 | Mining Activity             | Within 10km       |
| 16-Dec-21        | Near Kankili Community Centre | 152 | 84   | 42    | 11.40 | 33.33 | Mining Activity             | Within 10km       |
| 17-Dec-21        | Near Kankili Community Centre | 144 | 69   | 34    | 12.48 | 30.90 | Mining Activity             | Within 10km       |
| 23-Dec-21        | Near Kankili Community Centre | 181 | 99   | 43    | 10.59 | 34.40 | Mining Activity             | Within 10km       |
| 24-Dec-21        | Near Kankili Community Centre | 136 | 82   | 36    | 11.89 | 23.67 | Mining Activity             | Within 10km       |
| 29-Dec-21        | Near Kankili Community Centre | 142 | 78   | 41    | 13.50 | 21.38 | Mining Activity             | Within 10km       |
| 30-Dec-21        | Near Kankili Community Centre | 150 | 86   | 46    | 16.72 | 22.26 | Mining Activity             | Within 10km       |

*[Signature]*  
 Authorized Signatory  
 CMPDI, RI-VII, LAB  
 BHUBANESWAR

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

\*NAAQS,2009

|  |     |    |    |    |
|--|-----|----|----|----|
|  | 100 | 60 | 80 | 80 |
|--|-----|----|----|----|



**cmpdi**

*A Mini Katar Company*

**Test Report**

**AMBIENT AIR QUALITY DATA**

**Area :**

**Lingaraj**

**(Compliance Station)**

**Project :**

**Lingaraj OCP**

**(conc. in µg/cu.m.)**

| Date of Sampling | Monitoring Station                            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS)                        | Distance from DGS |
|------------------|---|-----|------|-------|-------|-------|--|-------------------|
| 04-Jan-22        | Near OB Dump No. 10 (Near North Side of Mine) | 310 | 232  | 62    | 15.87 | 29.87 | Mining Activities, Coal Corridor                   | About 500m        |
| 04-Jan-22        | Near Lingaraj to Dera Road                    | 186 | 123  | 53    | 19.41 | 32.59 | Coal Transportation Road                           | Less than 500m    |
| 04-Jan-22        | IWSS  | 148 | 78   | 36    | 16.37 | 27.75 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 04-Jan-22        | Near OB Dump No. 5 (South Side of the Mine)   | 290 | 210  | 60    | 14.92 | 19.66 | Transportation Road, Mining Activities             | About 500m        |
| 18-Jan-22        | Near OB Dump No. 10 (Near North Side of Mine) | 244 | 140  | 50    | 18.04 | 29.22 | Mining Activities, Coal Corridor                   | About 500m        |
| 18-Jan-22        | Near Lingaraj to Dera Road                    | 210 | 164  | 60    | 17.68 | 29.30 | Coal Transportation Road                           | Less than 500m    |
| 18-Jan-22        | IWSS  | 133 | 70   | 30    | 18.44 | 34.31 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 18-Jan-22        | Near OB Dump No. 5 (South Side of the Mine)   | 266 | 155  | 52    | 14.63 | 33.44 | Transportation Road, Mining Activities             | About 500m        |

*Kattawalk*

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

|  |     |     |  |     |     |
|--|-----|-----|--|-----|-----|
| MoEF Standards Notification dated 25th September, 2000 | 500 | 250 |  | 120 | 120 |
|--|-----|-----|--|-----|-----|

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR



**cmpdi**

*A Mini Kaldas Company*

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

**(Reference Station)**

Project :

**Lingaraj OCP**

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

| Date of Sampling | Monitoring Station            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS) | Distance from DGS |
|------------------|-------------------------------|-----|------|-------|-------|-------|-----------------------------|-------------------|
| 06-Jan-22        | Near Kankili Community Centre | 130 | 77   | 29    | 15.91 | 18.12 | Mining Activity             | Within 10km       |
| 07-Jan-22        | Near Kankili Community Centre | 140 | 80   | 33    | 12.58 | 21.05 | Mining Activity             | Within 10km       |
| 13-Jan-22        | Near Kankili Community Centre | 155 | 86   | 32    | 15.89 | 22.80 | Mining Activity             | Within 10km       |
| 14-Jan-22        | Near Kankili Community Centre | 163 | 90   | 34    | 17.86 | 20.79 | Mining Activity             | Within 10km       |
| 20-Jan-22        | Near Kankili Community Centre | 145 | 86   | 34    | 9.55  | 18.80 | Mining Activity             | Within 10km       |
| 21-Jan-22        | Near Kankili Community Centre | 123 | 70   | 27    | 10.60 | 25.51 | Mining Activity             | Within 10km       |
| 28-Jan-22        | Near Kankili Community Centre | 169 | 80   | 40    | 13.69 | 22.17 | Mining Activity             | Within 10km       |
| 29-Jan-22        | Near Kankili Community Centre | 147 | 98   | 37    | 16.61 | 24.53 | Mining Activity             | Within 10km       |

*[Handwritten Signature]*

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

|              |  |     |    |    |    |
|--------------|--|-----|----|----|----|
| *NAIOS, 2009 |  | 100 | 60 | 80 | 80 |
|--------------|--|-----|----|----|----|



**cmpdi**

A Mini Kadam Company

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

(Compliance Station)

Project :

**Lingaraj OCP**

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

| Date of Sampling | Monitoring Station                            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS)                        | Distance from DGS |
|------------------|---|-----|------|-------|-------|-------|--|-------------------|
| 03-Feb-22        | Near OB Dump No. 10 (Near North Side of Mine) | 140 | 86   | 44    | 17.89 | 19.51 | Mining Activities, Coal Corridor                   | About 500m        |
| 03-Feb-22        | Near Lingaraj to Dera Road                    | 180 | 123  | 45    | 18.14 | 35.25 | Coal Transportation Road                           | Less than 500m    |
| 03-Feb-22        | IWSS  | 198 | 133  | 55    | 13.69 | 31.27 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 03-Feb-22        | Near OB Dump No. 5 (South Side of the Mine)   | 155 | 80   | 41    | 20.70 | 21.87 | Transportation Road, Mining Activities             | About 500m        |
| 17-Feb-22        | Near OB Dump No. 10 (Near North Side of Mine) | 148 | 100  | 40    | 17.05 | 22.12 | Mining Activities, Coal Corridor                   | About 500m        |
| 17-Feb-22        | Near Lingaraj to Dera Road                    | 166 | 110  | 44    | 17.41 | 27.98 | Coal Transportation Road                           | Less than 500m    |
| 17-Feb-22        | IWSS  | 181 | 126  | 48    | 16.62 | 27.32 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 17-Feb-22        | Near OB Dump No. 5 (South Side of the Mine)   | 167 | 107  | 44    | 13.41 | 24.95 | Transportation Road, Mining Activities             | About 500m        |

Authorized Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

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

|  |     |     |  |     |     |
|--|-----|-----|--|-----|-----|
| MoEF Standards Notification dated 25th September, 2000 | 500 | 250 |  | 120 | 120 |
|--|-----|-----|--|-----|-----|



**cmpdi**

*A Mini-Kelisa Company*

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

**(Reference Station)**

Project :

**Lingaraj OCP**

**(conc. in µg/cu.m.)**

| Date of Sampling | Monitoring Station            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS) | Distance from DGS |
|------------------|-------------------------------|-----|------|-------|-------|-------|-----------------------------|-------------------|
| 03-Feb-22        | Near Kankili Community Centre | 145 | 77   | 33    | 11.72 | 29.40 | Mining Activity             | Within 10km       |
| 04-Feb-22        | Near Kankili Community Centre | 139 | 84   | 36    | 14.89 | 32.23 | Mining Activity             | Within 10km       |
| 10-Feb-22        | Near Kankili Community Centre | 120 | 70   | 30    | 13.25 | 29.96 | Mining Activity             | Within 10km       |
| 11-Feb-22        | Near Kankili Community Centre | 109 | 65   | 28    | 15.26 | 19.85 | Mining Activity             | Within 10km       |
| 17-Feb-22        | Near Kankili Community Centre | 134 | 72   | 40    | 15.54 | 23.32 | Mining Activity             | Within 10km       |
| 18-Feb-22        | Near Kankili Community Centre | 126 | 68   | 33    | 9.82  | 21.14 | Mining Activity             | Within 10km       |
| 24-Feb-22        | Near Kankili Community Centre | 146 | 82   | 37    | 10.36 | 15.44 | Mining Activity             | Within 10km       |
| 25-Feb-22        | Near Kankili Community Centre | 162 | 89   | 42    | 9.51  | 23.20 | Mining Activity             | Within 10km       |

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

*Handwritten signature*

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

|             |  |     |    |    |    |
|-------------|--|-----|----|----|----|
| *NAAQS,2009 |  | 100 | 60 | 80 | 80 |
|-------------|--|-----|----|----|----|



**cmpdi**

A Miniratna Company

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

(Compliance Station)

Project :

**Lingaraj OCP**

(conc. in µg/cu.m.)

| Date of Sampling | Monitoring Station                            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS)                        | Distance from DGS |
|------------------|---|-----|------|-------|-------|-------|--|-------------------|
| 03-Mar-22        | Near OB Dump No. 10 (Near North Side of Mine) | 89  | 63   | 20    | 21.63 | 32.00 | Mining Activities, Coal Corridor                   | About 500m        |
| 03-Mar-22        | Near Lingaraj to Dera Road                    | 185 | 122  | 40    | 18.13 | 27.68 | Coal Transportation Road                           | Less than 500m    |
| 03-Mar-22        | IWSS  | 165 | 96   | 45    | 18.91 | 24.40 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 03-Mar-22        | Near OB Dump No. 5 (South Side of the Mine)   | 93  | 60   | 16    | 19.90 | 25.95 | Transportation Road, Mining Activities             | About 500m        |
| 16-Mar-22        | Near OB Dump No. 10 (Near North Side of Mine) | 190 | 100  | 40    | 15.23 | 24.30 | Mining Activities, Coal Corridor                   | About 500m        |
| 16-Mar-22        | Near Lingaraj to Dera Road                    | 186 | 133  | 49    | 14.25 | 26.32 | Coal Transportation Road                           | Less than 500m    |
| 16-Mar-22        | IWSS  | 210 | 120  | 44    | 13.20 | 23.69 | Coal Transportation Road, Railway Siding, Coal S.Y | About 500m        |
| 16-Mar-22        | Near OB Dump No. 5 (South Side of the Mine)   | 136 | 115  | 45    | 10.35 | 18.36 | Transportation Road, Mining Activities             | About 500m        |

Authorised Signatory  
CMPDI, RI-VII, LAS  
BHUBANESWAR

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

|  |     |     |  |     |     |
|--|-----|-----|--|-----|-----|
| MoEF Standards Notification dated 25th September, 2000 | 500 | 250 |  | 120 | 120 |
|--|-----|-----|--|-----|-----|



**cmpdi**

A Tata Steel Company

Test Report

**AMBIENT AIR QUALITY DATA**

Area :

**Lingaraj**

**(Reference Station)**

Project :

**Lingaraj OCP**

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

| Date of Sampling | Monitoring Station            | SPM | PM10 | PM2.5 | SO2   | NOx   | Dust Generating Source(DGS) | Distance from DGS |
|------------------|-------------------------------|-----|------|-------|-------|-------|-----------------------------|-------------------|
| 03-Mar-22        | Near Kankili Community Centre | 122 | 75   | 33    | 12.27 | 24.92 | Mining Activity             | Within 10km       |
| 04-Mar-22        | Near Kankili Community Centre | 105 | 65   | 30    | 13.42 | 22.45 | Mining Activity             | Within 10km       |
| 10-Mar-22        | Near Kankili Community Centre | 96  | 57   | 26    | 12.90 | 20.12 | Mining Activity             | Within 10km       |
| 11-Mar-22        | Near Kankili Community Centre | 113 | 69   | 29    | 16.95 | 32.17 | Mining Activity             | Within 10km       |
| 16-Mar-22        | Near Kankili Community Centre | 102 | 72   | 34    | 11.71 | 28.68 | Mining Activity             | Within 10km       |
| 17-Mar-22        | Near Kankili Community Centre | 139 | 70   | 25    | 12.39 | 18.26 | Mining Activity             | Within 10km       |
| 24-Mar-22        | Near Kankili Community Centre | 144 | 78   | 28    | 15.23 | 28.02 | Mining Activity             | Within 10km       |
| 25-Mar-22        | Near Kankili Community Centre | 133 | 68   | 20    | 14.02 | 23.06 | Mining Activity             | Within 10km       |

*Jasmati*  
 Authorized Signatory  
 CMPDI, RI-VII, Lab  
 BHUBANESWAR

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

|             |  |     |    |    |    |
|-------------|--|-----|----|----|----|
| *NAAQS,2009 |  | 100 | 60 | 80 | 80 |
|-------------|--|-----|----|----|----|

**ANNEXURE - IV**



**cmpdi**

*A Mini Ratna Company*

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

**Area:Lingaraj**

| <b>Project</b>            | <b>Lingaraj OCP</b>                  |                              |                              |                            |                            |
|---------------------------|--------------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|
| <b>Monitoring Station</b> | <b>Near Kankili Community Centre</b> |                              |                              |                            |                            |
| <b>Date of sampling</b>   | Ammonia (NH <sub>3</sub> )           | Ozone (O <sub>3</sub> )      | Lead (Pb)                    | Arsenic (As)               | Nickel (Ni)                |
|                           | ( $\mu\text{g}/\text{m}^3$ )         | ( $\mu\text{g}/\text{m}^3$ ) | ( $\mu\text{g}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) |
| 08-Oct-2021               | <20.0                                | 5.73                         | <0.1                         | <1.0                       | <1.0                       |
| 09-Oct-2021               | <20.0                                | 4.15                         | <0.1                         | <1.0                       | <1.0                       |
| 13-Oct-2021               | <20.0                                | 5.63                         | <0.1                         | <1.0                       | <1.0                       |
| 14-Oct-2021               | <20.0                                | 6.21                         | <0.1                         | <1.0                       | <1.0                       |
| 21-Oct-2021               | <20.0                                | 6.15                         | <0.1                         | <1.0                       | <1.0                       |
| 22-Oct-2021               | <20.0                                | 5.98                         | <0.1                         | <1.0                       | <1.0                       |
| 27-Oct-2021               | <20.0                                | 5.73                         | <0.1                         | <1.0                       | <1.0                       |
| 28-Oct-2021               | <20.0                                | 4.89                         | <0.1                         | <1.0                       | <1.0                       |
| <b>Standard</b>           | <b>400(24hours)</b>                  | <b>180(hour)</b>             | <b>1.0(24hours)</b>          | <b>6.0(Annual)</b>         | <b>20(Annual)</b>          |

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

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



**cmpdi**

A Mini Ratna Company

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

**Area: Lingaraj**

| <b>Project</b>            | <b>Lingaraj OCP</b>                  |                              |                              |                            |                            |
|---------------------------|--------------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|
| <b>Monitoring Station</b> | <b>Near Kankili Community Centre</b> |                              |                              |                            |                            |
| <b>Date of sampling</b>   | Ammonia (NH <sub>3</sub> )           | Ozone (O <sub>3</sub> )      | Lead (Pb)                    | Arsenic (As)               | Nickel (Ni)                |
|                           | ( $\mu\text{g}/\text{m}^3$ )         | ( $\mu\text{g}/\text{m}^3$ ) | ( $\mu\text{g}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) |
| 04-Nov-2021               | <20.0                                | 3.86                         | <0.1                         | <1.0                       | <1.0                       |
| 05-Nov-2021               | <20.0                                | 4.13                         | <0.1                         | <1.0                       | <1.0                       |
| 11-Nov-2021               | <20.0                                | 5.13                         | <0.1                         | <1.0                       | <1.0                       |
| 12-Nov-2021               | <20.0                                | 6.26                         | <0.1                         | <1.0                       | <1.0                       |
| 18-Nov-2021               | <20.0                                | 4.56                         | <0.1                         | <1.0                       | <1.0                       |
| 19-Nov-2021               | <20.0                                | 5.77                         | <0.1                         | <1.0                       | <1.0                       |
| 25-Nov-2021               | <20.0                                | 4.89                         | <0.1                         | <1.0                       | <1.0                       |
| 26-Nov-2021               | <20.0                                | 5.26                         | <0.1                         | <1.0                       | <1.0                       |
| <b>Standard</b>           | <b>400(24hours)</b>                  | <b>180(hour)</b>             | <b>1.0(24hours)</b>          | <b>6.0(Annual)</b>         | <b>20(Annual)</b>          |

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

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



**cmpdi**

A Mini Ratna Company

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

**Area: Lingaraj**

| <b>Project</b>            | <b>Lingaraj OCP</b>                  |                         |                      |                      |                      |
|---------------------------|--------------------------------------|-------------------------|----------------------|----------------------|----------------------|
| <b>Monitoring Station</b> | <b>Near Kankili Community Centre</b> |                         |                      |                      |                      |
| <b>Date of sampling</b>   | Ammonia (NH <sub>3</sub> )           | Ozone (O <sub>3</sub> ) | Lead (Pb)            | Arsenic (As)         | Nickel (Ni)          |
|                           | (µg/m <sup>3</sup> )                 | (µg/m <sup>3</sup> )    | (µg/m <sup>3</sup> ) | (ng/m <sup>3</sup> ) | (ng/m <sup>3</sup> ) |
| 02-Dec-2021               | <20.0                                | 4.21                    | <0.1                 | <1.0                 | <1.0                 |
| 03-Dec-2021               | <20.0                                | 3.92                    | <0.1                 | <1.0                 | <1.0                 |
| 09-Dec-2021               | <20.0                                | 4.28                    | <0.1                 | <1.0                 | <1.0                 |
| 10-Dec-2021               | <20.0                                | 5.64                    | <0.1                 | <1.0                 | <1.0                 |
| 16-Dec-2021               | <20.0                                | 4.28                    | <0.1                 | <1.0                 | <1.0                 |
| 17-Dec-2021               | <20.0                                | 5.59                    | <0.1                 | <1.0                 | <1.0                 |
| 23-Dec-2021               | <20.0                                | 4.16                    | <0.1                 | <1.0                 | <1.0                 |
| 24-Dec-2021               | <20.0                                | 4.52                    | <0.1                 | <1.0                 | <1.0                 |
| 29-Dec-2021               | <20.0                                | 5.13                    | <0.1                 | <1.0                 | <1.0                 |
| 30-Dec-2021               | <20.0                                | 6.05                    | <0.1                 | <1.0                 | <1.0                 |
| <b>Standard</b>           | <b>400(24hours)</b>                  | <b>180(hour)</b>        | <b>1.0(24hours)</b>  | <b>6.0(Annual)</b>   | <b>20(Annual)</b>    |

*Kattarale*

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

*Antinoul*  
O.I.C.

f  
Env. Lab  
CMPDI, RI-VII  
Bhubaneswar



**cmpdi**

*A Mini Ratna Company*

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

**Area: Lingaraj**

| <b>Project</b>            | <b>Lingaraj OCP</b>                  |                              |                              |                            |                            |
|---------------------------|--------------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|
| <b>Monitoring Station</b> | <b>Near Kankili Community Centre</b> |                              |                              |                            |                            |
| <b>Date of sampling</b>   | Ammonia (NH <sub>3</sub> )           | Ozone (O <sub>3</sub> )      | Lead (Pb)                    | Arsenic (As)               | Nickel (Ni)                |
|                           | ( $\mu\text{g}/\text{m}^3$ )         | ( $\mu\text{g}/\text{m}^3$ ) | ( $\mu\text{g}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) |
| 06-Jan-2022               | <20.0                                | 6.23                         | <0.1                         | <1.0                       | <1.0                       |
| 07-Jan-2022               | <20.0                                | 7.56                         | <0.1                         | <1.0                       | <1.0                       |
| 13-Jan-2022               | <20.0                                | 7.12                         | <0.1                         | <1.0                       | <1.0                       |
| 14-Jan-2022               | <20.0                                | 4.58                         | <0.1                         | <1.0                       | <1.0                       |
| 20-Jan-2022               | <20.0                                | 5.62                         | <0.1                         | <1.0                       | <1.0                       |
| 21-Jan-2022               | <20.0                                | 6.61                         | <0.1                         | <1.0                       | <1.0                       |
| 28-Jan-2022               | <20.0                                | 4.55                         | <0.1                         | <1.0                       | <1.0                       |
| 29-Jan-2022               | <20.0                                | 5.12                         | <0.1                         | <1.0                       | <1.0                       |
| <b>Standard</b>           | <b>400(24hours)</b>                  | <b>180(hour)</b>             | <b>1.0(24hours)</b>          | <b>6.0(Annual)</b>         | <b>20(Annual)</b>          |

*Katrawati*  
 Authorized Signatory  
 CMPDI, RI-VII, LAB  
 BHUBANESWAR

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



**cmpdi**

*A Mini Ratna Company*

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

**Area: Lingaraj**

| <b>Project</b>            | <b>Lingaraj OCP</b>                  |                              |                              |                            |                            |
|---------------------------|--------------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|
| <b>Monitoring Station</b> | <b>Near Kankili Community Centre</b> |                              |                              |                            |                            |
| <b>Date of sampling</b>   | Ammonia (NH <sub>3</sub> )           | Ozone (O <sub>3</sub> )      | Lead (Pb)                    | Arsenic (As)               | Nickel (Ni)                |
|                           | ( $\mu\text{g}/\text{m}^3$ )         | ( $\mu\text{g}/\text{m}^3$ ) | ( $\mu\text{g}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) |
| 03-Feb-2022               | <20.0                                | 6.82                         | <0.1                         | <1.0                       | <1.0                       |
| 04-Feb-2022               | <20.0                                | 5.74                         | <0.1                         | <1.0                       | <1.0                       |
| 10-Feb-2022               | <20.0                                | 4.48                         | <0.1                         | <1.0                       | <1.0                       |
| 11-Feb-2022               | <20.0                                | 3.76                         | <0.1                         | <1.0                       | <1.0                       |
| 17-Feb-2022               | <20.0                                | 5.66                         | <0.1                         | <1.0                       | <1.0                       |
| 18-Feb-2022               | <20.0                                | 4.60                         | <0.1                         | <1.0                       | <1.0                       |
| 24-Feb-2022               | <20.0                                | 5.51                         | <0.1                         | <1.0                       | <1.0                       |
| 25-Feb-2022               | <20.0                                | 6.12                         | <0.1                         | <1.0                       | <1.0                       |
| <b>Standard</b>           | <b>400(24hours)</b>                  | <b>180(hour)</b>             | <b>1.0(24hours)</b>          | <b>6.0(Annual)</b>         | <b>20(Annual)</b>          |

*Hattaraj*

*Anil Kumar*



**cmpdi**

*A Mini Ratna Company*

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

**Area: Lingaraj**

| <b>Project</b>            | <b>Lingaraj OCP</b>                  |                              |                              |                            |                            |
|---------------------------|--------------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|
| <b>Monitoring Station</b> | <b>Near Kankili Community Centre</b> |                              |                              |                            |                            |
| <b>Date of sampling</b>   | Ammonia (NH <sub>3</sub> )           | Ozone (O <sub>3</sub> )      | Lead (Pb)                    | Arsenic (As)               | Nickel (Ni)                |
|                           | ( $\mu\text{g}/\text{m}^3$ )         | ( $\mu\text{g}/\text{m}^3$ ) | ( $\mu\text{g}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) | ( $\text{ng}/\text{m}^3$ ) |
| 03-Mar-2022               | <20.0                                | 6.82                         | <0.1                         | <1.0                       | <1.0                       |
| 04-Mar-2022               | <20.0                                | 6.36                         | <0.1                         | <1.0                       | <1.0                       |
| 10-Mar-2022               | <20.0                                | 6.02                         | <0.1                         | <1.0                       | <1.0                       |
| 11-Mar-2022               | <20.0                                | 5.97                         | <0.1                         | <1.0                       | <1.0                       |
| 16-Mar-2022               | <20.0                                | 6.12                         | <0.1                         | <1.0                       | <1.0                       |
| 17-Mar-2022               | <20.0                                | 6.26                         | <0.1                         | <1.0                       | <1.0                       |
| 24-Mar-2022               | <20.0                                | 5.89                         | <0.1                         | <1.0                       | <1.0                       |
| 25-Mar-2022               | <20.0                                | 4.91                         | <0.1                         | <1.0                       | <1.0                       |
| <b>Standard</b>           | <b>400(24hours)</b>                  | <b>180(hour)</b>             | <b>1.0(24hours)</b>          | <b>6.0(Annual)</b>         | <b>20(Annual)</b>          |

*Janaki*

Authorised Signatory  
CMPDI, RI-VII, LAS  
BHUBANESWAR

*Hattarajik*

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

**ANNEXURE - V**



**cmpdi**

*A Mini Ratna Company*

## Drinking Water Quality Data Lingraj Area

| Project / OCP                                   | Lingraj OCP                       |                             | Indian Drinking Standards (IS-10500):2012 |               |
|---|-----------------------------------|-----------------------------|---|---------------|
|   | GM Office, Lingraj Area Tap Water | Balunga Khamar Village Well | Acceptable                                | Permissible   |
| <b>Date of Sampling</b>                         | 15-Nov-2021                       | 15-Nov-2021                 | Acceptable                                | Permissible   |
| <b>Colour(Hazen)</b>                            | 2                                 | 3                           | 5   | 15            |
| <b>Odour</b>                                    | Agreeable                         | Agreeable                   | Agreeable                                 | Agreeable     |
| <b>Taste</b>                                    | Agreeable                         | Agreeable                   | Agreeable                                 | Agreeable     |
| <b>Turbidity(NTU)</b>                           | 3                                 | 2                           | 1   | 5             |
| <b>pH</b>                                       | 7.77                              | 7.91                        | 6.5-8.5                                   | No relaxation |
| <b>Total Alkalinity(mg/L)</b>                   | 88                                | 168                         | 200                                       | 600           |
| <b>Total Hardness (Ca CO<sub>3</sub>)(mg/L)</b> | 112                               | 244                         | 200                                       | 600           |
| <b>Iron(mg/L)</b>                               | <0.1                              | <0.1                        | 1.0                                       | No relaxation |
| <b>Chloride(mg/L)</b>                           | 47                                | 14                          | 250                                       | 1000          |
| <b>Total Dissolve Solid(mg/L)</b>               | 190                               | 862                         | 500                                       | 2000          |
| <b>Calcium(mg/L)</b>                            | 25.6                              | 75.2                        | 75  | 200           |
| <b>Copper(mg/L)</b>                             | <0.03                             | <0.03                       | 0.05                                      | 1.5           |
| <b>Manganese(mg/L)</b>                          | <0.04                             | <0.04                       | 0.1                                       | 0.3           |
| <b>Sulphate(mg/L)</b>                           | 34.41                             | 52.9                        | 200                                       | 400           |
| <b>Nitrate(mg/L)</b>                            | <0.5                              | 36.4                        | 45  | No relaxation |
| <b>Fluoride(mg/L)</b>                           | <0.30                             | <0.30                       | 1   | 1.5           |
| <b>Arsenic(mg/L)</b>                            | <0.005                            | <0.005                      | 0.01                                      | No relaxation |
| <b>Lead(mg/L)</b>                               | <0.005                            | <0.005                      | 0.01                                      | No relaxation |
| <b>Zinc(mg/L)</b>                               | <0.04                             | <0.04                       | 5   | 15            |
| <b>Total Chromium (mg/L)</b>                    | <0.01                             | <0.01                       | 0.05                                      | No relaxation |
| <b>Boron(mg/L)</b>                              | <0.2                              | <0.2                        | 0.5                                       | 2.4           |
| <b>Cadmium(mg/L)</b>                            | <0.001                            | <0.001                      | 0.003                                     | No relaxation |

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

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



**cmpdi**

*A Mini Ratna Company*

## Drinking Water Quality Data Lingraj Area

| Project / OCP                              | Lingraj OCP           |                       | Indian Drinking Standards (IS-10500):2012 |               |
|--|-----------------------|-----------------------|---|---------------|
|  | Deulbera Village Well | Talabera Village Well | Acceptable                                | Permissible   |
| Monitoring Station                         |                       |                       |   |               |
| Date of Sampling                           | 15-Nov-2021           | 15-Nov-2021           | Acceptable                                | Permissible   |
| Colour(Hazen)                              | 1                     | 2                     | 5   | 15            |
| Odour                                      | Agreeable             | Agreeable             | Agreeable                                 | Agreeable     |
| Taste                                      | Agreeable             | Agreeable             | Agreeable                                 | Agreeable     |
| Turbidity(NTU)                             | 3                     | 1                     | 1   | 5             |
| pH   | 8.09                  | 7.63                  | 6.5-8.5                                   | No relaxation |
| Total Alkalinity(mg/L)                     | 208                   | 68                    | 200                                       | 600           |
| Total Hardness (Ca CO <sub>3</sub> )(mg/L) | 204                   | 184                   | 200                                       | 600           |
| Iron(mg/L)                                 | <0.1                  | <0.1                  | 1.0                                       | No relaxation |
| Chloride(mg/L)                             | 45                    | 8                     | 250                                       | 1000          |
| Total Dissolve Solid(mg/L)                 | 308                   | 298                   | 500                                       | 2000          |
| Calcium(mg/L)                              | 68.60                 | 48                    | 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)                             | 16.27                 | 77.82                 | 200                                       | 400           |
| Nitrate(mg/L)                              | <0.5                  | 8.65                  | 45  | No relaxation |
| Fluoride(mg/L)                             | 0.34                  | 0.41                  | 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 |

*Handwritten signature*

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

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



**cmpdi**

*A Mini Katsa Company*

TABLE--

**Well Water Level Monitoring Data**

Area :

Lingaraj

Project :

Lingaraj OCP

| <i>Date of sampling</i> | <i>Name of the Station</i>  | <i>Depth from Water Level (in m. bgl)</i> |
|-------------------------|-----------------------------|---|
| 27-Nov-21               | Balunga Khamar village well | 1.85                                      |
| 27-Nov-21               | Talabera village well       | 1.93                                      |
| 27-Nov-21               | Deulbera village well       | 1.81                                      |

*Handwritten signature*

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

*Handwritten signature*

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



**cmpdi**

*A Miniratna Company*

TABLE--

**Well Water Level Monitoring Data**

Area :

Lingaraj

Project :

Lingaraj OCP

| <i>Date of Sampling</i> | <i>Name of the Station</i>  | <i>Depth from Water Level (in m. bgl)</i> |
|-------------------------|-----------------------------|---|
| 25-Jan-22               | Balunga Khamar village well | 1.85                                      |
| 25-Jan-22               | Talabera village well       | 1.93                                      |
| 25-Jan-22               | Deulbera village well       | 1.81                                      |

*K. K. Sahoo*  
Authorized Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

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



**cmpdi**

A Mini Ratna Company

## Drinking Water Quality Data Lingraj Area

| Project / OCP                              | Lingraj OCP                       |                             | Indian Drinking Standards (IS-10500):2012 |               |
|--|-----------------------------------|-----------------------------|---|---------------|
|  | GM Office, Lingraj Area Tap Water | Balunga Khamar Village Well | Acceptable                                | Permissible   |
| Date of Sampling                           | 14-Feb-2022                       | 14-Feb-2022                 | Acceptable                                | Permissible   |
| Colour(Hazen)                              | <1.0                              | <1.0                        | 5   | 15            |
| Odour                                      | Agreeable                         | Agreeable                   | Agreeable                                 | Agreeable     |
| Taste                                      | Agreeable                         | Agreeable                   | Agreeable                                 | Agreeable     |
| Turbidity(NTU)                             | 2                                 | 2                           | 1   | 5             |
| pH   | 7.78                              | 7.11                        | 6.5-8.5                                   | No relaxation |
| Total Alkalinity(mg/L)                     | 98                                | 396.2                       | 200                                       | 600           |
| Total Hardness (Ca CO <sub>3</sub> )(mg/L) | 124                               | 288                         | 200                                       | 600           |
| Iron(mg/L)                                 | <0.1                              | <0.1                        | 1.0                                       | No relaxation |
| Chloride(mg/L)                             | 18                                | 175                         | 250                                       | 1000          |
| Total Dissolve Solid(mg/L)                 | 226                               | 954                         | 500                                       | 2000          |
| Calcium(mg/L)                              | 35.2                              | 73.6                        | 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)                             | 36.57                             | 108.57                      | 200                                       | 400           |
| Nitrate(mg/L)                              | 3.34                              | 3.21                        | 45  | No relaxation |
| Fluoride(mg/L)                             | 0.61                              | 0.72                        | 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)                                 | 0.05                              | 0.04                        | 5   | 15            |
| Total Chromium (mg/L)                      | <0.01                             | <0.01                       | 0.05                                      | No relaxation |
| Boron(mg/L)                                | <0.1                              | <0.1                        | 0.5                                       | 2.4           |
| Cadmium(mg/L)                              | <0.001                            | <0.001                      | 0.003                                     | No relaxation |

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

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



**cmpdi**

*A Mini Ratna Company*

# Drinking Water Quality Data Lingraj Area

| Project / OCP                                       | Lingraj OCP              |                          | Indian Drinking Standards<br>(IS-10500):2012 |                      |
|---|--------------------------|--------------------------|--|----------------------|
|   | Deulbera<br>Village Well | Talabera<br>Village Well |  |                      |
| <b>Monitoring Station</b>                           |                          |                          |  |                      |
| <b>Date of Sampling</b>                             | <b>14-Feb-2022</b>       | <b>14-Feb-2022</b>       | <b>Acceptable</b>                            | <b>Permissible</b>   |
| <b>Colour(Hazen)</b>                                | <1.0                     | <1.0                     | <b>5</b>                                     | <b>15</b>            |
| <b>Odour</b>  | Agreeable                | Agreeable                | <b>Agreeable</b>                             | <b>Agreeable</b>     |
| <b>Taste</b>  | Agreeable                | Agreeable                | <b>Agreeable</b>                             | <b>Agreeable</b>     |
| <b>Turbidity(NTU)</b>                               | 1                        | 1                        | <b>1</b>                                     | <b>5</b>             |
| <b>pH</b>   | 6.80                     | 7.13                     | <b>6.5-8.5</b>                               | <b>No relaxation</b> |
| <b>Total Alkalinity(mg/L)</b>                       | 161.9                    | 93.7                     | <b>200</b>                                   | <b>600</b>           |
| <b>Total Hardness<br/>(Ca CO<sub>3</sub>)(mg/L)</b> | 192                      | 156                      | <b>200</b>                                   | <b>600</b>           |
| <b>Iron(mg/L)</b>                                   | <0.1                     | <0.1                     | <b>1.0</b>                                   | <b>No relaxation</b> |
| <b>Chloride(mg/L)</b>                               | 16                       | 12                       | <b>250</b>                                   | <b>1000</b>          |
| <b>Total Dissolve<br/>Solid(mg/L)</b>               | 382                      | 212                      | <b>500</b>                                   | <b>2000</b>          |
| <b>Calcium(mg/L)</b>                                | 41.6                     | 32                       | <b>75</b>                                    | <b>200</b>           |
| <b>Copper(mg/L)</b>                                 | <0.03                    | <0.03                    | <b>0.05</b>                                  | <b>1.5</b>           |
| <b>Manganese(mg/L)</b>                              | <0.04                    | <0.04                    | <b>0.1</b>                                   | <b>0.3</b>           |
| <b>Sulphate(mg/L)</b>                               | 70.86                    | 39.14                    | <b>200</b>                                   | <b>400</b>           |
| <b>Nitrate(mg/L)</b>                                | 1.05                     | 2.26                     | <b>45</b>                                    | <b>No relaxation</b> |
| <b>Fluoride(mg/L)</b>                               | 0.60                     | 0.45                     | <b>1</b>                                     | <b>1.5</b>           |
| <b>Arsenic(mg/L)</b>                                | <0.005                   | <0.005                   | <b>0.01</b>                                  | <b>No relaxation</b> |
| <b>Lead(mg/L)</b>                                   | <0.005                   | <0.005                   | <b>0.01</b>                                  | <b>No relaxation</b> |
| <b>Zinc(mg/L)</b>                                   | 0.11                     | 0.10                     | <b>5</b>                                     | <b>15</b>            |
| <b>Total Chromium<br/>(mg/L)</b>                    | <0.01                    | <0.01                    | <b>0.05</b>                                  | <b>No relaxation</b> |
| <b>Boron(mg/L)</b>                                  | <0.1                     | <0.1                     | <b>0.5</b>                                   | <b>2.4</b>           |
| <b>Cadmium(mg/L)</b>                                | <0.001                   | <0.001                   | <b>0.003</b>                                 | <b>No relaxation</b> |

*Sattanaik*  
 Authorized Signatory  
 CMPDI, RI-VII, LAB  
 BHUBANESWAR

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

**ANNEXURE - VI**



**cmpdi**

*A Mini Ratna Company*

Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

Lingaraj

Project:

Lingraj OCP

| Date of Sampling | Name of the Station  | Ground Water level |
|------------------|--|--------------------|
| 27-Nov-21        | Piezometer no MTP 01; Inside the premises of Mandapal hospital | 12.02              |

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

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



**cmpdi**

*A Mini Ratna Company*

Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

**Lingaraj**

Project:

**Lingaraj OCP**

| Date of Sampling | Name of the Station   | Ground Water level |
|------------------|---|--------------------|
| 27-Nov-21        | Piezometer no MTP 04; Inside central nursery (beside golf hut), Jagannath area (reported) | 3.31               |

*Hattanack*

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

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



**cmpdi**

*A Mini Ratna Company*

## Piezometer Water Quality Data: Lingaraj Area

| Project / OCP                              | Lingaraj OCP  | Indian Drinking Standards (IS-10500):2012 |               |
|--|---|---|---------------|
| Monitoring Station                         | Piezometer no. MTP 04, GW level, quantity & quality (Reported Only) | Acceptable                                | Permissible   |
| Date of Sampling                           | 31-Jan-2022   | Acceptable                                | Permissible   |
| Colour(Hazen)                              | 8   | 5   | 15            |
| Odour                                      | Agreeable   | Agreeable                                 | Agreeable     |
| Taste                                      | Agreeable   | Agreeable                                 | Agreeable     |
| Turbidity(NTU)                             | 2   | 1   | 5             |
| pH   | 7.65  | 6.5-8.5                                   | No relaxation |
| Total Alkalinity(mg/L)                     | 56  | 200                                       | 600           |
| Total Hardness (Ca CO <sub>3</sub> )(mg/L) | 60  | 200                                       | 600           |
| Iron(mg/L)                                 | <0.1  | 0.3                                       | No relaxation |
| Chloride(mg/L)                             | 8   | 250                                       | 1000          |
| Total Dissolve Solid(mg/L)                 | 97  | 500                                       | 2000          |
| Calcium(mg/L)                              | 16  | 75  | 200           |
| Copper(mg/L)                               | <0.03   | 0.05                                      | 1.5           |
| Manganese(mg/L)                            | <0.04   | 0.1                                       | 0.3           |
| Sulphate(mg/L)                             | 1.75  | 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 |

*Hattanick*

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



**cmpdi**

*A Mini Ratna Company*

## Piezometer Water Quality Data: Lingaraj Area

| Project / OCP                 | Lingaraj OCP  | Indian Drinking Standards (IS-10500):2012 |               |
|-------------------------------|---|---|---------------|
| Monitoring Station            | Piezometer no. MTP 04, GW level, quantity & quality (Reported Only) |   |               |
| Date of Sampling              | 31-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 |

*Hattaraj*

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



cmpdi

A Mini Ratna Company

## Piezometer Water Quality Data: Lingaraj Area

| Project / OCP                                 | Lingaraj OCP                                    | Indian Drinking Standards<br>(IS-10500):2012 |               |
|---|---|--|---------------|
| Monitoring Station                            | Piezometer no.<br>MTP 01, GW<br>level & quality |  |               |
| Date of Sampling                              | 29-Jan-2022                                     | Acceptable                                   | Permissible   |
| Colour(Hazen)                                 | 1   | 5  | 15            |
| Odour   | Agreeable                                       | Agreeable                                    | Agreeable     |
| Taste   | Agreeable                                       | Agreeable                                    | Agreeable     |
| Turbidity(NTU)                                | 1   | 1  | 5             |
| pH  | 7.72  | 6.5-8.5                                      | No relaxation |
| Total Alkalinity(mg/L)                        | 128   | 200  | 600           |
| Total Hardness (Ca<br>CO <sub>3</sub> )(mg/L) | 208   | 200  | 600           |
| Iron(mg/L)                                    | <0.1  | 0.3  | No relaxation |
| Chloride(mg/L)                                | 194   | 250  | 1000          |
| Total Dissolve Solid(mg/L)                    | 627   | 500  | 2000          |
| Calcium(mg/L)                                 | 43.2  | 75   | 200           |
| Copper(mg/L)                                  | <0.03   | 0.05   | 1.5           |
| Manganese(mg/L)                               | <0.04   | 0.1  | 0.3           |
| Sulphate(mg/L)                                | 3.73  | 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 04 (Reposted)

*Hattaraj*

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

*O.I.C.*

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



**cmpdi**

*A Mini Ratna Company*

## Piezometer Water Quality Data: Lingaraj Area

| Project / OCP                    | Lingaraj OCP                                    | Lingaraj OCP |               |
|----------------------------------|---|--------------|---------------|
| Monitoring Station               | Piezometer no.<br>MTP 01, GW<br>level & quality |              |               |
| Date of Sampling                 | 29-Jan-2022                                     | Acceptable   | Permissible   |
| MPN (Index/100ml)                | <1.8  | -            | -             |
| Residual Free Chlorine<br>(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 |

*Kattancik*

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

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



**cmpdi**

*A Mini Ratna Company*

Test Report

**GROUND WATER LEVEL MONITORING DATA**

Area:

Lingaraj

Project:

Lingaraj OCP

| Date of Sampling | Name of the Station   | Ground Water level |
|------------------|---|--------------------|
| 29-Jan-22        | Piezometer no MTP 01; Inside the premises of Mandapal hospital                            | 12.23              |
| 31-Jan-22        | Piezometer no MTP 04; Inside central nursery (beside golf hut), Jagannath area (reported) | 3.75               |

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

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

**ANNEXURE - VII**



**cmpdi**

*A Mini Kailash Company*

**TABLE--**

**NOISE LEVEL MONITORING DATA**

**AREA :**

*Lingaraj*

**PROJECT :**

*Lingaraj OCP*

| DATE OF SAMPLING | STATION                                     | Noise Level Measurement in Leq dB(A) |       |
|------------------|---|--------------------------------------|-------|
|                  |   | DAY                                  | NIGHT |
| 12-Oct-21        | Near Lingaraj to Dera Road                  | 56.2                                 | 54.8  |
| 12-Oct-21        | IWSS  | 65.2                                 | 61.7  |
| 12-Oct-21        | Near OB Dump No.5 (South Side of the Mine)  | 63.9                                 | 60.5  |
| 12-Oct-21        | Near OB Dump No.10 (North Side of the Mine) | 61.1                                 | 58.1  |
| 29-Oct-21        | Near Lingaraj to Dera Road                  | 56.0                                 | 55.0  |
| 29-Oct-21        | IWSS  | 64.1                                 | 61.8  |
| 29-Oct-21        | Near OB Dump No.5 (South Side of the Mine)  | 63.5                                 | 61.1  |
| 29-Oct-21        | Near OB Dump No.10 (North Side of the Mine) | 60.7                                 | 58.4  |

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00 PM Leq 75dB(A)

10.00 PM -6.00 AM Leq 70dB(A)

*Dattamach*  
Authorized Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

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



**cmpdi**

*A Miniratna Company*

**TABLE--**

**NOISE LEVEL MONITORING DATA**

**AREA :**

**Lingaraj**

**PROJECT :**

**Lingaraj OCP**

| DATE OF SAMPLING | STATION                                     | Noise Level Measurement in Leq dB(A) |       |
|------------------|---|--------------------------------------|-------|
|                  |   | DAY                                  | NIGHT |
| 13-Nov-21        | Near Lingaraj to Dera Road                  | 58.4                                 | 56.3  |
| 13-Nov-21        | IWSS  | 60.7                                 | 58.8  |
| 13-Nov-21        | Near OB Dump No.5 (South Side of the Mine)  | 64.9                                 | 62.1  |
| 13-Nov-21        | Near OB Dump No.10 (North Side of the Mine) | 60.8                                 | 55.3  |
| 19-Nov-21        | Near Lingaraj to Dera Road                  | 54.8                                 | 53.2  |
| 19-Nov-21        | IWSS  | 60.3                                 | 57.2  |
| 19-Nov-21        | Near OB Dump No.5 (South Side of the Mine)  | 57.1                                 | 55.8  |
| 19-Nov-21        | Near OB Dump No.10 (North Side of the Mine) | 58.5                                 | 56.1  |

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)

*Hattarath*

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

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



**cmpdi**

*A Mini Kailash Company*

**TABLE--**

**NOISE LEVEL MONITORING DATA**

**AREA :**

**Lingaraj**

**PROJECT :**

**Lingaraj OCP**

| DATE OF SAMPLING | STATION                                     | Noise Level Measurement in Leq dB(A) |       |
|------------------|---|--------------------------------------|-------|
|                  |   | DAY                                  | NIGHT |
| 13-Dec-21        | Near Lingaraj to Dera Road                  | 55.5                                 | 50.7  |
| 13-Dec-21        | IWSS  | 57.8                                 | 52.1  |
| 13-Dec-21        | Near OB Dump No.5 (South Side of the Mine)  | 62.1                                 | 60.8  |
| 13-Dec-21        | Near OB Dump No.10 (North Side of the Mine) | 58.4                                 | 53.6  |
| 28-Dec-21        | Near Lingaraj to Dera Road                  | 51.5                                 | 48.6  |
| 28-Dec-21        | IWSS  | 57.5                                 | 55.4  |
| 28-Dec-21        | Near OB Dump No.5 (South Side of the Mine)  | 55.3                                 | 52.5  |
| 28-Dec-21        | Near OB Dump No.10 (North Side of the Mine) | 54.8                                 | 53.6  |

MoEF Standard Notification dated 25th September, 2000

6.00 AM -10.00 PM Leq 75dB(A)

10.00 PM -6.00 AM Leq 70dB(A)

*Hattaraj*

Authorised Signatory  
CMPDI, RI-VII, LAB  
BHUBANESWAR

*Anto Anall*

f  
Q. I. C.  
Env. Lab  
CMPDI, RI-VII  
Bhubaneswar



**cmpdi**

*A Miniratna Company*

**TABLE--**

**NOISE LEVEL MONITORING DATA**

**AREA :**

*Lingaraj*

**PROJECT :**

*Lingaraj OCP*

| DATE OF SAMPLING | STATION                                     | Noise Level Measurement in Leq dB(A) |       |
|------------------|---|--------------------------------------|-------|
|                  |   | DAY                                  | NIGHT |
| 08-Jan-22        | Near Lingaraj to Dera Road                  | 52.7                                 | 48.6  |
| 08-Jan-22        | IWSS  | 54.9                                 | 50.5  |
| 08-Jan-22        | Near OB Dump No.5 (South Side of the Mine)  | 57.4                                 | 54.3  |
| 08-Jan-22        | Near OB Dump No.10 (North Side of the Mine) | 60.2                                 | 57.1  |
| 22-Jan-22        | Near Lingaraj to Dera Road                  | 47.7                                 | 44.2  |
| 22-Jan-22        | IWSS  | 52.6                                 | 50.4  |
| 22-Jan-22        | Near OB Dump No.5 (South Side of the Mine)  | 52.8                                 | 50.0  |
| 22-Jan-22        | Near OB Dump No.10 (North Side of the Mine) | 50.1                                 | 48.2  |

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)

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

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



**cmpdi**

*A Mini Ratna Company*

**TABLE--**

**NOISE LEVEL MONITORING DATA**

**AREA :**

**Lingaraj**

**PROJECT :**

**Lingaraj OCP**

| DATE OF SAMPLING | STATION                                     | Noise Level Measurement in Leq dB(A) |       |
|------------------|---|--------------------------------------|-------|
|                  |   | DAY                                  | NIGHT |
| 09-Feb-22        | Near Lingaraj to Dera Road                  | 49.8                                 | 46.4  |
| 09-Feb-22        | IWSS  | 52.3                                 | 47.6  |
| 09-Feb-22        | Near OB Dump No.5 (South Side of the Mine)  | 54.8                                 | 50.0  |
| 09-Feb-22        | Near OB Dump No.10 (North Side of the Mine) | 64.5                                 | 59.9  |
| 23-Feb-22        | Near Lingaraj to Dera Road                  | 45.5                                 | 42.8  |
| 23-Feb-22        | IWSS  | 50.4                                 | 46.3  |
| 23-Feb-22        | Near OB Dump No.5 (South Side of the Mine)  | 57.8                                 | 55.3  |
| 23-Feb-22        | Near OB Dump No.10 (North Side of the Mine) | 55.6                                 | 52.5  |

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

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

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)



**cmpdi**

*A Mini Kailas Company*

**TABLE--**

**NOISE LEVEL MONITORING DATA**

**AREA :**

**Lingaraj**

**PROJECT :**

**Lingaraj OCP**

| DATE OF SAMPLING | STATION                                     | Noise Level Measurement in Leq dB(A) |       |
|------------------|---|--------------------------------------|-------|
|                  |   | DAY                                  | NIGHT |
| 09-Mar-22        | Near Lingaraj to Dera Road                  | 45.4                                 | 42.0  |
| 09-Mar-22        | IWSS  | 55.6                                 | 53.2  |
| 09-Mar-22        | Near OB Dump No.5 (South Side of the Mine)  | 50.6                                 | 46.5  |
| 09-Mar-22        | Near OB Dump No.10 (North Side of the Mine) | 61.3                                 | 55.8  |
| 23-Mar-22        | Near Lingaraj to Dera Road                  | 48.0                                 | 45.5  |
| 23-Mar-22        | IWSS  | 54.1                                 | 51.9  |
| 23-Mar-22        | Near OB Dump No.5 (South Side of the Mine)  | 54.8                                 | 49.1  |
| 23-Mar-22        | Near OB Dump No.10 (North Side of the Mine) | 58.3                                 | 56.9  |

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)

*Jasmati*

Authorised Signatory  
CMPDI, RI-VII, LAS  
BHUBANESWAR

*Kattarai*

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

**ANNEXURE - VIII**



क्रमांक संख्या: एम.सी.एल/मुख्यालय/ पर्यावरण एवं वन/2021/ 65

दिनांक: 21.09.2021

सेवा में,  
सदस्य सचिव,  
राज्य प्रदूषण नियंत्रण बोर्ड, उड़ीसा,  
ए-118, नीलकंठ नगर, यूनिट-VIII, भुवनेश्वर-751012.

विषय: एम.सी.एल. के सभी कार्यरत परियोजनाओं का वर्ष 2020-21 का पर्यावरण संबंधी विवरण फॉर्म-V की प्रस्तुति।

महोदय,  
पर्यावरण संरक्षण अधिनियम, 1986 एवं संशोधन, 1993 के अधिनियम 14 के पालनार्थ, एम.सी.एल. के निम्नलिखित 23 खदानों, 01 रेलवे साइडिंग और 01 वाशरी के वर्ष 2020-21 का पर्यावरण संबंधी विवरण फॉर्म-V में एक साथ जिल्दबद्ध कर एक किताब के रूप में इस पत्र के साथ संलग्न कर आपके सूचनाथ प्रस्तुत है।

| क्र. सं. | इब-वैली कोलफील्ड्स के खदानों के नाम। | क्र. सं. | तालचर कोलफील्ड्स के खदानों के नाम। |
|----------|--------------------------------------|----------|------------------------------------|
| 1        | लखनपुर खुली खदान।                    | 15       | अनंता खुली खदान।                   |
| 2        | लिलारी खुली खदान।                    | 16       | जगन्नाथ खुली खदान।                 |
| 3        | बेलपहार खुली खदान।                   | 17       | भुवनेश्वरी खुली खदान।              |
| 4        | इब-वैली कोल वाशरी।                   | 18       | भरतपुर खुली खदान।                  |
| 5        | लाजकुरा खुली खदान।                   | 19       | छेदीपड़ा खुली खदान।                |
| 6        | समलेस्वरी खुली खदान।                 | 20       | हिंगुला खुली खदान।                 |
| 7        | कुलड़ा खुली खदान।                    | 21       | बलराम खुली खदान।                   |
| 8        | गरजनबहल खुली खदान।                   | 22       | लिंगराज खुली खदान।                 |
| 9        | कणिका RS.                            | 23       | कनिहा खुली खदान।                   |
| 10       | बसुंधरा (वेस्ट) खुली खदान।           | 24       | नंदिरा भमिगत खदान।                 |
| 11       | ओरिएंट 1&2 भमिगत खदान।               | 25       | तलचर भमिगत खदान।                   |
| 12       | ओरिएंट 3 भमिगत खदान।                 |          |                                    |
| 13       | ओरिएंट 4 भमिगत खदान।                 |          |                                    |
| 14       | हिराखंड बुंदिया भमिगत खदान।          |          |                                    |

कृपया पावती भेजने की कृपा करें।

सधन्यवाद।

अनुलग्नक: यथोपरि।

भवदीय,  
महाप्रबन्धक (पर्या. एवं वन),  
एमसीएल मुख्यालय।

प्रतिलिपि:

- क्षेत्रीय अधिकारी, उ.रा.प्र.नि.बो., झारसुगुड़ा: एमसीएल के इब कोलफील्ड्स परियोजनाओं की वर्ष 2020-21 का पर्यावरण संबंधी विवरण फॉर्म-V में एक साथ जिल्दबद्ध कर एक किताब के रूप में संलग्न करते हुए प्रस्तुत।
- क्षेत्रीय अधिकारी, उ.रा.प्र.नि.बो., अंगुल: एमसीएल के तालचर कोलफील्ड्स परियोजनाओं की वर्ष 2020-21 का पर्यावरण संबंधी विवरण फॉर्म-V में एक साथ जिल्दबद्ध कर एक किताब के रूप में संलग्न करते हुए प्रस्तुत।

To,

The Member Secretary,  
State Pollution Control Board, Odisha,  
A-118, Nilakantha Nagar, Unit -VIII,  
Bhubaneswar – 751012.

Sub: Submission of Environmental Statement in Form- V of the Operating Projects of MCL for the year 2020-21.

Sir,

In compliance of Rule-14 of Environmental Protection Rules, 1986 and Amendment, 1993, the Environmental Statement in Form- V for each of following 23 mines, 01 Railway siding & 01 Washery of MCL for the year 2020-21, bound together in the form of a book is enclosed along with this letter for your kind information.

| Sl. No. | Name of the Mines in Ib-Valley Coalfield | Sl. No. | Name of the Mines in Talcher Coalfield. |
|---------|--|---------|---|
| 1       | Lakhanpur OCP.                           | 15      | Ananta OCP                              |
| 2       | Lilari OCP                               | 16      | Jagannath OCP                           |
| 3       | Belpahar OCP.                            | 17      | Bhubaneswari OCP                        |
| 4       | Ib Valley Coal Washery.                  | 18      | Bharatpur OCP                           |
| 5       | Lajkura OCP.                             | 19      | Chhendipada OCP.                        |
| 6       | Samaleswari OCP.                         | 20      | Hingula OCP                             |
| 7       | Kulda OCP.                               | 21      | Balaram OCP                             |
| 8       | Garjanbahal OCP.                         | 22      | Lingraj OCP                             |
| 9       | Kanika Railway Siding.                   | 23      | Kaniha OCP                              |
| 10      | Basundhara (West) OCP.                   | 24      | Nandira UG Mine                         |
| 11      | Orient Mine No. 1&2                      | 25      | Talcher UG Mine                         |
| 12      | Orient Mine No. 3                        |         |   |
| 13      | Orient Mine No. 4                        |         |   |
| 14      | Hirakhand Bundia Mine                    |         |   |

Kindly acknowledge the receipt.

Thanking You.

Encl.: As above.

Yours faithfully,  
General Manager,  
Envt. & Forest, MCL HQ.

Copy to:

- Regional Officer, OSPCB, Jharsuguda: along with Environmental Statement in Form-V for the year 2020-21 Projects of Ib Coalfields, MCL bound together in one volume book.
- Regional Officer, OSPCB, Angul: along with Environmental Statement in Form-V for the year 2020-21 of the Projects of Talcher Coalfields, MCL bound together in one volume book.

प्रतिलिपि ई-ऑफिस/ ई-मेल के माध्यम से:

3. निदेशक (तक./परियोजना एवं योजना) के तकनीकी सचिव, एमसीएल।
4. महाप्रबंधक- लखनपुर/ इब-वैली/ बसुंधरा/ महालक्ष्मी/ ओरिएंट/ जगन्नाथ/ भुवनेश्वरी/ लिंगराज/ कनिहा/ भरतपुर/ हिंगुला/ तालचेर क्षेत्र।
5. परियोजना अधिकारी/ उप क्षेत्रीय प्रबंधक - लखनपुर/ बेलपहार/ लिलारी/ समलेस्वरी/ लजकुरा/ बसुंधरा/ कुलडा/ गरजनबहल/ ओरिएंट खदान सं. 1&2/ ओरिएंट खदान सं. 3/ ओरिएंट खदान सं. 4/ हिराखंड बुँदिया खदान (एच बी एम)/ जगन्नाथ/ भूबनेस्वरी/ लिंगराज/ कनिहा/ भरतपुर/ छेंदीपडा/ अनंता/ बलराम/ हिंगुला/ तालचेर भूमिगत खदान/ नंदिरा भूमिगत खदान- आपके अधिनस्थ परियोजना(ओं)/ खदानों का वर्ष 2020-21 का पर्यावरण संबंधी विवरण की एक प्रति के साथ।
6. क्षेत्रीय पर्यावरण अधिकारी, एमसीएल के सभी क्षेत्र: क्षेत्र के वित्त प्रबंधक को सूचित करने के अनुरोध के साथ।
7. कार्यालय प्रति।

Copy through e-office/ e-mail:

3. Technical Secretary to D (T/P&P), MCL.
4. General Manager- Lakhanpur/ Ib Valley/ Basundhara/ Mahalaxmi/ Orient/ Hingula/ Bharatpur/ Jagannath/ Bhubaneswari/ Lingraj/ Kaniha/ Talcher Areas.
5. Project Officer/ Sub Area Manager- Lakhanpur/ Belpahar/Lilari/ Samleswari/ Lajkura/ Basundhara (West)/ Kulda/ Garjanbahal/ Orient Sub-Area/ Rampur Sub-Area/ Jagannath/ Bhubaneswari/ Lingaraj/ Kaniha/ Bharatpur/ Chhendipada/ Ananta/ Balaram/ Hingula/ Talcher U.G./ Nandira U.G. Mines - with a copy of the Env't. Statement for the year 2020-21 for the projects/ mines under your control.
6. Area Environment Officer- All Areas: with a request to inform concerned AFM.
5. Office Copy.

# FORM-V

## ENVIRONMENTAL STATEMENT

**Environmental statement for the financial year ending 31<sup>st</sup> March, 2021**

### Part – A

- i) Name & Address of the owner/ occupier : Ajay Kumar Dehury  
of the industry operation or process : Project Officer, Lingaraj OCP  
(Name of the Project Officer/ Sub-Area : Office of the Project Officer  
Manager & Office address to be given) P.O.: Deulbera Colliery, Talcher  
Distt.: Angul, Odisha-759102
- ii) Industry Category : Primary (Coal Mining Operation)
- iii) Production Capacity (Coal production : 20 MTY (13.332 MT)  
during the year 2020-21)
- iv) Year of establishment : 1991
- v) Date of the last Environmental : 28.09.2020  
Statement submitted

### Part – B

#### **Water & Raw Material Consumption**

Note: Average Water Consumption (Cu-m/ day) for the whole year is given. Raw material consumption is given per unit of coal produced.

#### **(I) Water Consumption (Cu-m/ day):**

| Sl. No. | Industrial/ Mining         | Consumption in Cu-m/ day |
|---------|----------------------------|--------------------------|
| 1. a    | Haul Road Dust Suppression | 2015                     |
| b       | Dust Suppression at CHP    | 230                      |
| c       | Dust Suppression at Siding | 500                      |
| d       | Fire Fighting              | 200                      |
| e       | Workshop                   | 70                       |
| f       | Others                     | 7                        |
| 2.      | Domestic                   | ---                      |
| 3.      | Total in kℓ/ day           | 3022                     |

| Name of the Product | Water Consumption per unit of product (ℓ/ t) |         |
|---------------------|--|---------|
|                     | 2019-20                                      | 2020-21 |
| Coal                | 79.02  | 82.74   |

**(II) Raw Material Consumption (per tonne of coal):**

| Name of Raw Material   | Consumption of Raw Material<br>(per tonne of Coal produced) |                       |
|------------------------|---|-----------------------|
|                        | 2019-20   | 2020-21               |
| H.S. Diesel (ℓ/ t)     | 1.38 (Dept. + Cont.)  | 1.18 (Dept. + Cont.)  |
| Petrol (ℓ/ t)          | 0.001 (Dept. + Cont.)                                       | 0.001 (Dept. + Cont.) |
| Lubricants (ℓ/ t)      | 0.03 (Dept. + Cont.)  | 0.03 (Dept. + Cont.)  |
| Electricity (Units/ t) | 1.91  | 1.83                  |
| Explosives (kg/ t)     | 0.39  | 0.38                  |

**Part – C**

**Pollution Discharged to Environment/ Unit of Output**

(Parameter as specified in the 'Consent' issued)

| Pollutants   | Quantity of pollutants discharged (mass/ day) | Concentrations of pollutants in discharges (mass/ volume) |            |            | Percentage variation from prescribed standards with reasons |
|--|---|---|------------|------------|---|
|  |   | Mine Effluent   | OGT Outlet | STP Outlet |   |
| <b>Water (annual average)</b>  |   |   |            |            |   |
|  | Nil   | Mine Effluent   | OGT Outlet | STP Outlet | Within the prescribed standards                             |
| TSS (mg/ℓ)   |   | 28  | ---        | ---        |   |
| BOD mg/ℓ)  |   | ---   | ---        | ---        |   |
| COD (mg/ℓ)   |   | 16  | ---        | ---        |   |
| pH   |   | 6.55  | ---        | ---        |   |
| O & G (mg/ℓ)   |   | < 4   | ---        | ---        |   |
| <b>Air (Ambient air quality of one station - annual average) – Near OB Dump No. 5 (South Side of the Mine)</b> |   |   |            |            |   |
| SPM (µg/m <sup>3</sup> )   | Not possible to quantify                      | 235   |            |            | Within the prescribed standards                             |
| PM <sub>10</sub> (µg/m <sup>3</sup> )  |   | 137   |            |            |   |
| PM <sub>2.5</sub> (µg/m <sup>3</sup> )   |   | 43  |            |            |   |
| SO <sub>2</sub> (µg/m <sup>3</sup> )   |   | 12  |            |            |   |
| NO <sub>x</sub> (µg/m <sup>3</sup> )   |   | 24  |            |            |   |

**Part – D**  
**Hazardous Wastes**

As specified under Hazardous Wastes (Management & Handling) Rules, 1989.

| Hazardous Waste                                      | Total Quantity (kg)               |   |
|--|-----------------------------------|---|
|  | During the financial year 2019-20 | During the current financial year 2020-21 |
| (a) From process :                                   |                                   |   |
| i. Burnt Oil in Workshops                            | 63000 liters                      | 100600 liters                             |
| ii. Oil soaked filters                               | ---                               | 0.2 Te.                                   |
| (b) From pollution control facilities:               |                                   |   |
| i. Oil/ Oil emulsion recovery from Oil & Grease Trap | 2 lit. (Oil)                      | 1.2 lit. (Oil)                            |
| ii. Oily sludge                                      | 2.10 m <sup>3</sup>               | 1.420 m <sup>3</sup>                      |
| iii. Chemical Waste (if any)                         | ---                               | ---                                       |

**Part – E**  
**Solid Wastes (other than hazardous)**

| Particulars   | Total Quantity                    |   |
|---|-----------------------------------|---|
|   | During the financial year 2019-20 | During the current financial year 2020-21 |
| (a) From process (Top soil and Over burden)                   | 12.101 Mm <sup>3</sup>            | 12.979 Mm <sup>3</sup>                    |
| (b) From pollution control facilities (STP & Sed-Pond Sludge) | Nil                               | Nil                                       |
| (c) 1- Quantity recycled or re-utilized (OB back-filled)      | 12.101 Mm <sup>3</sup>            | 12.979 Mm <sup>3</sup>                    |
| 2- Sold   | ---                               | ---                                       |
| 3- Disposed   | ---                               | ---                                       |

**Part – F**

**Please specify the characteristics (in terms of concentration & quantum) of hazardous as well as solid waste and indicate the disposal practice adopted for both these categories of wastes**

**(I) Hazardous Wastes:**

| Name of Hazardous Wastes                      | Quantity generated in the year 2020-21 | Disposal Practices                |
|---|--|-----------------------------------|
| Burnt Oil, etc. (ℓ) (from W/Shop)             | 100600 liters                          | By auction to authorized parties. |
| Oil soaked filters (kg) (from W/Shop)         | 0.2 Te.                                | Stored in impervious lined pit.   |
| Oil & Grease (ℓ) (from ETP/ OGT)              | 1.2 liters (Oil)                       | By auction to authorized parties. |
| Oily Sludge (m <sup>3</sup> ) (from ETP/ OGT) | 1.420 m <sup>3</sup>                   | Stored in impervious lined pit.   |
| Oil emulsion                                  | ---                                    | ---                               |
| Chemical Waste if any (kg)                    | ---                                    | ---                               |
| Battery (Nos.)                                | 238 Nos.                               | By auction to authorized parties. |

**Note:** A detailed note on disposal practices of the above should be given separately.

## (II) Solid Wastes:

| Solid Waste                | Quantity generated in the year 2020-21 | Disposal Practices                              |
|----------------------------|--|---|
| Top Soil (m <sup>3</sup> ) | 0.012 Mm <sup>3</sup>                  | Spread over the backfilled area for plantation. |
| OB (m <sup>3</sup> )       | 12.967 Mm <sup>3</sup>                 | Used to fill quarry voids.                      |
| STP & Sed-Pond Sludge      | ---                                    | ---   |

### Land Reclamation & OB disposal – progressive till March, 2021:

|   | Area (Ha.) | OB Volume / Nos. of Plants            |
|---|------------|---------------------------------------|
| 1) External OB dump                       | 108.88     | 47.98 Mm <sup>3</sup> / 257775 Nos.   |
| 2) Excavated land                         | 407.70     | 194.522 Mm <sup>3</sup>               |
| 3) Land affected (1+2)                    | 516.58     | ---                                   |
| 4) Backfilled (out of 2)                  | 132.50     | 146.542 Mm <sup>3</sup> / 103102 Nos. |
| 5) Land physically reclaimed (out of 3)   | *139.28    | ---                                   |
| 6) Land biologically reclaimed (out of 3) | *139.28    | 397627 Nos.                           |

\* 132.50 Ha. reclaimed area includes 37.23 Ha. of backfilled area and 102.05 Ha. of external OB dump area.

### Part – G

#### Impact of pollution control measures on conservation of natural resources and consequently on cost of production

In order to carry out mining in an eco-friendly manner, a detailed Environmental Management Plan (EMP) was prepared by Regional Institute-VII of CMPDIL. The main pollution control measures suggested in EMP along with the measures implemented so far have been summarized in the Table-1.1 to 1.3.

**Table – 1.1**  
**Air Pollution Control Measures**

| Sl. No. | EMP Provisions  | Whether provided or not               | Remarks |
|---------|---|---------------------------------------|---------|
| 1       | Water sprinkling and grading of all roads to minimize air-borne dust from vehicles. | Provided                              |         |
| 2       | Biological reclamation of land.   | Provided                              |         |
| 3       | Green belt around mine & infrastructures.   | Provided                              |         |
| 4       | Drills fitted with dust control devices.  | Provided                              |         |
| 5       | Dust suppression/ dust extraction system to be provided in CHP.                     | Provided                              |         |
| 6       | Improved maintenance of plant & machinery.  | Scheduled maintenance is carried out. |         |
| 7       | Mechanized coal transportation system.  | Provided                              |         |

**Table – 1.2**  
**Water Pollution Control Measures**

| Sl. No. | EMP Provisions/ Additional precautions   | Whether provided or not | Remarks   |
|---------|--|-------------------------|---|
| 1       | Mine water is to be collected in central sump on dip side of pit. This will act as sedimentation lagoon.   | Provided                |   |
| 2       | Run-off around reclamation area will be controlled by providing catch drains and sedimentation lagoon combination.   | Provided                |   |
| 3       | Surface run-off from external dump would be collected through a series of contour drains which would be connected to a water retention pond. The clear water from this pond will be re-utilized. | Provided                |   |
| 4       | Domestic waste water will be treated in screens, oxidation pond/ aerated lagoon. Sanitary waste to be disposed off into septic tank & soak-pit.  | Provided                | Domestic waste water is disposed in septic tanks and soak pits. |
| 5       | Workshop effluents will be treated in oil & grease trap & sedimentation tank.  | Provided                |   |
| 6       | Zero discharge from mine shall be maintained.  | Maintained              |   |
| 7       | Piezometers shall be installed for measurement of under-ground water depth and its quality   | Provided                | MTP 01: Near the premises of Mandapal Hospital.                 |

**Table – 1.3**  
**Land Reclamation**

| Sl. No. | EMP Provisions  | Whether provided or not | Remarks |
|---------|---|-------------------------|---------|
| 1       | <b>Top soil Management:</b><br>Proper stripping, Storage, and Relocation of top soil.   | Provided                |         |
| 2       | <b>Physical Reclamation of OB Dump:</b><br>Proper reshaping and re-grading of top surface, Providing drainage arrangements and top soil spreading on external and internal dumps. | Provided                |         |
| 3       | <b>Biological Reclamation:</b><br>Plantation of suitable species of herbs, shrubs & indigenous trees over technically reclaimed dumps.  | Provided                |         |

## IMPACT OF POLLUTION CONTROL MEASURES ON COST OF PRODUCTION

Cost of Environmental management during 2020-21 was Rs. 16.86 per tonne of Coal.

### Part – H

#### Additional measures/ investment proposal for environmental protection including abatement of pollution, prevention of pollution

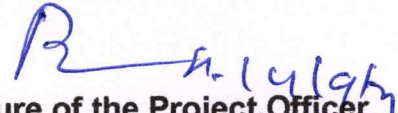
| Head   | Amount Rs. (approx) |
|--|---------------------|
| Statutory Expenses                                       | 95 lakhs            |
| Environmental Monitoring Expenses (air, water and noise) | 99 lakhs            |
| Tree plantation  | 100 lakhs           |
| Dust suppression   | 1400 lakhs          |
| Installation of CAAQMS                                   | 130 lakhs           |
| Environment Awareness Programmes                         | 3 lakh              |
| Total  | 1827 lakhs          |

### Part – I

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

Various competitions among the children, employees and family members of employees were carried out on the occasion of World Environment Day 2020 to increase awareness about pollution control measures. Plantation was carried out by employees on the occasion of Vriksharopan Abhiyan 2020 to increase awareness about safeguarding the environment by increasing the green cover of earth.

**Note: A plan is attached herewith showing the relevant features like Present Working/ Quarry, External Dump, Back-filling, Plantation, Sedimentation Pond/ MDTP, Oil & Grease Trap/ ETP, Workshop, CHP etc. and Environmental Monitoring Stations.**

  
Signature of the Project Officer.

(with seal)

लिंगराज ओ.सी.पी.  
PROJECT OFFICER  
LINGARAJ O.C.P.

