WESTERN COALFIELDS LIMITED

OFFICE OF THE SUB AREA MANAGER
NEELJAY SUB AREA: WANI AREA
PO: Bellora, The: Wani, Dist:- Yavatmal, MH-445304

Ref No. WCL/WA/SAM(M)/NLSA/CIVIL/2023-24/397 Date: 28/11 / 2023

To
Deputy Director General of Forests (Central)
Ministry of Environment, Forest & Climate Change
Integrated Regional Office, Ground Floor, East Wing, "New Secretariat Building", Civil Lines,
Nagpur, Maharashtra- 440001

Sub: - Six monthly EC Compliance Report for Bellora/Naigaon Opencast Project, Wani Area for the period from 1st April 2023 to 30th September 2023.

Respected Sir,

Please find enclosed herewith the Six Monthly EC Compliance Report in respect of Bellora/Naigaon Deep OC mine for the period from 1st April 2023 to 30th September 2023.

This is for your kind information

please.

Thanking you.

Yours faithfully,

28.11.23

Sub Area Manager
Niljai Sub Area

Copy To,

1. Regional Officer, MPCB Chandrapur
2. Area General manager, Wani Area, WCL
3. The General Manager (Env) WCL, Nagpur
4. Area Nodal Officer (Env), Wani Area.
5. Office Copy

WESTERN COALFIELDS LIMITED

SIX MONTHLY

EC COMPLIANCE REPORTS

FOR PERIOD OF

1st April 2023 to 30th September 2023

Bellora/Naigaon Deep Opencast

Coal Mine Project

COMPLIANCE OF ENVIRONMENTAL CLEARANCE CONDITIONS

Bellora/Naigaon Deep Opencast Coal Mine Project (1.25MTPA).
MOEF Environmental Clearance Letter No. J-11015/332/2009-IA.II(M) Dated 06/03/2012.
PERIOD: 01/04/2023 to 30/09/2023

<table>
<tr><th>A)</th><th>Specific Conditions</th><th>Compliance as on 30/09/2023</th></tr>
<tr><td>I</td><td>The peak production capacity of the project shall not exceed 1.25 MTPA without prior EC form this Ministry</td><td>As per the approved PR (Feb 2012), the life of the project was worked out to 20 years for total coal reserve of 18.27 Million tonne and removing total of 114.45 Million cum overburden. The mine has started the coal production in the year 01.04.2012. The details of coal and OB is given below:
<table>
<tr><th>Sr. No.</th><th>Year</th><th>Coal Production (MT)</th><th>OB Removal (Mm3)</th></tr>
<tr><td>1.</td><td>2012 – 13</td><td>1.05</td><td>6.42</td></tr>
<tr><td>2.</td><td>2013 –14</td><td>1.05</td><td>6.75</td></tr>
<tr><td>3.</td><td>2014 –15</td><td>1.18</td><td>7.94</td></tr>
<tr><td>4.</td><td>2015 – 16</td><td>1.20</td><td>3.03</td></tr>
<tr><td>5.</td><td>2016 – 17</td><td>0.86</td><td>2.20</td></tr>
<tr><td>6.</td><td>2017 – 18</td><td>0.15</td><td>0.51</td></tr>
<tr><td>7.</td><td>2018 – 19</td><td>NIL</td><td>NIL</td></tr>
<tr><td>8.</td><td>2019-20</td><td>Nil</td><td>0.86</td></tr>
<tr><td>9.</td><td>2020-21</td><td>Nil</td><td>5.30</td></tr>
<tr><td>10.</td><td>2021-22</td><td>0.942</td><td>7.887</td></tr>
<tr><td>11.</td><td>2022-23</td><td>1.25</td><td>8.11</td></tr>
<tr><td></td><td>Total</td><td>7.682</td><td>49.007</td></tr>
</table></td></tr>
<tr><td>Ii</td><td>Further deepening of the mine in the dip side beyond 170 m shall be finalized in advance i.e. 3-5 years before the project reaches 170 m and for which a fresh (and prior) environmental clearance for further expansion in terms of additional land as well as reserves shall be taken from this Ministry.</td><td>Existing mine depth – 125 m
After deepening proposal is finalized beyond 170m fresh EC will be obtained.</td></tr>
<tr><td>Iii</td><td>The embankment being constructed along the boundary of the mine along the River Wardha shall be of</td><td>Embankment of length 5.1 km is with top width 30m, bottom width 60 m and variable 6- 10 m height above HFL constructed along the boundary of the mine along Wardha River.</td></tr>
</table>

<table>
<tr>
<td></td>
<td>suitable dimensions taking into account the highest flood level based on past data so as to guard against mine inundation and stabilized with plantation using native species so as to with stand the peak water flow and prevent mine inundation. The slope of the embankment shall at least 2:1 towards the ML. The height of the embankment shall be at least 3 m higher than the HFL of ht river. Stone pitching shall be done in the river front and in critical stretches to stenotherm the embankment during peak rainfall.</td>
<td>Plantation is done along Embankment for stability and grass pitching also developed long back for slope stability during rainy season.
91050 Nos. of plantation is done at OB dump and embankment.</td>
</tr>
<tr>
<td>Iv</td>
<td>OB shall be stacked at earmarked 4 external OB deposits covering an area of 223.97 ha and shall not exceed the max. height of 60 m consisting of benches of 15 m each. The ultimate slope of the dump shall not exceed 28. Bamboo and other native species shall be planted on OB dumps for slope stability. Monitoring and management of the reclaimed dumpsites shall continue until the vegetation becomes self-sustaining, compliance status shall be submitted to the ministry of Environment & Forests and its Regional office located at Bhopal on yearly basis.</td>
<td>OB is stacked at earmarked place as per PR, & the height of OB dump is maintained 60m only.

OB details as on 31/03/2023
<table>
<tr><th>Sr. No.</th><th>Dump Name</th><th>Type of Soil (Black Cotton/ Hard Soil)</th><th>External/ Internal</th><th>Area (in Ha)</th><th>Height of Dump (in m)</th><th>Volume (in Mm3)</th></tr>
<tr><td>1</td><td>Dump No- 1</td><td>Hard</td><td>Internal</td><td>94</td><td>90</td><td>56.167</td></tr>
<tr><td>2</td><td>Dump No- 4</td><td>Hard</td><td>External</td><td>1.66</td><td>29</td><td>2.95</td></tr>
<tr><td>3</td><td>Dump No- 5</td><td>Hard</td><td>External</td><td>118</td><td>77</td><td>38.3</td></tr>
<tr><td>4</td><td>Dip- 1</td><td>BC Soil</td><td>External</td><td>9</td><td>15</td><td>1.35</td></tr>
<tr><td>5</td><td>Dip- 1</td><td>Hard</td><td>External</td><td>9</td><td>15</td><td>3.2</td></tr>
</table>
The ultimate slope of the dump is maintained not more than 28 degree.
Plantation of native species is also done on OB dump for slope stability. Till now 91050.00 Nos. of mixed native species of plants have been planted on embankment and OB dumps.</td>
</tr>
<tr>
<td>V</td>
<td>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</td>
<td>Catch drains of length 3 km width 1.5 m and depth 1.5 m have been provided around periphery of OB dumps to arrest silt & sediment flow from OB dumps etc, which is maintained properly.</td>
</tr>
</table>

	be utilized for watering the mine area, roads, green belt development etc. the drains shall be regularly desilted 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 setting of silt material. Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and situation shall be based on the rainfall data.	The mine water is using for watering the mine area, roads for dust suppression, and green belt development etc. Garland drain of length 5 km width 1.5 m and depth 1.5m is provided at mine boundary. Mine water sump of adequate capacity with retention period have been provided to with stand peak sudden rainfall & max discharge in the area adjoining the mine site.
vi	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.	The CHP is completely covered with GI sheet and provided with water sprinkling arrangement. Fugitive dust suppression at mines is done by mobile water tanker (1 No. 28 KL departmental tanker, 2 Nos. 16 KL contractual tanker and 1 Nos. 12 KL hired tanker)
vii	Drills shall be wet operated.	Drills are provided with wet drilling arrangement.
viii	Main approach roads used for mineral transportation shall view black topped and properly maintained. A3 tier green belt comprising of mix of native species shall be developed all along the major approach roads and major haul roads and roads near mines office, infrastructure and other buildings.	All the coal transportation & other infrastructure roads are concreted or black topped. Plantation has been done along coal transportation & approach roads. Till date 158400 nos of plantation done in 63.36 Ha.
ix	The capacity of an estimated 190 trucks used for transportation of an	Coal transportation is being done as per RTO permission of coal transportation trucks.

	estimated 3788 TPD of cost shall be minimum 20-T capacity and shall be mechanically covered. A 3-tier plantation shall develop under CSR for the stretch of 8 Km of the road from mine to Ghugus Railway Siding. A 3- tier plantation shall also be developed in and around the Railway Siding.	Coal transportation trucks are covered with Tarpaulin. Avenue plantation has already been done along coal transportation roads & approach roads.
X	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 done during day time with the use of delay detonators.
Xi	A progressive afforestation plan shall be implemented covering an area not less than 308.8 ha, which includes 190 ha in external OB dumps, 72.20 ha in backfilled area, 21.608 ha vacant/undisturbed area, 6ha along infrastructure and roads, 0.50 ha in township area for colony and 18.5 ha on embankment by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.	A progressive plantation of 158400 nos. covering of area 63.36 Ha has been done till date.
xii	Of the total quarry area of 225.80 ha an area of 83.12 ha is being backfilled of which 72.20 ha shall be reclaimed with plantation and void of 142.68 ha which is proposed to be converted into a water body shall be gently sloped and the upper benches shall be terraced and stabilized with plantation/ afforestation in case the expansion project along the dip side does not materialize the plantation shall consist of native plant	The Naigaon OCM is in operation stage, as the mine progresses, backfilling and further plantation work will be executed. And void of 142.68 Ha will be left for water body with gentle slope and benching. 7.02 Ha physical reclamation and 4.09 Ha biological reclamation has been done as on 31/03/2023.

	species and shall be developed in consultation with the local DFO/Agriculture Department/Suitable institution. The density of the trees shall be around 2500 plants per ha.	
xiii	No ground water shall be used for mining operations.	No ground water is being used for mining operation.
xiv	Monitoring of ground water regime and river flow conjunctively shall be undertaken on a regular and long term basis through a network of piezometers/wells taking into account depth and site characteristics. 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 & Forests and to the Central pollution control board quarterly as part of the compliance Report.	Regular monitoring of ground water level from existing wells M/s. Anacon Laboratories Pvt. Ltd. Nagpur for four times a year i.e. during pre-monsoon (May), monsoon (August), post-monsoon (November), and winter (January) seasons. Quality of groundwater is monitored as per IS: 10500: 2012. The monitoring report is regularly sent to Regional Officer, CGWB Nagpur with a copy to MoEF&CC & CPCB. Copy of Ground water level monitoring report for the period December 2022 - August 2023 and Ground water quality analysis report for the year 2023 has been forwarded via. Email to rdcr_cgwb@nic.in on dtd. 23/11/2023 from waniarea.environdept@gmail.com.
xv	The Company shall put up artificial ground water recharge measures for augmentation of ground water resource in case monitoring indicates a decline in water table the project authorities shall meet water requirement of nearby village(G) in case the village wells go dry due to watering of mine.	Artificial ground water recharge measures have been developed nearby villages by deepening of pond etc. Water requirement in nearby villages is also met through providing Boreholes, Hand pumps under CSR activities of the company.
Xvi	Sewage treatment plant shall be installed in the existing colony.ETP shall also be provided for workshop and CHP waste water.	There is no colony under Naigaon OC mine. The employees of Naigaon reside at Sunder nagar colony of Niljai OC mine which has 0.5 MLD STP. ETP at workshop is provided of 100 KLD capacity.

Xvii	Besides carrying out regular periodic health checkup of their workers, 10% of the workers identified from workforce engaged in active mining operation shall be subjected to health check up for occupational diseases and hearing impairment, if any through an health institution/ agency located in the region/district within period of one year and the results reported to this ministry and to DGMS.	Besides regular periodic health check up of the company workers 10% of the workers are checking for occupational diseases & hearing impairment if any, through health institution/agency within the region and report sent to concerned authority.
Xviii	For monitoring land use pattern and for post mining land use, a time series of land use maps based on satellite imagery (on scale of 1:5000) of zone and buffer zone form the start of the project until end of mine life shall be prepared one in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.	Restoration/Reclamation Monitoring of all mine of WCL having less than 5 million cum. (Coal+OB) capacity is being done by Satellite and the data is available in the website of WCL. The satellite data for Bellora Naigaon OC mine for year March 2021 is enclosed. The data is submiteed to MoEF&CC
Xix	A Final Mine closure plan along with details of corpus fund should be submitted to the ministry of Environment & Forests of final mine closure	Mine Closure Plan is a part of Project Report/ Mining plan and a final mine closure plan was approved by the WCL Board along with opening of a corpus fund / account having account no. 08973161008487 was opened at the Oriental Bank of Commerce, Jaripataka Branch, Nagpur. The total corpus amounts available in the account as on date Rs. 547964949 as on 31.03.2023 (Including the principal along with the interest).
Xx	The project authorities shall in consultation with local administration and Pantheist of the local villages prepare and implement a plan for socio-economic and welfare measures under CSR to be carried out over the balance life of the mine. A budgetary provision of Rs 5 per tonne of coal shall be earmarked for CSR activities for village Bellora, Naigaon. The budget and expenditure	CIL's CSR policy dtd. 30-12-2015 has been framed as per companies Act 2013, as per notification issued by Ministry of Corporate Affairs, GoI on 27-02-2014 as well as DPE guideline. As per the policy, fund for CSR should be allocated based on 2% of average net profit of the company for three immediate preceding financial years or Rs. 2.00 per tonne of coal production of previous year whichever is higher.

	thereon village wise and activity wise for CSR shall be displayed on WCL website and also included as part of Annual plan.	
Xxi	The company shall have a well laid down Environmental policy approved by the Board of Director. The Environment policy shall prescribe for standard operating process/procedures to bring into focus any infringement/deviation/violation of the environmental norms/conditions. To provide for checks and balances the company should have a well laid out system of reporting on non compliances/violations of environmental norms to the board of Directors of the company and/or shareholders of stakeholders at large.	Coal India Limited (CIL) has formulated a comprehensive Environment Policy only in March 2012, followed by a revised policy in December 2018 approved by CIL Board in its 377th Meeting held on 20th December'2018 for implementation at CIL and its subsidiaries. This Corporate Environment Policy 2018 of CIL was subsequently discussed in the 309th Meeting of the Board of Directors of WCL held on 04.03.2019. After deliberation, WCL Board has adopted the policy in principle for implementation in WCL and the same was communicated vide Ref: WCL/BD/SECTT/BM-309/2019/267 dated 15.03.2019. For monitoring of EC/FC norms & conditions, an online MDMS portal (Mine Data Management System) of MoC, GoI is already existing where in the environmental data namely, air quality, water quality, noise quality data are uploaded and regularly updated. In addition to that, compliance report of each condition of EC is also uploaded in the portal and the same is also updated every six months. This management system has the access of CIL & MoC.
B)	General Conditions	Compliance
i	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and forests.	Mine working is being done as per approved EC and Project report.
ii	No change in the calendar plan including excavation ,quantum of mineral coal and waste shall be made	No change in coal and OB production is done.
iii	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM10, PM2.5, SO2 and NOz monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and	Four monitoring stations has been established in the project based on meteorological data . Two core zones stations i.e. Sub Area Manager office and Workshop ETP. Two buffer zone stations has been established at namely Bellora rehabilitation village and Filter plant (Ghugus). SPM, PM10, PM 2.5 ,Sox, Nox is being monitored regularly at this stations on fortnightly basis. Ambient air Heavy metal monitoring is being done regularly. And reports is been sent to Regional officer, MPCB and MOEF in six monthly compliance.

	ecologically sensitive target in consultation with the State Pollution Control Board .	
iv	Fugitive dust emissions (PM10 and PM2.5) from all the sources shall be controlled regularly monitored and data recorded properly .Water spraying arrangement on haul roads, wagon loading, dump trucks (loading and unloading) points shall be provided and properly maintained .	Fugitive dust emission from OB dumps has been controlled significantly by developing thick green belt / vegetation over OB dumps. Till date 158400 nos of plantation done in 63.36 Ha. Similarly dust emission from other sources is being controlled by regular water spraying through mobile water tankers in addition to all the road has been black topped and cleaning weigh bridge and coal transportation road also helps to arrest fugitive emission of dust . Mine haul roads are being watered through mobile tankers regularly.
V	Data on ambient air quality (PM10, PM2.5, SO2 and NOz)shall be regularly submitted to the Ministry including its Regional Office at Bhopal and to the State Pollution control Board and the central Pollution Control Board once in six months.	Data on ambient air quality SPM, PM10, NOx & SO2) are being submitted regularly along with six monthly compliance report.
vi	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment .Worker engaged in blasting and drilling operations, operation of HEMM etc shall be provided with ear plugs/ muffs.	In order to control excessive noise during operation of HEMM regular maintenance of all HEMM as well as supply of ear plugs and muffs are being provided to the workers engaged in operations. In addition to this regular noise monitoring every fortnight is being done.
vii	Industrial wastewater(workshop and waste water from the mine) Shall be properly collected treated so as to confirm to the Standards prescribed under GSR422(E) dated 19 th May1993 and or as amended from time to time before discharge .Oil and grease trap shall be installed before discharge of workshop effluents .	Mine water after initial sedimentation in the mine sump is pumped out & collected into surface sedimentation pond for further settlement. The dimension of RCC sedimentation tank is 30m x 10.5m x2.5m. ETP of 100 KLD has been provided for workshop waste water & recycled the treated water with Zero discharge

<table>
<tr><td>viii</td><td>Vehicular emissions shall be kept under control and regularly monitored.</td><td>Vehicular emission is kept under control by routine maintenance of vehicles used in operation The tippers carrying coal are optimally loaded and covered fully by tarpaulins.</td></tr>
<tr><td>ix</td><td>Environmental laboratory shall be established with adequate number and type of pollution monitoring and analysis equipments in consultation with the state pollution Control Board.</td><td>Monitoring of Environment quality parameter is being done by CMPDIL, RI – IV, Nagpur. A full-fledged NABL accredited environmental laboratory already exists at CMPDI Nagpur.</td></tr>
<tr><td>x</td><td>Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information examination on safety and health aspects. 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.</td><td>Protective health and Safety wears are provided to workmen exposed to dust namely dust mask , Helmets, safety boots, Goggles , hand gloves etc. as per DGMS specification . The workers are regularly given training on safety and health aspects (Statutory requirement under mines act).
Initial medical examination (IME) is done for the workers. Moreover regular health checkups through periodical medical examination (PME) of all the workmen once in 5 years as per the statue and workers above 55 years of age once in a year is conducted. All the works are being carried out with all the safety measures and awareness is being created among employees for safety and to avoid any accidents.

Details of PME & IME is given below:

<table>
<tr><td>Year</td><td>PME</td><td>Departmental IME</td><td>Contractual IME</td></tr>
<tr><td>2017-18</td><td>233</td><td>1</td><td>342</td></tr>
<tr><td>2018-19</td><td>0</td><td>5</td><td>290</td></tr>
<tr><td>2019-20</td><td>11</td><td>6</td><td>185</td></tr>
<tr><td>2020-21</td><td>4</td><td>23</td><td>323</td></tr>
<tr><td>2021-22</td><td>20</td><td>2</td><td>133</td></tr>
<tr><td>2022-23</td><td>79</td><td>9</td><td>232</td></tr>
</table></td></tr>
<tr><td>xi</td><td>A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive who will report directly to the head of the company.</td><td>At project level, the Environmental management cell headed by Sub Area Manager and is assisted by Project Nodal Officer (Env), at Area level, Area General Manager is head of the cell and is assisted by GM (OP) & Area Nodal Officer (Env), at corporate level at HQ, headed by General Manager (Env) with a multi-disciplinary team of qualified & experienced Engineers.</td></tr>
<tr><td>xii</td><td>The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other</td><td>Environment funds are maintained separately and not been diverted for any other purposes. Expenditure pertaining to tree plantation, consent fees, dust suppression, ETP & STP, eco development work etc.</td></tr>
</table>

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<tr>
<td></td>
<td>purpose. Year wise expenditure shall be reported to this Ministry and its Regional Office at Bhopal</td>
<td>for last eight years i.e. from 2014-15 to 2022-23 is given below:
<table>
<tr><th>Sr. No.</th><th>Year</th><th>Amount (in Rs.)</th></tr>
<tr><td>1</td><td>2014 – 15</td><td>6502765.00</td></tr>
<tr><td>2</td><td>2015 – 16</td><td>8485627.00</td></tr>
<tr><td>3</td><td>2016 – 17</td><td>27890683.00</td></tr>
<tr><td>4</td><td>2017 – 18</td><td>5923582.00</td></tr>
<tr><td>5</td><td>2018 – 19</td><td>1476318.00</td></tr>
<tr><td>6</td><td>2019-20</td><td>4708627.22</td></tr>
<tr><td>7</td><td>2020 -21</td><td>8200369.00</td></tr>
<tr><td>8</td><td>2021 - 22</td><td>10377576.00</td></tr>
<tr><td>9</td><td>2022-23</td><td>13006700.00</td></tr>
</table>
Capital Expenditure 2022-23 Rs. 0.34 Crores has been incurred as capital expenditure in FY-2022-23 against one no truck mounted mist cannon.</td>
</tr>
<tr>
<td>xiii</td>
<td>The Regional office of this ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the regional Officer by furnishing the requisite data/information/ monitoring reports .</td>
<td>All assistance required by furnishing data/ information/ monitoring report etc. is being provided as per requirement of Regional Office of MoEF&CC.</td>
</tr>
<tr>
<td>xiv</td>
<td>A copy of the will be marked to concerned Panchayat/ local NGO, If any from whom any suggestion/representation has been received while processing the proposal .</td>
<td>A copy of the environmental clearance letter has been marked to concerned Sarpanch of the Village panchayat.</td>
</tr>
<tr>
<td>xv</td>
<td>State Pollution control Board shall display a copy of the clearance letter at the Regional office, District Industry centre and collector’s office/ tehsiladas’s office for 30 Days.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>xvi</td>
<td>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</td>
<td>The advertisement has been published in news paper (English – Lokmat Times, Hindi LokmatSamachar& Marathi Lokmat , Nagpur)</td>
</tr>
</table>

	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& Forests at http://encfor.nic.in	
3	The Ministry or any other competent authority may stipulate any further condition for environmental protection.	Noted
4	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provision of the environment (Protection) Act, 1986.	Noted
5	The above conditions will be enforced inter-alia, under the Provisions of the water (Prevention & control of Pollution) Act 1974, The Air (Prevention & Control of Pollution) Act 1981, the environment(Protection) Act,1986 and the public Liability Insurance act, 1991 along with their amendments and rules .	Noted

Yours faithfully

28.11.23

Sub Area Manager
Niljai Sub Area

सत्यमेव जयते

Ministry of Environment & Forests

Paryavaran Bhawan,
C.G.O.Complex, Lodi Road,
New Delhi -110003.

Dated: 6th March 2012

No. J-11015/332/2009-IA.II (M)

To
Chief General Manager (E&F),
M/s Western Coalfields Ltd.,
Coal Estate, Civil Lines,
NAGPUR-440001.

Sub: Bellora Naigaon Deep Opencast Expansion Project (expansion of ML area from 398.66 ha to 626.17 ha at 1.25 MTPA (peak) production capacity) of M/s Western Coalfields Ltd., located in village Bellora, Tehsil Wani, dist. Yavatmal, Maharashtra - Environmental Clearance regarding.

Sir,

This has reference to letter No 43011/45/2009-CPAM dated 12.11.2009 Ministry of coal forwarding your application for Terms of Reference and this Ministry's grant of TOR vide letter dated 10.12.2009 and your application for environmental clearance vide letter no.WCL/ENV/HQ/10-E/257 dated 18.06.2011 on the above mentioned subject. The Ministry of Environment & Forests has considered the application. The proposal is for **Bellora Naigaon Opencast Coalmine Project for expansion in ML area from 398.66 ha to 626.17 ha at 1.25 MTPA rated capacity.** The expansion would be carried out by extension of existing Naigaon OC mine in the dip-side from the present depth of 100 m to 170 m, thereby annexing additional land as well as coal reserves for sustaining the approved EC capacity (1.25 MTPA) for another 21 years. Of the total ML area of 626.17 ha, 40.50 ha is forestland, 536.35 ha is agricultural land and 49.32 ha is wasteland. An area of 4.58 ha of land will be acquired outside the ML area for colony. Environmental clearance was granted to Naigaon OC Expansion Project of 1.25 MTPA capacity in an ML area of 398.66 ha on 02.02.2009 and Forestry clearance for the 40.50 ha of forestland was obtained on 01.09.1993. Of the additional 227.51 ha, 11.80 ha is Govt. land and the balance is agricultural land. No additional forestland is required in the expansion project. There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found within the 15 km buffer zone. The main drainage of the project area is River Wardha flowing at the distance of 400m. The project does not involve modification of the natural drainage. Of the total ML area of 626.17 ha, 225.80 ha is quarry area, 223.97 ha is for ext. OB dump, 26.00 ha is for infrastructure, 104.342 ha is area for blasting zone and for rationalisation of mine boundary, 18.45 ha is for embankment, 21.608 ha is undisturbed area and 6 ha is for township.

Mining would be opencast with shovel-dumper combination. Ultimate working depth is 170m bgl. Grade of coal is E. Of the total 124.73 Mm3 of OB, 58.04 Mm3 of OB has been already generated in the existing project, of which 24.67 Mm3 has been stored in external OB dump, 27.79 Mm3 has been backfilled and 5.94 Mm3 of OB has been used for construction of embankment. Of the OB generation of 124.73 Mm3 in the balance life of the mine, an estimated 85.20Mm3 would be stored in external OB dumps and an estimated 38.88 Mm3 would be backfilled as internal dump and 0.65 Mm3 of OB would be used in

construction of embankment. Maximum height of the external OB dump is 30m. It is proposed to raise the height of backfilled area to 30m above ground level to match with the existing OB dump profile so that no additional land is required for external OB dumping. Further, the height of the backfilled area is proposed to be further raised by another 30m to match with the height of adjacent external OB dump of 60m to be created during the life so as to accommodate excavated OB during future deepening. At the post-mining stage, the total area under external OB dump would be 223.97 ha, backfilled area would be 83.12 ha and a void of 142.68 ha of a depth of 170m depth would be created. Since deeper coal deposits are found in the mine, further deepening of mine is planned to be taken up in future beyond 170m upto 250-300m. This deepening beyond 170m would be finalised in advance i.e. 3-5 years before the project reaches 170m and for which a fresh EC for additional land as well as reserves would be taken. Of the total water requirement of 335 m^3/day, 215 m^3/day is for mining operation and 120 m^3/d is for domestic consumption. Water table is in the range of 7.20-10m bgl during pre-monsoon and 2.50-4.70m bgl during post-monsoon. R&R involves land oustees. Coal transportation of an estimated 3788 TPD of coal would be by using 190 trucks per day covering a distance of 8 km to Ghughus Railway Siding. Main linkage is TPS of MAHAGENCO. Balance life of the mine is 21 years. A budgetary provision of Rs 5 per tonne of coal has been earmarked for CSR activities and Rs 90 lakhs/annum has been provided. The total budget for CSR would be Rs. 356.96 lakhs for the entire Wani area. Project was approved by Ministry of Coal on 02.05.2009. Public Hearing was held on 22.12.2010. Capital cost of the expansion project is Rs 114.4076 crores.

2. The Ministry of Environment & Forests hereby accords environmental clearance for the above mentioned **Bellora Naigaon Opencast Coalmine Project for expansion in ML area from 398.66 ha to 626.17 ha at 1.25 MTPA rated capacity** under the provisions of the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto and Circulars issued thereon subject to the compliance of the terms and conditions mentioned below:

A. Specific Conditions

(i) The peak production capacity of the project shall not exceed 1.25 MTPA without prior EC from this Ministry.

(ii) Further deepening of the mine in the dip side beyond 170m shall be finalised in advance i.e. 3-5 years before the project reaches 170m and for which a fresh (and prior) environmental clearance for further expansion in terms of additional land as well as reserves shall be taken from this Ministry.

(iii) The embankment being constructed along the boundary of the mine along the River Wardha, shall be of suitable dimensions taking into account the highest flood level, based on past data, so as to guard against mine inundation and stabilised with plantation using native species so as to withstand the peak water flow and prevent mine inundation. The slope of the embankment shall at least 2:1 towards the ML. The height of the embankment shall be at least 3m higher than the HFL of the river. Stone pitching shall be done in the river front and in critical stretches to stenotherm the embankment during peak rainfall.

(iv) OB shall be stacked at earmarked 4 external OB dumpsites covering an area of 223.97 ha and shall not exceed the max. height of 60 m consisting of benches of 15m each. The ultimate slope of the dump shall not exceed 28°. Bamboo and other native species shall be planted on OB dumps for slope stability. Monitoring and management of the reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional office located at Bhopal on yearly basis.

(v) 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 utilised for watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted 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. 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.

(vi) 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.

(vii) Drills shall be wet operated.

(viii) Main approach roads used for mineral transportation shall be black topped and properly maintained. A 3-tier green belt comprising of a mix of native species shall be developed all along the major approach roads and major haul roads and roads near Mines Office, infrastructure and other buildings.

(ix) The capacity of an estimated 190 trucks used for transportation of an estimated 3788 TPD of coal shall be minimum 20-T capacity and shall be mechanically covered. A 3-tier plantation shall be developed under CSR for the stretch of 8km of the road from mine to Ghughus Railway Siding. A 3-tier plantation shall also be developed in and around the Railway Siding.

(x) 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.

(xi) A progressive afforestation plan shall be implemented covering an area not less than 308.8ha, which includes 190ha in external OB dumps, 72.20 ha in backfilled area, 21.608 ha in vacant/undisturbed area, 6ha along infrastructure and roads, 0.50 ha in township area for colony and 18.5 ha on embankment by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.

(xii) Of the total quarry area of 225.80 ha, an area of 83.12 ha is being backfilled, of which 72.20 ha shall be reclaimed with plantation and void of 142.68 ha, which is proposed to be converted into a water body shall be gently sloped and the upper benches shall be terraced and stabilised with plantation/afforestation, in case the expansion project along the dip side does not materialise. The plantation shall consist of native plant species and shall be developed in consultation with the local DFO/Agriculture Department/suitable institution. The density of the trees shall be around 2500 plants per ha.

(xiii) No groundwater shall be used for mining operations.

(xiv) Monitoring of ground water regime and river flow conjunctively shall be undertaken on a regular and long term basis through a network of peizometers/wells taking into account depth and site characteristics. 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 & Forests and to the Central Pollution Control Board quarterly as part of the compliance Report.

(xv) 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.

(xvi) Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.

(xvii) 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 health institution/agency located in the region/distrcit within a period of one year and the results reported to this Ministry and to DGMS.

(xviii) For monitoring land use pattern and for post mining land use, a time series of landuse maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.

(xix) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests within six months from date of environmental clearance for approval.

(xx) The project authorities shall in consultation with the local administration and Panchayats of the local villages prepare and implement a Plan for socio-economic and welfare measures under CSR to be carried out over the balance life of the mine. A budgetary provision of Rs 5 per tonne of coal) shall be earmarked for CSR activities for village Bellora, Naigaon. The budget and expenditure thereon village-wise and activity-wise for CSR shall be displayed on WCL website and also included as part of the Annual Plan.

(xxi) The company shall have a well laid down Environmental Policy approved by the Board of Director. The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringement/deviation/violation of the enviroental norms/conditions. To provide for checks and balances the company should have a well laid out system of reporting on non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

B. General Conditions

(i) No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.

(ii) No change in the calendar plan including excavation, quantum of mineral coal and waste shall be made.

(iii) Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM_{10}, $PM_{2.5}$, SO2 and NO_x 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.

(iv) Fugitive dust emissions (PM_{10} and $PM_{2.5}$) from all the sources shall be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul roads, wagon loading, dump trucks (loading and unloading) points shall be provided and properly maintained.

(v) Data on ambient air quality (PM_{10}, $PM_{2.5}$, SO2 and NO_x) shall be regularly submitted to the Ministry including its Regional Office at Bhopal and to the State Pollution Control Board and the Central Pollution Control Board once in six months.

(vi) 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.

(vii) 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 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.

(viii) Vehicular emissions shall be kept under control and regularly monitored.

(ix) Environmental laboratory shall be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.

(x) 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.

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.

(xi) A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.

(xii) 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 Regional Office at Bhopal.

(xiii) The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.

(xiv) A copy of the will be marked to concerned Panchayat/ local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.

(xv) State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industry Centre and Collectors Office/Tehsildar's Office for 30 days.

(xvi) 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 & Forests at http://envfor.nic.in.

3. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.

5. The above conditions will be enforced *inter-alia*, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules.

(Dr.T.Chandini)
Director

Copy to:

1. Secretary, Ministry of Coal, New Delhi.
2. Secretary, Department of Environment, Government of Maharashtra, 15th Floor, New Admn. Bldg., Madam Cama Road, MUMBAI-400032.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, E-2/240 Arera Colony, Bhopal -462016.
4. Chairman, Maharashtra State Pollution Control Board, Kalapataru Point, 3rd & 4th Floors, Sion, Matunga Scheme Road No. 8, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai - 400002.
5. Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi -110032.
6. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. Dr.R.K.Garg, Advisor. Coal India Limited, SCOPE Minar, New Delhi
8. District Collector, Yavatmal, Government of Maharashtra.
9. Monitoring File 10. Guard File 11. Record File.

MAHARASHTRA POLLUTION CONTROL BOARD

Tel: 24010706/24010437
Fax: 24023516
Website: http://mpcb.gov.in
Email: cac-cell@mpcb.gov.in

Kalpataru Point, 2nd and 4th floor, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai-400022

RED/L.S.I (R35)
No:- Format1.0/CAC/UAN No.MPCB-CONSENT-0000165765/CR/2307001628

Date: 26/07/2023

To,
M/s. Western Coalfields Limited,
Bellora Naigaon Deep Open Cast Mine Expansion Mine,
At Post. Bellora,Tal-Wani,Dist--Yavatmal-445304

Your Service is Our Duty

Sub: Renewal of consent with increased in CI under RED category.

Ref:
1. Earlier consent granted by Board vide No. Format1.0/CAC/UAN-108288/CR/2205000014 dated 01.05.2022 valid up to 31.03.2023.
2. Minutes of Consent Appraisal Committee Meeting held on 03.07.2023.

Your application No.MPCB-CONSENT-0000165765 Dated 20.03.2023

For: grant of Consent to Operate under Section 26 of the Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization under Rule 6 and Rule 18(7) of the Hazardous & Other Wastes (Management & Transboundary Movement) Rules 2016 is considered and the consent is hereby granted subject to the following terms and conditions and as detailed in the schedule I, II, III & IV annexed to this order:

1. **The consent to renewal is granted for a period up to 31/03/2024**
2. **The capital investment of the project is Rs.122.1656 Crs. (As per Balance Sheet submitted by industry Existing consented CI Rs122.1656 Cr + Increase in C.I. by Rs. 43.5182 Cr=Total CI-Rs. 166.1782 Cr.)**
3. **Consent is valid for the manufacture of:**

Sr No	Product	Maximum Quantity	UOM
Products			
1	Coal Mining (Mine Lease Area-626.17 ha)	1.25	MTPA

4. **Conditions under Water (P&CP), 1974 Act for discharge of effluent:**

Sr No	Description	Permitted (in CMD)	Standards to	Disposal Path
1.	Trade effluent	4515	As per Schedule-I	Recycle for Dust Suppression & Fire Fighting and utilize on land for plantation/irrigation
2.	Domestic effluent	12	As per Schedule-I	On land for gardening

5. **Conditions under Air (P& CP) Act, 1981 for air emissions:**

Sr No.	Stack No.	Description of stack / source	Number of Stack	Standards to be achieved
NA				

6. **Non-Hazardous Wastes:**

Sr No	Type of Waste	Quantity	UoM	Treatment	Disposal
1	Overburden	2783.33	m3/month	Landfill	Backfilling and Reclamation of Land

7. **Conditions under Hazardous & Other Wastes (M & T M) Rules 2016 for Collection, Segregation, Storage, Transportation, Treatment and Disposal of hazardous waste:**

Sr No	Category No./ Type	Quantity	UoM	Treatment	Disposal
1	34.2 Sludge from treatment of waste water arising out of cleaning / disposal of barrels / containers	15	Ton/Y	Landfill	CHWSTDF
2	5.1 Used or spent oil	75	Lit/Day	Recycle	Send to Authorised Reprocessor/Recycler
3	5.2 Wastes or residues containing oil	10	Ton/Y	Incineration	CHWTSDF

8. The Board reserves the right to review, amend, suspend, revoke etc. this consent and the same shall be binding on the industry.
9. This consent should not be construed as exemption from obtaining necessary NOC/permission from any other Government authorities
10. The applicant shall comply with the conditions of the Environmental Clearance granted by MoEF-CC,GoI vide letter No. J – 11015/ 257/2008-IA.II(M) dtd. 02/02/2009 (coal mine expansion project from 0.8 MTPA to 1.25 MTPA) & J-11015/332/2009-IA.II(M) dated 06.03.2012 - For increase in ML area from 398.66 ha to 626.17 ha.
11. PP shall provide dry deshelling / manual picking of stray material arrangement within a month.
12. PP shall convert existing water sprinkling arrangement into chemical fogging arrangement (MgCl2) within three months period.
13. Industry shall submit the details proposal/ action plan regarding the implementation of the work of in pit belt conveyor system with CHP and Silo loading system as per EC conditions.
14. Industry shall provide Tyre wash system at entry and exit of mine within 3 months and submit the BG of Rs.5.0 Lakh towards compliance of same.
15. Mine water shall be utilized fully for plantation/irrigation.
16. Industry shall provide Mechanized sweeping machines for cleaning roads within 3 months and submit the BG of Rs.5.0 Lakh towards compliance of same.

17. Industry shall provide STP for treatment of domestic effluent-20 CMD within 6 months and submit the BG of Rs.10.0 Lakh towards compliance of same.
18. Industry shall develop a 3-tier plantation for the stretch of 8 km of the road from mine to Ghughus railway siding and in and around the railway siding as per EC conditions.
19. PP shall submit the BG as per BG regime of Mine.
20. Industry shall submit the undertaking on stamp paper regarding the compliances of above points within a month.
21. PP shall carry out over burden dump management as per CPCB guidelines.
22. PP shall carry out plantation as per EC condition before ensuing monsoon.
23. The applicant shall make an application for renewal of consent 60 days prior to date of expiry of the consent.

. This consent is issued as per communication letter dated 03/11/2022 which is approved by competent authority of the board.

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Signed by: Dr J. B. Sangewar
Joint Director(WPC) & InCharge Of CAC-Cell
For and on behalf of,
Maharashtra Pollution Control Board
cac-cell@mpcb.gov.in
2023-07-26 11:41:59 IST

Received Consent fee of -

Sr.No	Amount(Rs.)	Transaction/DR.No.	Date	Transaction Type
1	1739713.00	MPCB-DR-17615	27/03/2023	NEFT

Balance amount of Rs. 832357 will be considered at the time of next renewal of consent.

Copy to:

1. Regional Officer, MPCB, Chandrapur and Sub-Regional Officer, MPCB, Chandrapur
- They are directed to ensure the compliance of the consent conditions.
2. Chief Accounts Officer, MPCB,Sion, Mumbai
3. CAC desk-For record and website updation purpose.

SCHEDULE-I

Terms & conditions for compliance of Water Pollution Control:

1. A] ETP having capacity 100 CMD comprises of Collection tank, oil and grease trap, sedimentation tank, clear water tank & SDB provided for treatment of workshop effluent. Sedimentation tank having capacity 787.5 CMD is provided for treatment of Mine water discharge.

   B] The Applicant shall operate the effluent treatment plant (ETP) to treat the trade effluent so as to achieve the following standards prescribed by the Board or under EP Act, 1986 and Rules made there under from time to time, whichever is stringent:

Sr.No	Parameters	Limiting concentration not to exceed in mg/l, except for pH
(1)	pH	5.5 to 8.5
(2)	Oil & Grease	10
(3)	BOD (3 days 27°C)	30
(4)	Total Suspended solids	100
(5)	Total Dissolved solids	2100
(6)	COD	250

   C] The treated effluent shall be recycled for secondary purposes to the maximum extent and remaining shall be discharged on land for gardening within premise. In no case, effluent shall find its way to outside factory premises.

2. A] As per your application, you have provided Septic Tank followed by Soak pit for the treatment of 12 CMD of sewage.

   B] The Applicant shall operate the sewage treatment system to treat the sewage so as to achieve the following standards.

Sr.No	Parameters	Standards (mg/l)	
1	BOD (3 days 27°C)	Not to exceed	30 mg/l
2	COD	Not to exceed	100 mg/l
3	Suspended Solids	Not to exceed	50 mg/l

   C] The treated sewage shall be recycled for secondary purposes to the maximum extent and remaining shall be discharged on land for gardening within premise. In no case, sewage shall find its way to outside factory premises.

3. The Board reserves its rights to review plans, specifications or other data relating to plant setup for the treatment of waterworks for the purification there of & the system for the disposal of sewage or trade effluent or in connection with the grant of any consent conditions. The Applicant shall obtain prior consent of the Board to take steps to establish the unit or establish any treatment and disposal system or an extension or addition thereto.

4. The industry shall ensure replacement of pollution control system or its parts after expiry of its expected life as defined by manufacturer so as to ensure the compliance of standards and safety of the operation thereof.

5. The Applicant shall comply with the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and as amended, by installing water meters and other provisions as contained in the said act:

Sr. No.	Purpose for water consumed	Water consumption quantity (CMD)
1.	Industrial Cooling, spraying in mine pits or boiler feed	365.00
2.	Domestic purpose	15.00
3.	Processing whereby water gets polluted & pollutants are easily biodegradable	15.00
4.	Processing whereby water gets polluted & pollutants are not easily biodegradable and are toxic	0.00
5.	Gardening	50

6. The Applicant shall provide Specific Water Pollution control system as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance/ CREP guidelines.

SCHEDULE-II

Terms & conditions for compliance of Air Pollution Control:

1. As per your application, you have provided the Air pollution control (APC) system and erected following stack (s) to observe the following fuel pattern:

Stack No.	Source	APC System provided/proposed	Stack Height(in mtr)	Type of Fuel	Sulphur Content(in %)	Pollutant	Standard
0	0		0.00	0 0 -- NA--	-	0	-

2. The Applicant shall provide Specific Air Pollution control equipments as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance / CREP guidelines.
3. The Applicant shall obtain necessary prior permission for providing additional control equipment with necessary specifications and operation thereof or alteration or replacement/alteration well before its life come to an end or erection of new pollution control equipment.
4. The Board reserves its rights to vary all or any of the condition in the consent, if due to any technological improvement or otherwise such variation (including the change of any control equipment, other in whole or in part is necessary).
5. Control Equipments
   a. Coal handling plant shall be provided with dust collector & automatic water sprinkler and it shall be operated continuously
   b. Scientific spraying of water on all working area, dump area, stock piles with the help of appropriate dust suppression system.
   c. Coal transportation shall be done by installing conveyors wherever possible & mechanically covered closed trucks shall be used for transportation. Overloading of dumpers shall be avoided to prevent spillages.

d. The applicant shall carry out tree plantation along road side, around dumps or compulsory afforestation as per proposal approved by Forest Department. The tree plantation programme shall be taken up well in advance of the actual mining activity, so that green belt of sufficient width & height is developed between mining area/road and surrounding environment.

e. Black topped metal roads shall be provided and it shall be well maintained to prevent dust formation.

f. Slope of the over burden shall have slope not more than 28° to the horizontal. The overburden shall be covered by vegetation for stabilization.

g. Correct type & quantity of explosive shall be used to avoid excess dust formation & vibration in the surrounding area.

6. Standards for Ambient Air Pollutants:

The Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM), Sulphur dioxide (SO_2) and Oxides of Nitrogen (NO_x) concentration in downwind direction considering predominant wind direction, at a distance of 500 metres from the following dust generating sources shall not exceed the standards specified in the table given below:

Dust Generating Sources:

Loading or unloading, Haul Road, coal transportation road, Coal handling plant (CHP), Railway Sliding, Blasting, Drilling, Overburden dumps, or any other dust generating external sources like coke ovens (hard as well as soft), briquette industry, nearby road etc.

Pollutant	***Time weighted average***	***Concentration in Ambient Air***
Suspended Particulates Matter (SPM)	Annual Average	360 µg/m^3
	24 hours	500 µg/m^3
Respirable Particulate Matter (size less than 10 µm) (RPM)	Annual Average	180 µg/m^3
	24 hours	250 µg/m^3
Sulphur Dioxide (SO_2)	Annual Average	80 µg/m^3
	24 hours	120 µg/m^3
Oxides of Nitrogen as NO_x	Annual Average	80 µg/m^3
	24 hours	120 µg/m^3

i. In case of any residential or commercial or industrial place falls within 500 metres of any dust generating sources, the National Ambient Air Quality Standards notified vide MOEFCC GOI notification dtd 16.11.2009 as ammended shall be made applicable.

ii. The applicant shall provide minimum three ambient air quality monitoring stations within mining area which should be monitored for SPM, RSPM, SO_2, NOx, HC, CO etc. The Annual Arithmetic Mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval shall conform to the National Ambient Air Quality Standards prescribed under Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986. The records of results of monitoring done shall be made available for inspection to the officers of the Board.

7. The applicant shall take adequate measures for control of noise levels from its own sources as follows:

Sr. No	***Location***	***Permissible Norms [in dB (A)]***	***Desired minimum thickness of green belt (m)***
1.	Along Road side	65 (Commercial Area)	20
2.	In colonies	55 (Residential Area)	20
3.	Near Opencast Mines	75 (Industrial Area)	10
4.	Near CHPs	75	30
5.	Near Shaft	75	20
6.	Near Mine exhaust fan	75	> 50

8. Other conditions:

   i Whenever due to any accident or other unforeseen act or even, such emissions occur or is apprehended to occur in excess standards laid down, such information shall be forthwith reported to Board, concerned Police station, office of Directorate of Health services, Dept. of explosives, Inspectorate of Factories & Local Body. In case of failure of pollution control equipments, the production process connected to it shall be stopped.

SCHEDULE-III

Details of Bank Guarantees:

Sr. No.	***Consent (C2E/ C2O /C2R)***	***Amt of BG Imposed***	***Submission Period***	***Purpose of BG***	***Compliance Period***	***Validity Date***
1	C2R	Rs. 2.0 Lakh	15 days	Regular monitoring of ground water level and quality should be carried out by establishing the network of existing wells and constructing new piezometers during mining operations	6 Monthly	31.03.2025
2	C2R	Rs.5.0 Lakh	15 days	Catch drain and siltation ponds of appropriate size should be constructed to arrest silt and sediment flow from soil, OB and mineral dumps. Water so collected should be utilized for watering of the mining area, roads green belt developments etc.	Regular Activity	31.03.2025
3	C2R	Rs.25.0 Lakh	15 days	Coal transportation shall be done by mechanically closed trucks. Overloading of shall be avoided to prevent spilleges. 10% of total fleet available to be replaced every six month	6 Months	31.03.2025
4	C2R	Rs.5.0 Lakh	15 days	Coal Handling Plant (CHP) & loading / unloading area will be provided with Dust COllector and Automatic Water Sprinkler.	2 Months	31.03.2025
5	C2R	Rs.5.0 Lakh	15 days	Convert existing water sprinkling arrangement into chemical fogging arrangement (M_gCl2)	2 Months	31.03.2025

Sr. No.	Consent (C2E/ C2O /C2R)	Amt of BG Imposed	Submission Period	Purpose of BG	Compliance Period	Validity Date
6	C2R	Rs.10.0 Lakh	15 days	To provide tar road in remaining area and to be well maintain to prevent dust formation.	6 Months	31.03.2025
7	C2R	Rs.5.0 Lakh	15 days	Deploying mechanized sweepers which are automated suction sweeper for cleaning the coal dust from road.	2 Months	31.03.2025
8	C2R	Rs.5.0 Lakh	15 days	Adoption and installation of tyre wash system to mining transportation at entry and exit point of mining area.	3 Months	31.03.2025
9	C2R	Rs.5.0 Lakh	15 days	Use of toppers/binders/surfactants on the top surface of coal pile on trucks carrying coal on road to minimize spillage during transportation	3 Months	31.03.2025
10	C2R	Rs.10.0 Lakh	15 days	Industry shall provide STP for treatment of domestic effluent-20 CMD within 6 months	6 Months	31.03.2025
11	C2R	Rs.5.0 Lakh	15 days	Over burden (OB) should be stacked at earmarked dumpsites only and should not be kept active for long period. Proper terracing of OB should be carried out so that the overall slope will come down to 28°. Over Burden shall be disposed by way of backfilling.	Continuous	31.03.2025
12	C2R	Rs.25.0 Lakh	15 days	Operation and Maintenance of pollution control system & compliance of Consent & Environment Clearance.conditions	Continuous	31.03.2025

****Existing BG obtained for above purpose if any, may be extended for period of validity as above.**

BG Forfeiture History

Srno.	Consent (C2E/C2O/C2R)	Amount of BG imposed	Submission Period	Purpose of BG	Amount of BG Forfeiture	Reason of BG Forfeiture
NA						

BG Return details

Srno.	Consent (C2E/C2O/C2R)	BG imposed	Purpose of BG	Amount of BG Returned
NA				

SCHEDULE-IV

General Conditions:

1. The applicant shall provide facility for collection of environmental samples and samples of trade and sewage effluents, air emissions and hazardous waste to the Board staff at the terminal or designated points and shall pay to the Board for the services rendered in this behalf.
2. If the MIDC pipeline is broken/ overflowing chamber, in such cases industry shall not discharge their treated effluent into MIDC drain, it shall be sent to CETP by tanker.
3. Industry should monitor effluent quality, stack emissions and ambient air quality monthly/quarterly.
4. The applicant shall provide ports in the chimney/(s) and facilities such as ladder, platform etc. for monitoring the air emissions and the same shall be open for inspection to/and for use of the Board's Staff. The chimney(s) vents attached to various sources of emission shall be designated by numbers such as S-1, S-2, etc. and these shall be painted/ displayed to facilitate identification.
5. Whenever due to any accident or other unforeseen act or even, such emissions occur or is apprehended to occur in excess of standards laid down, such information shall be forthwith Reported to Board, concerned Police Station, office of Directorate of Health Services, Department of Explosives, Inspectorate of Factories and Local Body. In case of failure of pollution control equipment, the production process connected to it shall be stopped.
6. The applicant shall provide an alternate electric power source sufficient to operate all pollution control facilities installed to maintain compliance with the terms and conditions of the consent. In the absence, the applicant shall stop, reduce or otherwise, control production to abide by terms and conditions of this consent.
7. The firm shall submit to this office, the 30th day of September every year, the Environmental Statement Report for the financial year ending 31st March in the prescribed Form-V as per the provisions of rule 14 of the Environment (Protection) (Second Amendment) Rules, 1992.
8. The industry shall recycle/reprocess/reuse/recover Hazardous Waste as per the provision contain in the H&OW(M&TM) Rules 2016, which can be recycled/processed/ reused/ recovered and only waste which has to be incinerated shall go to incineration and waste which can be used for land filling and cannot be recycled/ reprocessed etc. should go for that purpose, in order to reduce load on incineration and landfill site/environment.
9. The industry should comply with the Hazardous & Other Wastes (M & TM) Rules, 2016 and submit the Annual Returns as per Rule 6(5) & 20(2) of Hazardous & Other Wastes (M & TM) Rules, 2016 for the preceding year April to March in Form-IV by 30th June of every year.
10. An inspection book shall be opened and made available to the Board's officers during their visit to the applicant.
11. The applicant shall make an application for renewal of the consent at least 60 days before the date of the expiry of the consent.
12. Industry shall strictly comply with the Water (P&CP) Act, 1974, Air (P&CP) Act,1981 and Environmental Protection Act,1986 and industry specific standard under EP Rules 1986 which are available on MPCB website(www.mpcb.gov.in).
13. The industry shall constitute an Environmental cell with qualified staff/personnel/agency to see the day to day compliance of consent condition towards Environment Protection.

14. Separate drainage system shall be provided for collection of trade and sewage effluents. Terminal manholes shall be provided at the end of the collection system with arrangement for measuring the flow. No effluent shall be admitted in the pipes/sewers downstream of the terminal manholes. No effluent shall find its way other than in designed and provided collection system.
15. Neither storm water nor discharge from other premises shall be allowed to mix with the effluents from the factory.
16. The applicant shall install a separate meter showing the consumption of energy for operation of domestic and industrial effluent treatment plants and air pollution control system. A register showing consumption of chemicals used for treatment shall be maintained.
17. Conditions for D.G. Set
    a) Noise from the D.G. Set should be controlled by providing an acoustic enclosure or by treating the room acoustically.
    b) Industry should provide acoustic enclosure for control of noise. The acoustic enclosure/ acoustic treatment of the room should be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on higher side. A suitable exhaust muffler with insertion loss of 25 dB (A) shall also be provided. The measurement of insertion loss will be done at different points at 0.5 meters from acoustic enclosure/room and then average.
    c) Industry should make efforts to bring down noise level due to DG set, outside industrial premises, within ambient noise requirements by proper sitting and control measures.
    d) Installation of DG Set must be strictly in compliance with recommendations of DG Set manufacturer.
    e) A proper routine and preventive maintenance procedure for DG set should be set and followed in consultation with the DG manufacturer which would help to prevent noise levels of DG set from deteriorating with use.
    f) D.G. Set shall be operated only in case of power failure.
    g) The applicant should not cause any nuisance in the surrounding area due to operation of D.G. Set.
    h) The applicant shall comply with the notification of MoEFCC, India on Environment (Protection) second Amendment Rules vide GSR 371(E) dated 17.05.2002 and its amendments regarding noise limit for generator sets run with diesel.
18. The industry should not cause any nuisance in surrounding area.
19. The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standard in respect of noise to less than 75 dB (A) during day time and 70 dB (A) during night time. Day time is reckoned in between 6 a.m. and 10 p.m. and night time is reckoned between 10 p.m. and 6 a.m.
20. The applicant shall maintain good housekeeping.
21. The applicant shall bring minimum 33% of the available open land under green coverage/ plantation. The applicant shall submit a yearly statement by 30th September every year on available open plot area, number of trees surviving as on 31st March of the year and number of trees planted by September end
22. The non-hazardous solid waste arising in the factory premises, sweepings, etc. be disposed of scientifically so as not to cause any nuisance / pollution. The applicant shall take necessary permissions from civic authorities for disposal of solid waste.
23. The applicant shall not change or alter the quantity, quality, the rate of discharge, temperature or the mode of the effluent/emissions or hazardous wastes or control equipment provided for without previous written permission of the Board. The industry will not carry out any activity, for which this consent has not been granted/without prior consent of the Board.

24. The industry shall ensure that fugitive emissions from the activity are controlled so as to maintain clean and safe environment in and around the factory premises
25. The industry shall submit official e-mail address and any change will be duly informed to the MPCB.
26. The industry shall achieve the National Ambient Air Quality standards prescribed vide Government of India, Notification dtd. 18.11.2009 as amended.

This certificate is digitally & electronically signed.

Land Restoration / Reclamation Monitoring of less than 5 million Cu. M. (Coal+OB) Capacity Opencast Coal Mines of Western Coalfields Limited based on Satellite Data for the Year 2020

Submitted to

WESTERN COALFIELDS LIMITED

cmpdi

A Miniratna Company

Land Restoration / Reclamation Monitoring of less than 5 million Cu. M. (Coal+OB) Capacity Opencast Coal Mines of Western Coalfields Limited based on Satellite Data for the Year 2020

March-2021

Remote Sensing Cell
Geomatics Division
CMPDI, Ranchi

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Executive Summary

1.0 Project

Land restoration / reclamation monitoring of 15 opencast coal mines of Western Coalfields Ltd. (WCL) producing less than 5 million cu.m. (Coal+OB) per year based on satellite data, regularly basis at an interval of three years.

2.0 Objective

Objective of the land restoration / reclamation monitoring is to assess the area of backfilled, plantation, social forestry, active mining area, water bodies, and distribution of wasteland, agricultural land and forest in the leasehold area of the project. This will help in assessing the progressive status of mined land reclamation and to take up remedial measures, if any, required for environmental protection.

3.0 Salient Findings

- Total 15 nos of OC projects has been cosidered for monitoring the status of land reclamation in the year 2020-21 as compared to 14 nos of OC projects in the year 2017-18 . Adasa UG to OC project is included for land reclamatioon in the year 2020-21on request of WCL.

- Out of 15 OC projects, leasehold boundary of Kolgaon , Ballarpur Junad Extn ,Bhatadi , Gondegaon and Kolarpimpri OC projects have been updated as per latest EC boundary. While Bellora – Naigaon and Gauri deep OC projects has been updated as per keyplan/shapfile sent by area.

- Out of the total mine leasehold area of 7759.95 Hectare of the 15 projects Viz.Kolegaon, Bellora-Naigaon, Ghonsa, Ballarpur, JunadExtn, Urdhan, Telwasa, GauriExpn(A),Bhatadi, Gondegaon ,Kolarpimpri, Chhinda ,Gauri deep and Juna kunada and Adasa UG to OC considered for monitoring during year2020-21; total excavated area is only 1466.24 Ha (18.89%) out of which 68.11Ha area (4.65%) has been planted on backfill (Biologically Reclaimed) and 485.02 Ha area (33.08%) is under backfilling (Technically Reclaimed) and 913.11 hectares(62.27%) area is under active mining.. It is evident from the analysis that 553.13 hectares (37.72%) area of the 15 OC projects taken for study for the year 2020-21 is under reclamation and balance 913.11 Ha (62.27%) area is under active mining. Project wise details are given in Table-1 & bar chart Fig-1.

- On comparing the status of land reclamation carried out for 15 nos of OC projects in year 2020-21 with respect to previous cycle study done for the 14nos of OC projects in WCL, It is evident from analysis that area under land reclamation has increased from 397.66 Hectares (Yr 2017-18) to 553.13 Hectares which includes both planation on backfill (Biological Reclamation) and area under backfilling (Technical Reclamation) .This increase of 155.47 Hectares area of land reclamation in period of three year is the result of the efforts made by WCL towards land reclamation. Year wise comparison in land reclamation in different OC projects is given in Table-1.

- Overall , total area under plantation (green cover) carried out on backfill, and barren OB dump and plantation under social forestry has gone up from 993.35 Hectares in the year 2017-18 to 1230.65 Hectares in the year 2020-21.

Table-1
Projectwise Land Reclamation Status in Opencast Projects of WCL
(<5 Million cu. M coal+OB) based on Satellite Data of the year 2020-21)

(Area in Ha)

Sl.No	Project	Total Leasehold Area		Technical Reclamation		Plantation						Area under Active Mining		Total Excavated Area		Total Area under Plantation (% Green Cover Generated in Leasehold)		Total Area under Reclamation	
						Biological Reclamation		Other Plantations											
				Area under Backfilling		Plantation on Excavated / Backfilled Area		Plantation on External Over Burden Dumps		Social Forestry, Avanue Plantation Etc.									
1	*2*	*3*		*4*		*5*		*6*		*7*		*8*		*9 (=4+5+8)*		*10 (=5+6+7)*		*11(=4+5)*	
		2017	*2020*	*2017*	*2020*	*2017*	*2020*	*2017*	*2020*	*2017*	*2020*	*2017*	*2020*	*2017*	*2020*	*2017*	*2020*	*2017*	*2020*
1	Kolegaon	349.00	397.52	0.00	0.00	0.00	0.00	37.41	72.83	22.23	25.63	39.26	48.03	39.26	48.03	59.64	98.46	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			17.09%	24.77%	0.00%	0.00%
2	Bellora-Naigaon	398.66	664.80	8.81	53.02	9.81	12.75	21.87	35.62	28.94	28.94	122.24	91.53	140.86	157.30	60.62	77.31	18.62	65.77
				6.25%	33.71%	6.96%	8.11%					86.78%	58.19%			15.21%	11.63%	13.22%	41.81%
3	Ghonsa	278.68	278.68	0.00	7.28	0.00	0.00	2.10	2.55	4.65	4.65	46.87	60.29	46.87	67.57	6.75	7.20	0.00	7.28
				0.00%	10.77%	0.00%	0.00%					100.00%	89.23%			2.42%	2.58%	0.00%	10.77%
4	Ballarpur	549.64	242.64	67.87	80.79	12.99	15.00	67.73	69.49	14.03	9.74	30.12	17.47	110.98	113.26	94.75	94.23	80.86	95.79
				61.16%	71.33%	11.70%	13.24%					27.14%	15.42%			17.24%	38.84%	72.86%	84.58%
5	Junad EXTN	420.97	449.63	34.51	34.51	2.45	2.46	36.14	65.57	26.86	28.81	56.54	61.54	93.50	98.51	65.45	96.84	36.96	36.97
				36.91%	35.03%	2.62%	2.50%					60.47%	62.47%			15.55%	21.54%	39.53%	37.53%
6	Urdhan	315.00	315.00	0.00	2.36	0.00	0.00	3.34	5.79	0.00	6.87	21.46	19.45	21.46	21.81	3.34	12.66	0.00	2.36
				0.00%	10.82%	0.00%	0.00%					100.00%	89.18%			1.06%	4.02%	0.00%	10.82%
7	Telwasa	271.91	271.91	44.61	101.67	4.68	4.68	34.20	50.71	23.62	23.62	69.64	12.58	118.93	118.93	62.50	79.01	49.29	106.35
				37.51%	85.49%	3.94%	3.94%					58.56%	10.58%			22.99%	29.06%	41.44%	89.42%
8	Gouri Expn(A)	676.53	676.53	106.57	106.53	28.56	29.20	118.61	150.98	96.11	96.21	86.60	95.57	221.73	231.30	243.28	276.39	135.13	135.73
				48.06%	46.06%	12.88%	12.62%					39.06%	41.32%			35.96%	40.85%	60.94%	58.68%
9	Bhatadi	838.14	847.37	21.27	21.94	0.00	0.00	13.28	30.86	45.63	46.12	56.52	71.92	77.79	93.86	58.91	76.98	21.27	21.94
				27.34%	23.38%	0.00%	0.00%					72.66%	76.62%			7.03%	9.08%	27.34%	23.38%
10	Gondegaon	917.00	791.40	32.88	42.29	0.00	0.00	52.00	73.47	84.03	62.15	101.71	157.19	134.59	199.48	136.03	135.62	32.88	42.29
				24.43%	21.20%	0.00%	0.00%					75.57%	78.80%			14.83%	17.14%	24.43%	21.20%
11	Kolarpimpri	1484.97	1488.42	7.54	10.71	1.86	4.02	83.36	115.55	7.74	8.21	137.70	140.37	147.10	155.10	92.96	127.78	9.40	14.73
				5.13%	6.91%	1.26%	2.59%					93.61%	90.50%			6.26%	8.58%	6.39%	9.50%
12	Chhinda	106.68	106.68	0.00	0.00	0.00	0.00	20.44	20.44	2.80	2.87	22.78	23.29	22.78	23.29	23.24	23.31	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			21.78%	21.85%	0.00%	0.00%
13	Gouri deep	356.11	339.10	0.00	0.00	0.00	0.00	0.00	0.00	6.19	8.00	44.29	51.04	44.29	51.04	6.19	8.00	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			1.74%	2.36%	0.00%	0.00%
14	Juna-Kunada	325.87	325.87	13.25	23.92	0.00	0.00	35.98	66.18	43.71	42.20	41.90	62.84	55.15	86.76	79.69	108.38	13.25	23.92
				24.03%	27.57%	0.00%	0.00%					75.97%	72.43%			24.45%	33.26%	24.03%	27.57%
15	*Adasa UG to OC	———	564.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.48	0.00	0.00	0.00	0.00	0.00	8.48	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					0.00%	0.00%			0.00%	1.50%	0.00%	0.00%
	TOTAL	**7289.16**	**7759.95**	**337.31**	**485.02**	**60.35**	**68.11**	**526.46**	**760.04**	**406.54**	**402.50**	**877.63**	**913.11**	**1275.29**	**1466.24**	**993.35**	**1230.65**	**397.66**	**553.13**
				26.45%	**33.08%**	**4.73%**	**4.65%**					**68.82%**	**62.27%**	**17.50%**	**18.89%**	13.63%	**15.86%**	**31.18%**	**37.72%**

(% is calculated with respected to Excavated Area as applicable)

*** Land Reclamation of Adasa UG to OC has been included for Land reclamation monitoring in the year 2020-21 on request of WCL.**

Leasehold boundary of Kolegaon ,Ballarpur ,Junad Extn ,Bhatadi ,Gondegaon and,Kolarpimpri OC mine have been modified as per latest EC Boundary.

Leasehold boundary of Project like bellora-Naigaon and Gauri Deep OC ia as per keyplan provided by area .

Note : In reference of the above Table-1, different parameters are classified as follows

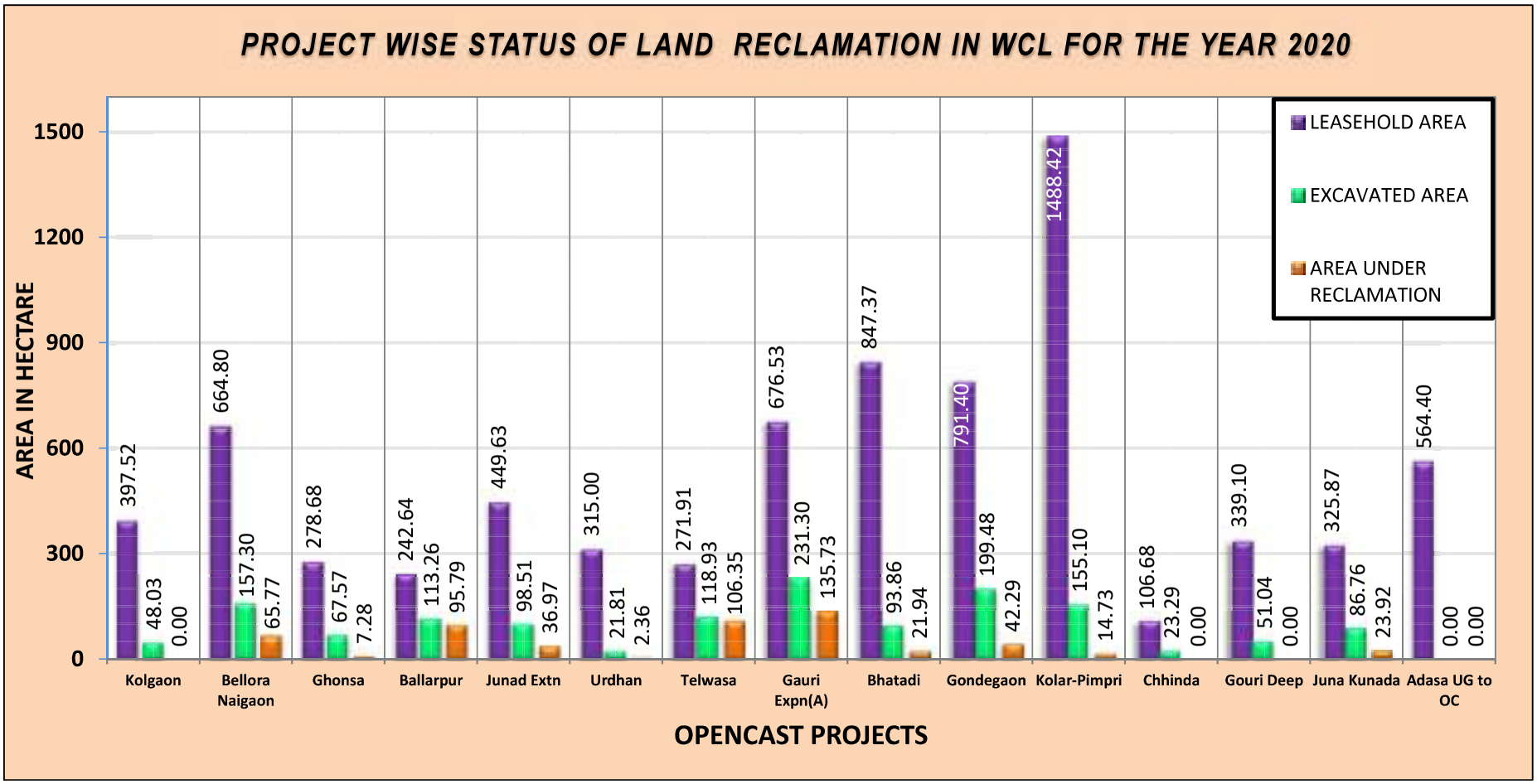
1 Area under Biological Reclamation includes area under plantation done on backfilled area only.

2 Area under Technical Reclamation includes areas under barren backfill only.

3 Area under Active Mining includes coal quarry, advance quarry & quarry filled with water etc.

4 Social forestry and plantation on external OB dump are not included in biological reclamation and are put under other plantation.

5 % claculated in respect to total excaveted area except for "Total area under plantation" where % has been calculated in terms of leasehold area.



Flg.1: Land Reclamation Status in OC projects producing less than 5mcm (Coal +OB) of WCL in the Year 2020

1.0 Background

1.1 Land is the most important natural resource which embodies soil, water, flora fauna and total ecosystem. All human activities are based on the land which is the most scarce natural resource in our country. Mining is a site specific industry and it could not be shifted anywhere else from the location where mineral occurs. It is a fact that surface mining activities do effect the land environment due to ground breaking. Therefore, there is an urgent need to reclaim and restore the mined out land for its productive use for sustainable development of mining. This will not only mitigate environmental degradation, but would also help in creating a more congenial environment for land acquisition by coal companies in future.

1.2 Keeping above in view, Coal India Ltd. (CIL) issued a work order vide letter no. CIL/WBP/Env/2009/2478 dated 29.12.2009 to Central Mine Planning & Design Institute (CMPDI), Ranchi, for monitoring land reclamation status of all the opencast coal mines having production of less than 5 million m^3 per annum (coal + OB taken together per annum) based on remote sensing satellite data regularly on annual basis and less than 5 million m^3 per annum (coal + OB taken together per annum) at interval of three years based on remote sensing satellite data, for sustainable development of mining. Further a revised work order was issued vide letter no.CIL /WBP/Env/2011/4706 dated 12.10.2012 from Coal India Ltd for the period 2012-13 to 2016-2017.which was subsequently followed by another work order vide letter no: CIL /WBP/Env/2017/DP/8477 dated 21.09.2017from coal India ltd for period 2017—18 to 2021-22. The result of land reclamation status of all such mines to be put on the website of CIL, (www.coalindia.in), CMPDI (www.cmpdi.co.in) and the concerned coal companies in public domain. Detail report to be submitted to Coal India and respective subsidiaries.

1.3 Land reclamation monitoring of all opencast coal mining projects would also comply the statutory requirements of Ministry of Environment & Forest (MoEF).Such

monitoring would not only facilitate in taking timely mitigation measures against environmental degradation, but would also enable coal companies to utilize the reclaimed land for larger socio-economic benefits in a planned way.

1.4 Present report is embodying the finding of the study based on satellite data of the year 2017 and 2020 carried out for all the OC projects producing less than 5 mcm (Coal+OB) for Western Coalfields Ltd.

2.0 Objective

Objective of the land reclamation/restoration monitoring is to assess the area of backfilled, plantation, OB dumps, social forestry, active mining area, settlements and water bodies, distribution of wasteland, agricultural land and forest land in the leasehold area of the project. This is an important step taken up for assessing the progressive status of mined land reclamation and for taking up remedial measures, if any, required for environmental protection.

3.0 Methodology

There are number of steps involved between raw satellite data procurement and preparation of final map. National Remote Sensing Centre (NRSC) Hyderabad, being the nodal agency for satellite data supply in India, provides only raw digital satellite data, which needs further digital image processing for extracting the information and map preparation before uploading the same in the website. Methodology for land reclamation monitoring is given in given in figure-2. Following steps are involved in land reclamation /restoration monitoring:

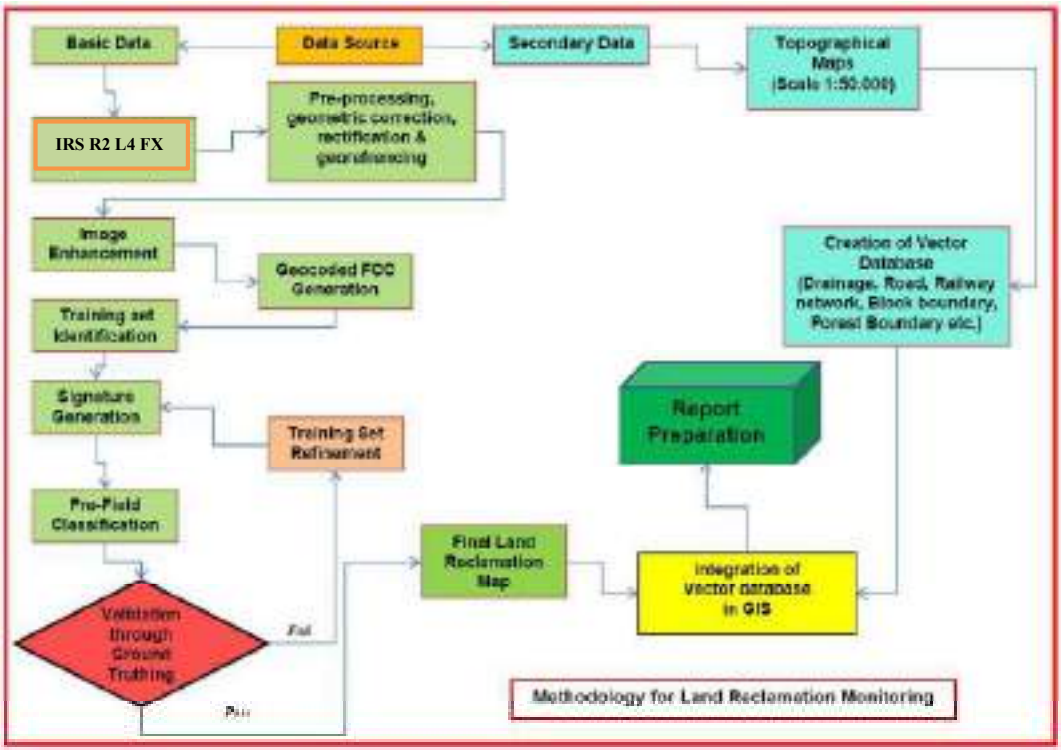


Figure :2 Methodology for Land Reclamation Monitoring

3.1 Data Procurement: After browsing the data quality and date of pass on internet, supply order for data is placed to NRSC. Secondary data like leasehold boundary, topo sheets are procured for creation of vector database.

3.2 Satellite Data Processing: Satellite data are processed using ERDAS IMAGINE version 2017digital image processing s/w. Methodology involves the following major steps:

- **Rectification & Geo-referencing:** Inaccuracies in digital imagery may occur due to 'systematic errors' attributed to earth curvature and rotation as well as 'non-systematic errors' attributed to satellite receiving station itself. Raw digital images contain geometric distortions, which make them unusable as maps. Therefore, geo-referencing is required for correction of image data using ground control points (GCP) to make it compatible to SoI toposheet.

- **Image enhancement:**

  To improve the interpretability of the raw data, image enhancement is necessary. local operations modify the value of each pixel based on brightness value of neighbouring pixels using ERDAS IMAGINE 2014 s/w. and enhance the image quality for interpretation.

- **Training set selection**

  Training set requires to be selected, so that software can classify the image data accurately. The image data are analysed based on the interpretation keys. These keys are evolved from certain fundamental image-elements such as tone/colour, size, shape, texture, pattern, location, association and shadow. Based on the image-elements and other geo-technical elements like land form, drainage pattern and physiography; training sets were selected/identified for each land use/cover class. Field survey was carried out by taking selective traverses in order to collect the ground information (or reference data) so that training sets are selected accurately in the image. This was intended to serve as an aid for classification.

- **Classification and Accuracy assessment**

  Image classification is carried out using the maximum likelihood algorithm. The classification proceeds through the following steps: (a) calculation of statistics [i.e. signature generation] for the identified training areas, and (b) the decision boundary of maximum probability based on the mean vector, variance, covariance and correlation matrix of the pixels. After evaluating the statistical parameters of the training sets, reliability test of training sets is conducted by measuring the statistical separation between the classes that resulted from computing divergence matrix. The overall accuracy of the classification was finally assessed with reference to ground truth data.

- **Area calculation**

  The area of each land use class in the leasehold is determined using ERDAS IMAGINE v. 2014 software.

- **Overlay of Vector data base**

  Vector data base created based on secondary data. Vector layer like drainage, railway line, leasehold boundary, forest boundary etc. are superimposed on the image as vector layer in the Arc GIS database.

- **Pre-field map preparation**

  Pre-field map is prepared for validation of the classification result

3.3 Ground Truthing:

Selective ground verification of the land use classes are carried out in the field and necessary corrections if required, are incorporated before map finalization.

3.4 Land reclamation database on GIS:

Land reclamation database is created on GIS platform to identify the temporal changes identified from satellite data of different cut-of dates.

4.0 Land Reclamation Status in Western Coalfields Ltd.

4.1 Following 15 opencast projects producing less than 5 million cubic m. (Coal + OB together) of Western Coalfields Ltd. have been taken up for land reclamation monitoring during the year 2020-21:

- Kolgaon
- Bellora-Naigaon
- Ghonsa
- Ballarpur
- Junad Extension
- Urdhan
- Telwasa
- Gauri Expn(A)
- Bhatadi
- Gondegaon
- Kolarpimpri
- Chhinda
- Gouri Deep
- Juna Kunda
- Adasa UG to OC

4.2 Area statistics of different land use class present in the mine leasehold of the above projects for the year 2020 are shown in the Table - 2. Land use maps derived from satellite data of year 2020 are shown in Plate 1 – 15. Changes in the different land use classes based on satellite data are depicted in Bar Charts in Fig. 3- 17.

4.3 Study reveals that out of total mine leasehold area of 7759.95 Hectare of the 15 projects Viz, Kolgaon,Bellora-Naigaon, Ghonsa ,Ballarpur ,Junad Extn , Telwasa ,Gauri Expn(A) ,Bhatadi, Gondegaon, Kolarpimpri ,Chhinda Gauri deep, Juna – Kunda and Adasa UG to OC considered for monitoring during year 2020-21; total excavated area is 1466.24 Ha (18.89%) ,out of which 68.11 Ha(4.65%) area has

been planted on backfill (Biologically Reclaimed) and 485.02 Ha(33.08%) area is under backfilling (Technically Reclaimed) .and balance 913.11 Ha (62.27%) area is under active mining. It is evident from analysis that 553.13 Ha (37.72%) area of above projects is under reclamation (Bilogically and Technically). Projects wise details area given in Table 1.

4.4 From analysis it is revealed that total vegetated area (Biological Reclamation) within leasehold of above projects has increased to 68.11 Ha (4.65%) in the year 2020-21 as compared to 60.35 Ha (4.73%) in the year 2017and area under technical reclamation (area under backfilling) has also increased from 337.31 Ha(26.45%) in the year 2017 to 485.02 Ha (33.08%) area in the year 2020. This increase of 147.71 Ha area in technical reclamation during span of three year is due to major increase in area under backfilling from 44.61 Ha (Yr2017) to 101.67 Ha (2020) in Telwasa OC

4.5 It is observed that overall marginal decrease of 0.08% in Biological reclamation in the year 2020 as compared to year 2017 is due to overall increase in excavated area from 1275.29 Ha (Yr.2017) to 1466.24Ha(Yr.2020) as such calculation for percentage of Biological reclamation has been carried out with respect to total excavated area.

4.6 Study indicates that overall the projects of WCL considered for this study indicate increase or static trend in biological reclamation (Plantation on backfill) as well as area under backfilling (Technical reclamation).

4.7 It is observed that backfilling process in Kolgaon OC project as well as Gauri deep OC could not be started till date due to its high gradient. At present Chhinda and Urdhan OC project are not in operation. Hence minor change in area of active mining is observed as indicated in Table-1.

4.8 After analyzing the satellite data of year 2017 vs. 2020 it is evident that total area under plantation (Green cover) carried out on backfilled area, OB dumps as well as under social forestry in above OC mines of WCL has increased from 993.35 Hectare (Yr.2017) to 1230.65 Hectare (Yr.2020) in the span of three year. This increase of 237.30 Hectare area under total plantation in three year time is due to the sincere efforts made by WCL towards generation of green cover in leasehold area of 15 opencast projects considered for land reclamation in the year 2020-21.

4.9 Total leasehold area of 15 OC project has increased from 7289.16 Ha(Yr.2017) to 7759.95 Ha (Yr.2020) mainly due to addition of Adasa UG to OC mine which has been considered for land reclamation in the year 2020. Technical and Biological reclamtion in this mine has not started till date as conversion of Adasa underground mine into opencast mine is under process. The data generated with respect to land reclamation monitoring of above mine will be used for comparision during cycle of three year.

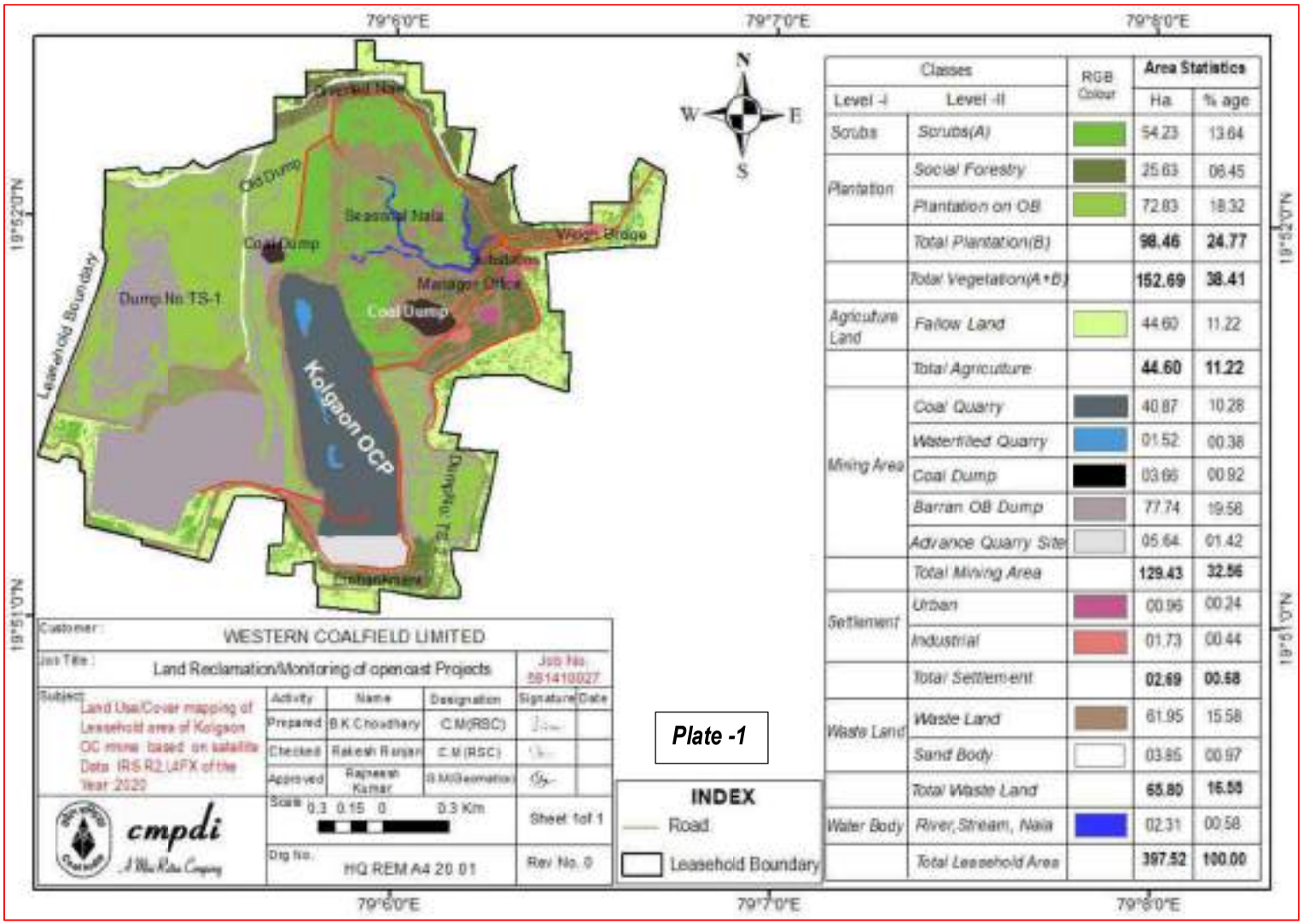
4.10 Decrease in leasehold area of Ballarpur OCP from 549.64Ha (Yr.2017) to 242.64 Ha (Yr.2020) has resulted in decrease of area under Social Forestry from 14.03 Ha(Yr.2017) to 9.74 Ha (Yr.2020) in Ballarpur OCP whereas area under Social Forestry has decreased from 84.03 Ha (Yr.2017) to 62.15 Ha (Yr.2020) in Gondegaon OCP .This decrease of 21.88 Hectare area under social forestry is due to increase in active mining area and decrease in area as well as change in shape of leasehold hold boundary.

4.11 Out of 15 projects of WCL , maximum land reclamation has been carried out in Telwasa OCP (89.42%) followed by Ballarpur OCP (84.58%) ,Gauri Expn(A) (58.68%) and Bellora –Naigaon OCP (41.81%).

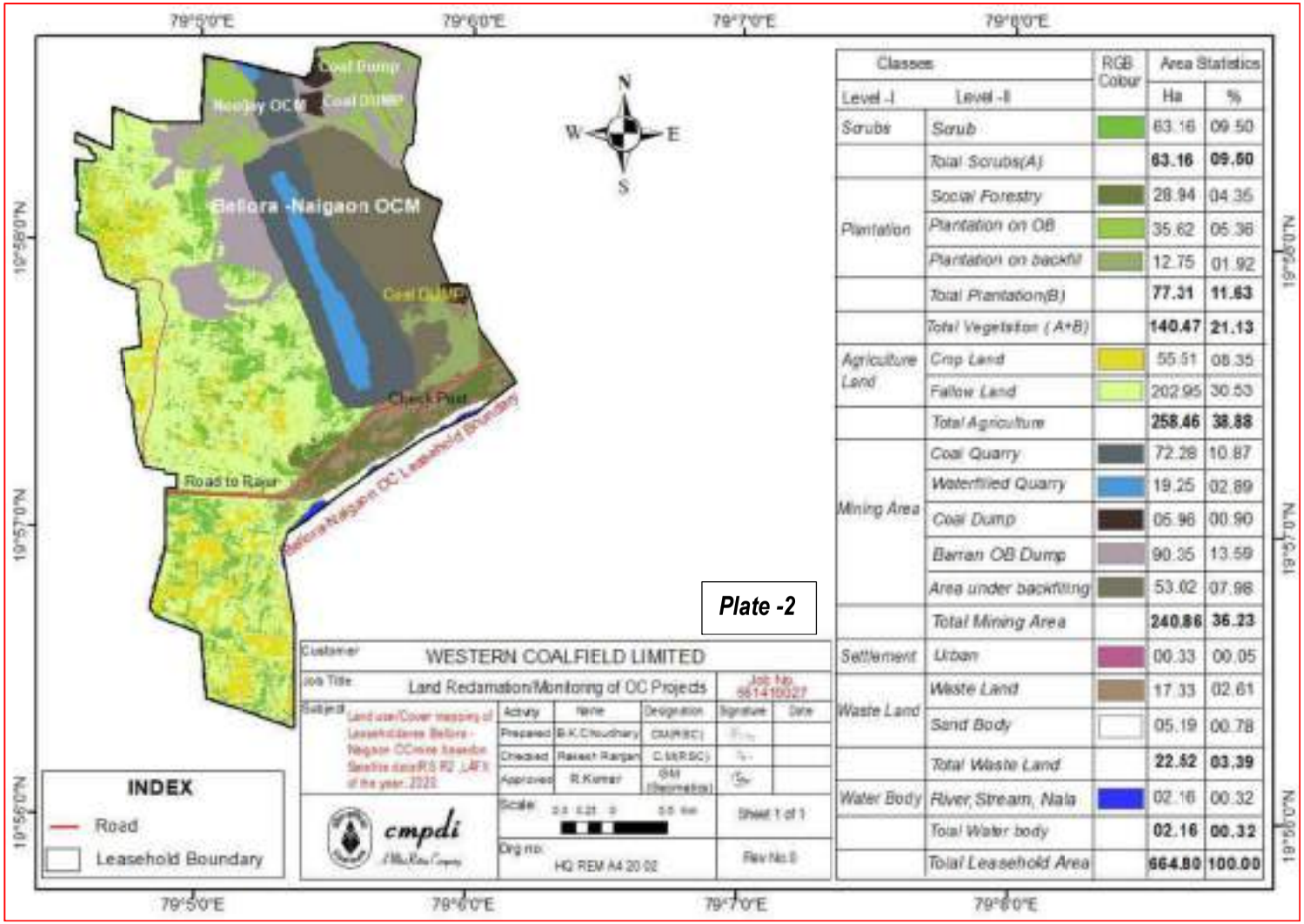
TABLE 2: STATUS OF LAND USE/RECLAMATION IN OC MINES (<5MCU.M) OF WESTERNCOALFIELD LTD BASED ON SATELLITE DATA OF THE YEAR 2020

Area in Ha

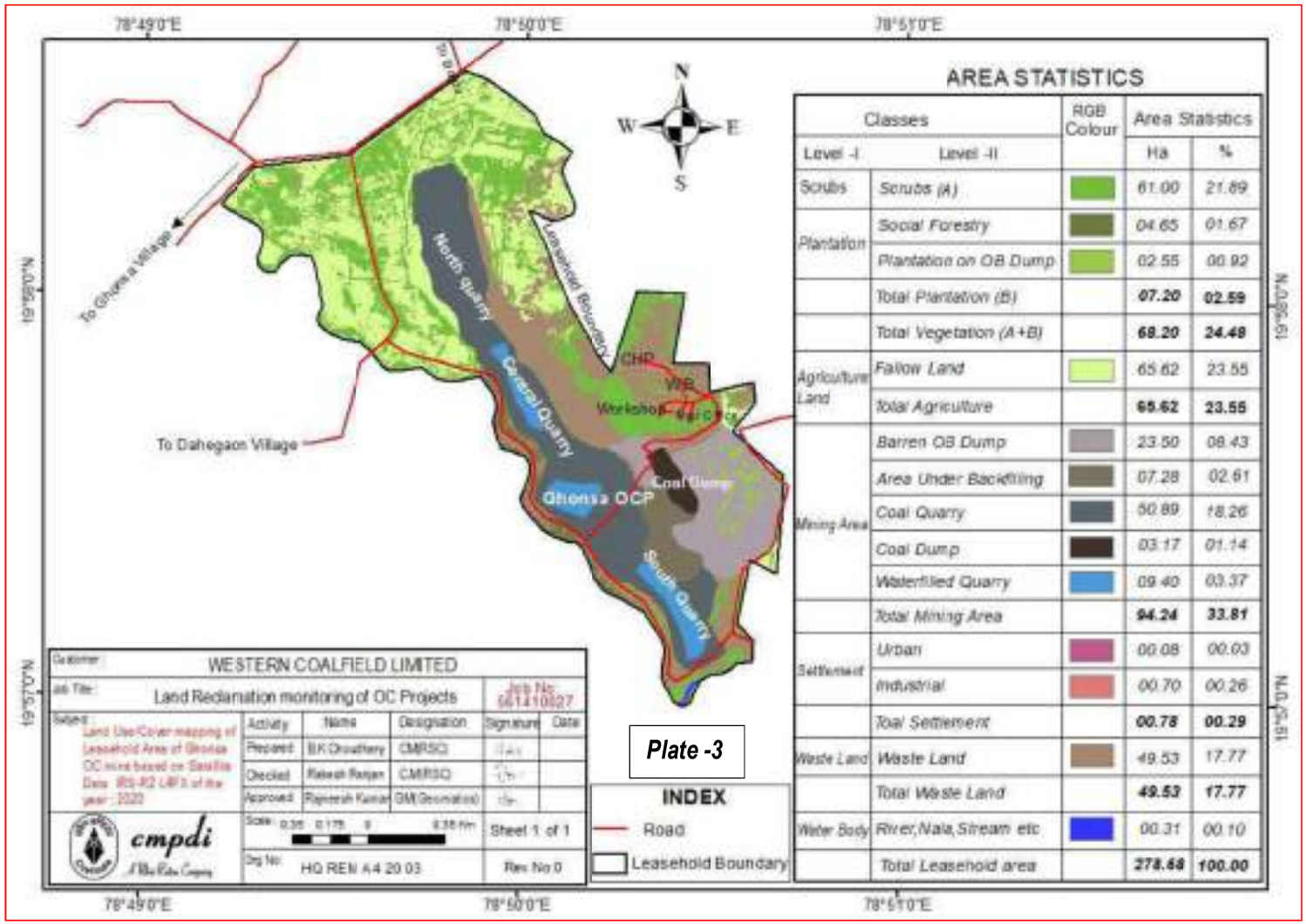
		Kolgaon		Bellora -Naigaon		Ghonsa		Ballarpur		Junad Extn		Urdhan		Telwasa		Gouri Expn(A)		Bhatadi		Gondegaon		Kolar-Pimpri		Chhinda		Gouri Deep		Juna Kunada		Adasa UG to OC		Total	
		Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
FORESTS	Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Open Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Forest	**0.00**	**0.00**	**0.00**	**0.00**	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
SCRUBS	Scrubs	**54.23**	**13.64**	**63.16**	**9.50**	**61.00**	**21.89**	**2.47**	**1.02**	**27.48**	**6.11**	**29.02**	**9.21**	**2.32**	**0.85**	**18.64**	**2.76**	**87.40**	**10.31**	**46.43**	**5.87**	**242.03**	**16.26**	**9.98**	**9.36**	**39.90**	**11.77**	**11.25**	**3.45**	**129.60**	**22.96**	**824.91**	**10.63**
	Total Scrubs	**54.23**	**13.64**	**63.16**	**9.50**	**61.00**	**21.89**	**2.47**	**1.02**	**27.48**	**6.11**	**29.02**	**9.21**	**2.32**	**0.85**	**18.64**	**2.76**	**87.40**	**10.31**	**46.43**	**5.87**	**242.03**	**16.26**	**9.98**	**9.36**	**39.90**	**11.77**	**11.25**	**3.45**	**129.60**	**22.96**	**824.91**	**10.63**
PLANTATION	Social Forestry	25.63	6.45	28.94	4.35	4.65	1.67	9.74	4.01	28.81	6.41	6.87	2.18	23.62	8.69	96.21	14.22	46.12	5.44	62.15	7.85	8.21	0.55	2.87	2.69	8.00	2.36	42.20	12.95	8.48	1.50	402.50	5.19
	Total Social Forest	**25.63**	**6.45**	**28.94**	**4.35**	**4.65**	**1.67**	**9.74**	**4.01**	**28.81**	**6.41**	**6.87**	**2.18**	**23.62**	**8.69**	**96.21**	**14.22**	**46.12**	**5.44**	**62.15**	**7.85**	**8.21**	**0.55**	**2.87**	**2.69**	**8.00**	**2.36**	**42.20**	**12.95**	**8.48**	**1.50**	402.50	5.19
	Plantation on OB Dump	72.83	18.32	35.62	5.36	2.55	0.92	69.49	28.64	65.57	14.58	5.79	1.84	50.71	18.65	150.98	22.32	30.86	3.64	73.47	9.28	115.55	7.76	20.44	19.16	0.00	0.00	66.18	20.31	0.00	0.00	760.04	9.79
	Total Plantation on OB Dump	**72.83**	**18.32**	**35.62**	**5.36**	**2.55**	**0.92**	**69.49**	**28.64**	**65.57**	**14.58**	**5.79**	**1.84**	**50.71**	**18.65**	**150.98**	**22.32**	**30.86**	**3.64**	**73.47**	**9.28**	**115.55**	**7.76**	**20.44**	**19.16**	**0.00**	**0.00**	**66.18**	**20.31**	**0.00**	**0.00**	**760.04**	**9.79**
	Plantation on Backfill	0.00	0.00	12.75	**1.92**	**0.00**	**0.00**	15.00	6.18	2.46	0.55	0.00	0.00	4.68	1.72	29.20	4.32	0.00	0.00	0.00	0.00	4.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.11	0.88
	Total Plantation on backfill *(Biological Reclamation)*	**0.00**	**0.00**	**12.75**	**1.92**	**0.00**	**0.00**	**15.00**	**6.18**	**2.46**	**0.55**	**0.00**	**0.00**	**4.68**	**1.72**	**29.20**	**4.32**	**0.00**	**0.00**	**0.00**	**0.00**	**4.02**	**0.27**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**68.11**	**0.88**
	Total Green Cover generated	**98.46**	**24.77**	**77.31**	**11.63**	**7.20**	**2.59**	**94.23**	**38.83**	**96.84**	**21.54**	**12.66**	**4.02**	**79.01**	**29.06**	**276.39**	**40.86**	**76.98**	**9.08**	**135.62**	**17.13**	**127.78**	**8.58**	**23.31**	**21.85**	**8.00**	**2.36**	**108.38**	**33.26**	**8.48**	**1.50**	**1230.65**	**15.86**
	Total Vegetation	**152.69**	**38.41**	**140.47**	**21.13**	**68.20**	**24.48**	**96.70**	**39.85**	**124.32**	**27.65**	**41.68**	**13.23**	**81.33**	**29.91**	**295.03**	**43.62**	**164.38**	**19.39**	**182.05**	**23.00**	**369.81**	**24.84**	**33.29**	**31.21**	**47.90**	**14.13**	**119.63**	**36.71**	**138.08**	**24.46**	**2055.56**	**26.49**
ACTIVE MINING	Coal Quarry	40.87	10.28	72.28	10.87	50.89	18.26	16.73	6.89	60.22	13.39	12.12	3.85	1.84	0.68	75.01	11.09	71.40	8.43	150.76	19.05	100.35	6.74	16.28	15.26	43.62	12.86	51.12	15.69	0.00	0.00	763.49	9.84
	Advance Quarry Site	5.64	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.02	1.78	0.00	0.00	0.00	0.00	11.66	0.15
	Quarry Filled With Water	1.52	0.38	19.25	2.89	9.40	3.37	0.74	0.30	1.32	0.29	7.33	2.33	10.74	3.95	20.56	3.04	0.52	0.06	6.43	0.81	40.02	2.69	7.01	6.57	1.40	0.41	11.72	3.60	0.00	0.00	137.96	1.78
	Coal Dump	3.66	0.92	5.96	0.90	3.17	1.14	5.40	2.23	2.26	0.50	5.10	1.62	2.57	0.95	1.33	0.20	6.87	0.81	5.14	0.65	3.68	0.25	0.31	0.29	3.90	1.15	2.70	0.83	0.00	0.00	52.05	0.67
	Total Area under *Active Mining*	**51.69**	**13.00**	**97.49**	**14.66**	**63.46**	**22.77**	**22.87**	**9.42**	**63.80**	**14.18**	**24.55**	**7.80**	**15.15**	**5.58**	**96.90**	**14.33**	**78.79**	**9.30**	**162.33**	**20.51**	**144.05**	**9.68**	**23.60**	**22.12**	**54.94**	**16.20**	**65.54**	**20.12**	**0.00**	**0.00**	**965.16**	**12.44**
	Barren OB Dump	77.74	19.56	90.35	13.59	23.50	8.43	22.24	9.17	124.27	27.64	64.91	20.61	51.09	18.79	98.71	14.59	159.34	18.80	179.07	22.63	263.42	17.70	22.50	21.09	96.76	28.53	77.51	23.79	0.00	0.00	1351.41	17.42
	Barren Backfilled Area	0.00	0.00	53.02	7.98	7.28	2.61	80.79	33.30	34.51	7.68	2.36	0.75	101.67	37.39	106.53	15.75	21.94	2.59	42.29	5.34	10.71	0.72	0.00	0.00	0.00	0.00	23.92	7.34	0.00	0.00	485.02	6.25
	Total Area under backfill(*Technical Reclamation*)	**0.00**	**0.00**	**53.02**	**7.98**	**7.28**	**2.61**	**80.79**	**33.30**	**34.51**	**7.68**	**2.36**	**0.75**	**101.67**	**37.39**	**106.53**	**15.75**	**21.94**	**2.59**	**42.29**	**5.34**	**10.71**	**0.72**	**0.00**	**0.00**	**0.00**	**0.00**	**23.92**	**7.34**	**0.00**	**0.00**	**485.02**	**6.25**
	Total Area Under Mine Operation	**129.43**	**32.56**	**240.86**	**36.23**	**94.24**	**33.81**	**125.90**	**51.89**	**222.58**	**49.50**	**91.82**	**29.16**	**167.91**	**61.76**	**302.14**	**44.67**	**260.07**	**30.69**	**383.69**	**48.48**	**418.18**	**28.10**	**46.10**	**43.21**	**151.70**	**44.73**	**166.97**	**51.25**	**0.00**	**0.00**	**2801.59**	**36.11**
WASTELANDS	Waste Lands	61.95	15.58	17.33	2.61	49.53	17.77	9.89	4.08	31.52	7.01	47.96	15.23	9.00	3.31	30.44	4.50	74.75	8.82	49.50	6.25	59.85	4.02	0.75	0.70	10.98	3.24	28.16	8.64	18.45	3.27	500.06	6.44
	Fly Ash Pond / Sand Body	3.85	0.97	5.19	0.78	0.00	0.00	2.81	1.15	3.53	0.79	0.00	0.00	1.55	0.57	12.54	1.85	5.09	0.60	1.39	0.18	3.07	0.21	0.24	0.22	0.24	0.07	1.24	0.38	3.76	0.67	44.50	0.57
	Total Wasteland	**65.80**	**16.55**	**22.52**	**3.39**	**49.53**	**17.77**	**12.70**	**5.23**	**35.05**	**7.80**	**47.96**	**15.23**	**10.55**	**3.88**	**42.98**	**6.35**	**79.84**	**9.42**	**50.89**	**6.43**	**62.92**	**4.23**	**0.99**	**0.92**	**11.22**	**3.31**	**29.40**	**9.02**	**22.21**	**3.94**	**544.56**	**7.01**
WATERBODIES	Reservoir, nallah, ponds	2.31	0.58	2.16	0.32	0.31	0.10	2.41	1.00	7.55	1.69	0.00	0.00	6.97	2.55	5.01	0.73	15.21	1.80	0.00	0.00	2.26	0.14	0.19	0.18	2.91	0.86	8.50	2.61	7.80	1.38	63.59	0.82
	Total Waterbodies	**2.31**	**0.58**	**2.16**	**0.32**	**0.31**	**0.10**	**2.41**	**1.00**	**7.55**	**1.69**	**0.00**	**0.00**	**6.97**	**2.55**	**5.01**	**0.73**	**15.21**	**1.80**	**0.00**	**0.00**	**2.26**	**0.14**	**0.19**	**0.18**	**2.91**	**0.86**	**8.50**	**2.61**	**7.80**	**1.38**	**63.59**	**0.82**
AGRICULTURE	Crop Lands	0.00	0.00	55.51	8.35	0.00	0.00	0.00	0.00	0.00	0.00	28.47	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.47	4.20	11.54	10.82	8.41	2.48	0.00	0.00	99.68	17.67	266.08	3.43
	Fallow Lands	44.60	11.22	202.95	30.53	65.62	23.55	2.96	1.22	57.73	12.84	101.93	32.36	3.61	1.33	28.81	4.26	321.09	37.89	168.87	21.34	557.02	37.42	13.54	12.70	115.77	34.14	0.00	0.00	289.45	51.28	1973.95	25.44
	Total Agriculture	**44.60**	**11.22**	**258.46**	**38.88**	**65.62**	**23.55**	**2.96**	**1.22**	**57.73**	**12.84**	**130.40**	**41.40**	**3.61**	**1.33**	**28.81**	**4.26**	**321.09**	**37.89**	**168.87**	**21.34**	**619.49**	**41.62**	**25.08**	**23.52**	**124.18**	**36.62**	**0.00**	**0.00**	**389.13**	**68.95**	**2240.03**	**28.87**
SETTLEMENTS	Urban Settlement	0.96	0.24	0.33	0.05	0.08	0.03	1.02	0.42	0.77	0.17	0.92	0.28	0.76	0.28	0.62	0.09	1.56	0.19	4.32	0.55	0.27	0.03	1.03	0.96	0.53	0.16	1.23	0.37	3.86	0.68	18.26	0.23
	Rural Settlement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.13	1.67	0.53	0.00	0.00	0.00	0.00	3.71	0.44	0.00	0.00	6.01	0.40	0.00	0.00	0.00	0.00	0.00	0.00	2.81	0.50	14.78	0.19
	Industrial Settlement	1.73	0.44	0.00	0.00	0.70	0.26	0.95	0.39	1.05	0.22	0.55	0.17	0.78	0.29	1.94	0.28	1.51	0.18	1.58	0.20	9.48	0.64	0.00	0.00	0.66	0.19	0.14	0.04	0.51	0.09	21.58	0.28
	Total Settlement	**2.69**	**0.68**	**0.33**	**0.05**	**0.78**	**0.29**	**1.97**	**0.81**	**2.40**	**0.52**	**3.14**	**0.98**	**1.54**	**0.57**	**2.56**	**0.37**	**6.78**	**0.81**	**5.90**	**0.75**	**15.76**	**1.07**	**1.03**	**0.96**	**1.19**	**0.35**	**1.37**	**0.41**	**7.18**	**1.27**	**54.62**	**0.70**
	Grand Total	**397.52**	**100.00**	**664.80**	**100.00**	**278.68**	**100.00**	**242.64**	**100.00**	**449.63**	**100.00**	**315.00**	**100.00**	**271.91**	**100.00**	**676.53**	**100.00**	**847.37**	**100.00**	**791.40**	**100.00**	**1488.42**	**100.00**	**106.68**	**100.00**	**339.10**	**100.00**	**325.87**	**100.00**	**564.40**	**100.00**	**7759.95**	**100.00**



Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	% age
Scrubs	Scrubs(A)		54.23	13.64
Plantation	Social Forestry		25.63	06.45
	Plantation on OB		72.83	18.32
	Total Plantation(B)		**98.46**	**24.77**
	Total Vegetation(A+B)		**152.69**	**38.41**
Agriculture Land	Fallow Land		44.60	11.22
	Total Agriculture		**44.60**	**11.22**
Mining Area	Coal Quarry		40.87	10.28
	Waterfilled Quarry		01.52	00.38
	Coal Dump		03.66	00.92
	Barren OB Dump		77.74	19.56
	Advance Quarry Site		05.64	01.42
	Total Mining Area		**129.43**	**32.56**
Settlement	Urban		00.96	00.24
	Industrial		01.73	00.44
	Total Settlement		**02.69**	**00.68**
Waste Land	Waste Land		61.95	15.58
	Sand Body		03.85	00.97
	Total Waste Land		**65.80**	**16.55**
Water Body	River, Stream, Nala		02.31	00.58
	Total Leasehold Area		**397.52**	**100.00**



Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	%
Scrubs	Scrub		63.16	09.50
	Total Scrubs(A)		**63.16**	**09.50**
Plantation	Social Forestry		28.94	04.35
	Plantation on OB		35.62	05.36
	Plantation on backfill		12.75	01.92
	Total Plantation(B)		**77.31**	**11.63**
	Total Vegetation (A+B)		**140.47**	**21.13**
Agriculture Land	Crop Land		55.51	08.35
	Fallow Land		202.95	30.53
	Total Agriculture		**258.46**	**38.88**
Mining Area	Coal Quarry		72.28	10.87
	Waterfilled Quarry		19.25	02.89
	Coal Dump		05.96	00.90
	Barren OB Dump		90.35	13.59
	Area under backfilling		53.02	07.98
	Total Mining Area		**240.86**	**36.23**
Settlement	Urban		00.33	00.05
Waste Land	Waste Land		17.33	02.61
	Sand Body		05.19	00.78
	Total Waste Land		**22.52**	**03.39**
Water Body	River, Stream, Nala		02.16	00.32
	Total Water body		**02.16**	**00.32**
	Total Leasehold Area		**664.80**	**100.00**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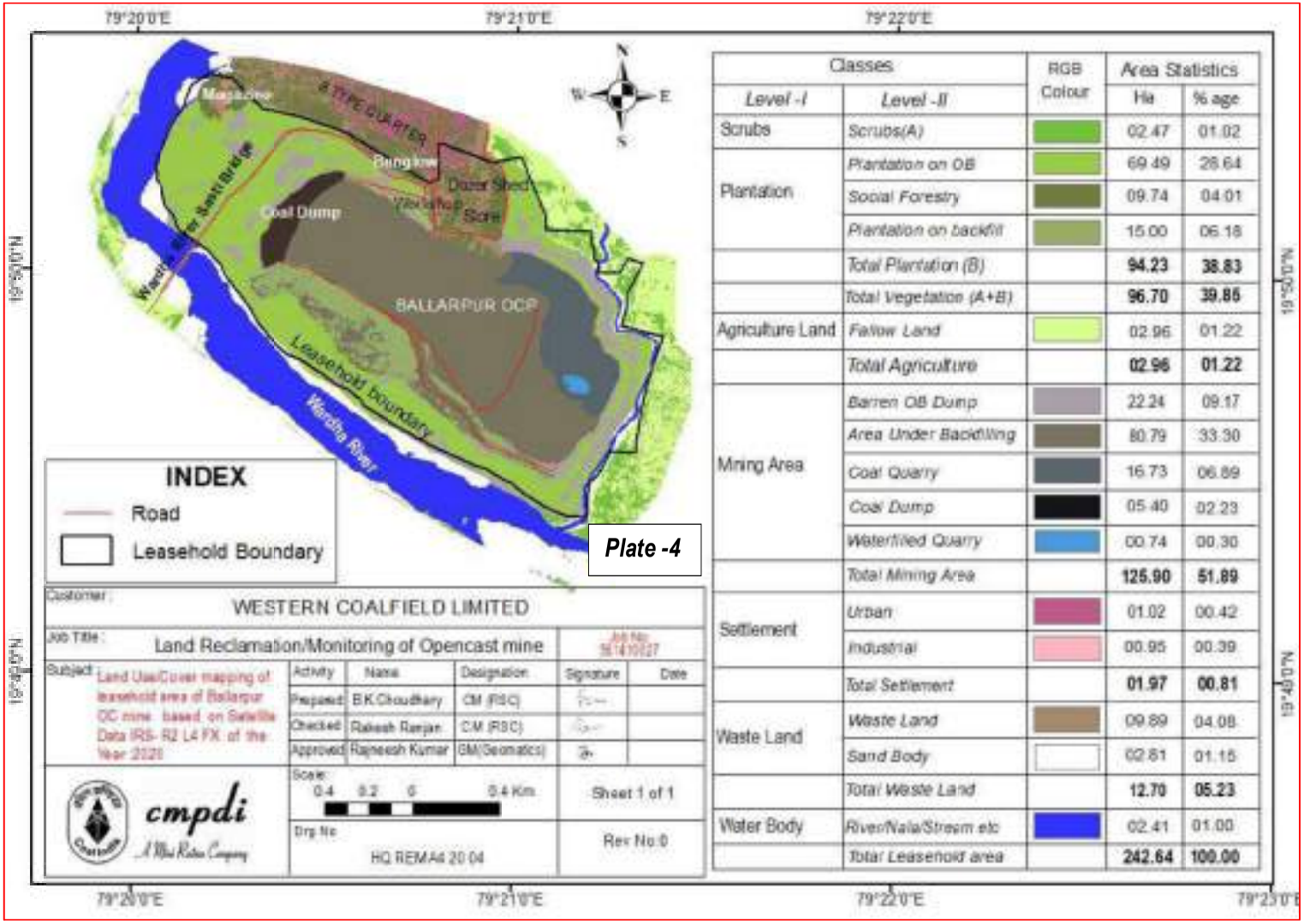
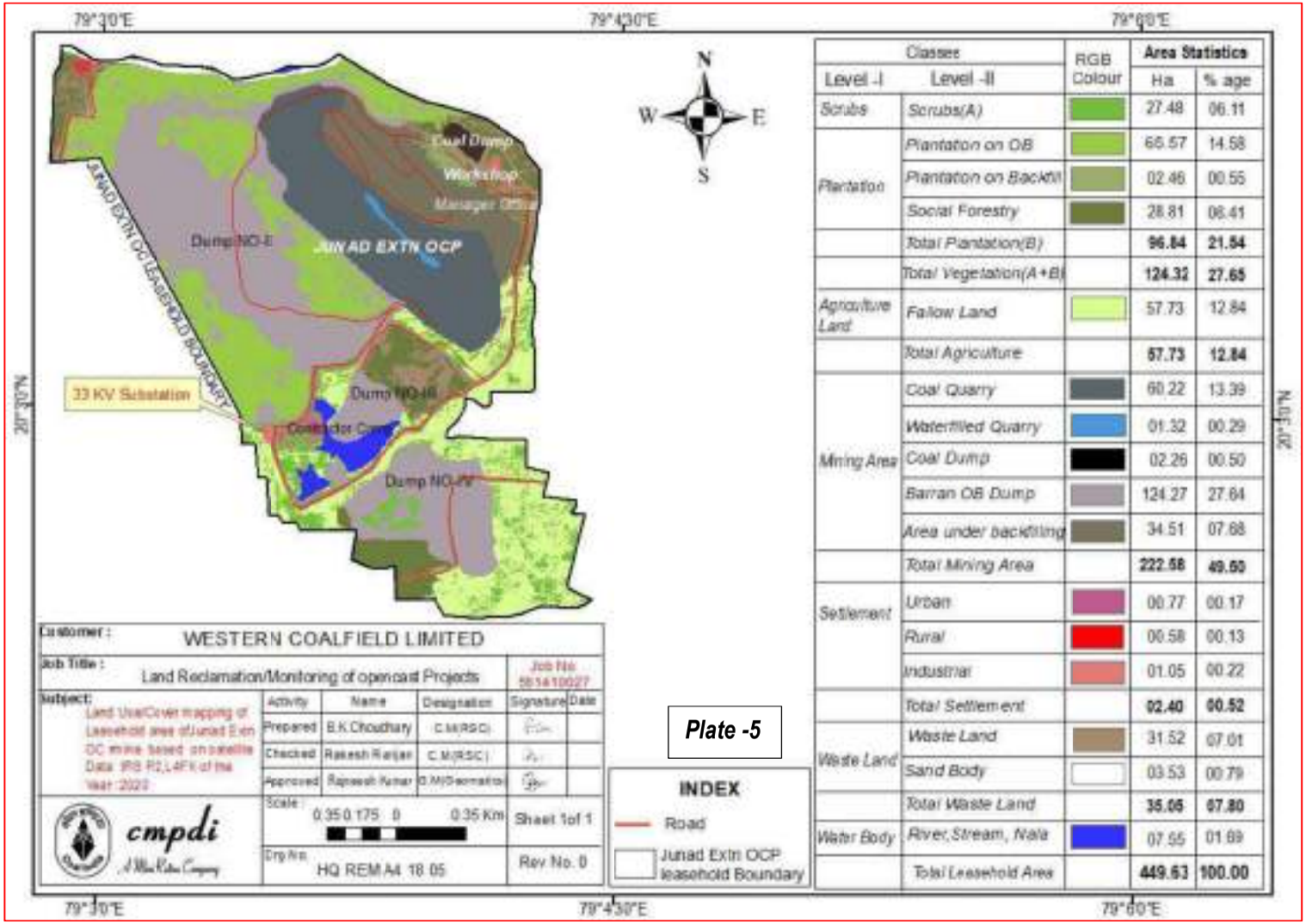
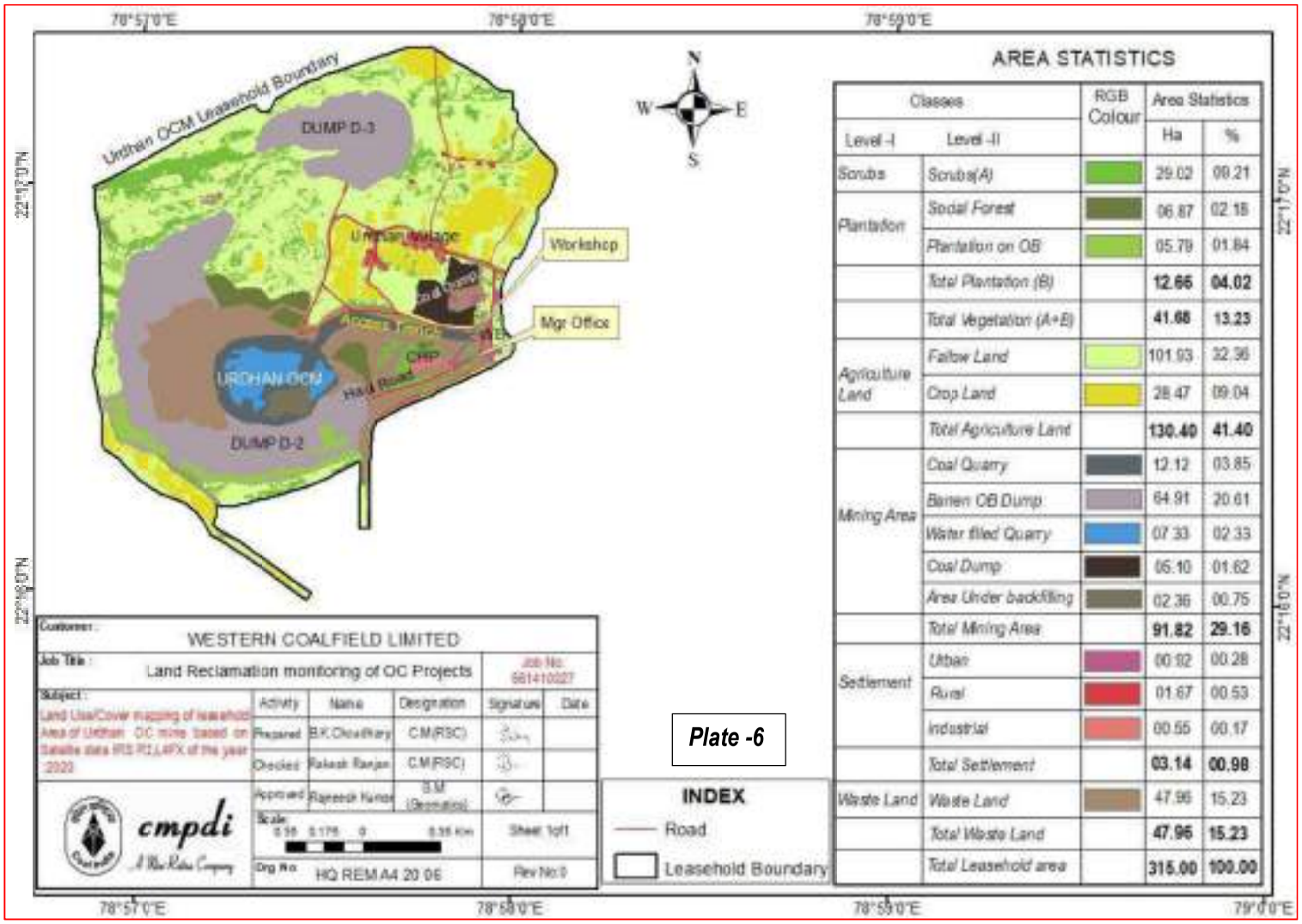
19°57'0"N
N
S
W
E
To Ghonsa Village
To Dahegaon Village
North Quarry
Central Quarry
South Quarry
Leasehold Boundary
CHP
WB
Workshop
Ghonsa OCP
Coal Dump
AREA STATISTICS
Classes
RGB Colour
Area Statistics
Level -I
Level -II
Ha
%
Scrubs
Scrubs (A)
61.00
21.89
Plantation
Social Forestry
04.65
01.67
Plantation on OB Dump
02.55
00.92
Total Plantation (B)
07.20
02.59
Total Vegetation (A+B)
68.20
24.49
Agriculture Land
Fallow Land
65.62
23.55
Total Agriculture
65.62
23.55
Mining Area
Barren OB Dump
23.50
08.43
Area Under Backfilling
07.28
02.61
Coal Quarry
50.89
18.26
Coal Dump
03.17
01.14
Waterfilled Quarry
09.40
03.37
Total Mining Area
94.24
33.81
Settlement
Urban
00.08
00.03
Industrial
00.70
00.26
Total Settlement
00.78
00.29
Waste Land
Waste Land
49.53
17.77
Total Waste Land
49.53
17.77
Water Body
River,Nala,Stream etc
00.31
00.10
Total Leasehold area
278.68
100.00
Plate -3
INDEX
Road
Leasehold Boundary
WESTERN COALFIELD LIMITED
Land Reclamation monitoring of OC Projects
Job No 561410027
Activity
Name
Designation
Signature
Date
Prepared
B.K Choudhary
CMRSO
Checked
Rakesh Ranjan
CMRSO
Approved
Rajneesh Kumar
GM(Geomatics)
cmpdi
Sheet 1 of 1
HQ REN A4 20 03
Rev No 0



Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	% age
Scrubs	Scrubs(A)		02.47	01.02
Plantation	Plantation on OB		69.49	28.64
	Social Forestry		09.74	04.01
	Plantation on backfill		15.00	06.18
	Total Plantation (B)		**94.23**	**38.83**
	Total Vegetation (A+B)		**96.70**	**39.85**
Agriculture Land	Fallow Land		02.96	01.22
	Total Agriculture		**02.96**	**01.22**
Mining Area	Barren OB Dump		22.24	09.17
	Area Under Backfilling		80.79	33.30
	Coal Quarry		16.73	06.89
	Coal Dump		05.40	02.23
	Waterfilled Quarry		00.74	00.30
	Total Mining Area		**125.90**	**51.89**
Settlement	Urban		01.02	00.42
	Industrial		00.95	00.39
	Total Settlement		**01.97**	**00.81**
Waste Land	Waste Land		09.89	04.08
	Sand Body		02.81	01.15
	Total Waste Land		**12.70**	**05.23**
Water Body	River/Nala/Stream etc		02.41	01.00
	Total Leasehold area		**242.64**	**100.00**



Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	% age
Scrubs	Scrubs(A)		27.48	06.11
Plantation	Plantation on OB		66.57	14.58
	Plantation on Backfill		02.46	00.55
	Social Forestry		28.81	06.41
	Total Plantation(B)		**96.84**	**21.54**
	Total Vegetation(A+B)		**124.32**	**27.65**
Agriculture Land	Fallow Land		57.73	12.84
	Total Agriculture		**57.73**	**12.84**
Mining Area	Coal Quarry		60.22	13.39
	Waterfilled Quarry		01.32	00.29
	Coal Dump		02.26	00.50
	Barren OB Dump		124.27	27.64
	Area under backfilling		34.51	07.68
	Total Mining Area		**222.58**	**49.50**
Settlement	Urban		00.77	00.17
	Rural		00.58	00.13
	Industrial		01.05	00.22
	Total Settlement		**02.40**	**00.52**
Waste Land	Waste Land		31.52	07.01
	Sand Body		03.53	00.79
	Total Waste Land		**35.05**	**07.80**
Water Body	River,Stream, Nala		07.55	01.69
	Total Leasehold Area		**449.63**	**100.00**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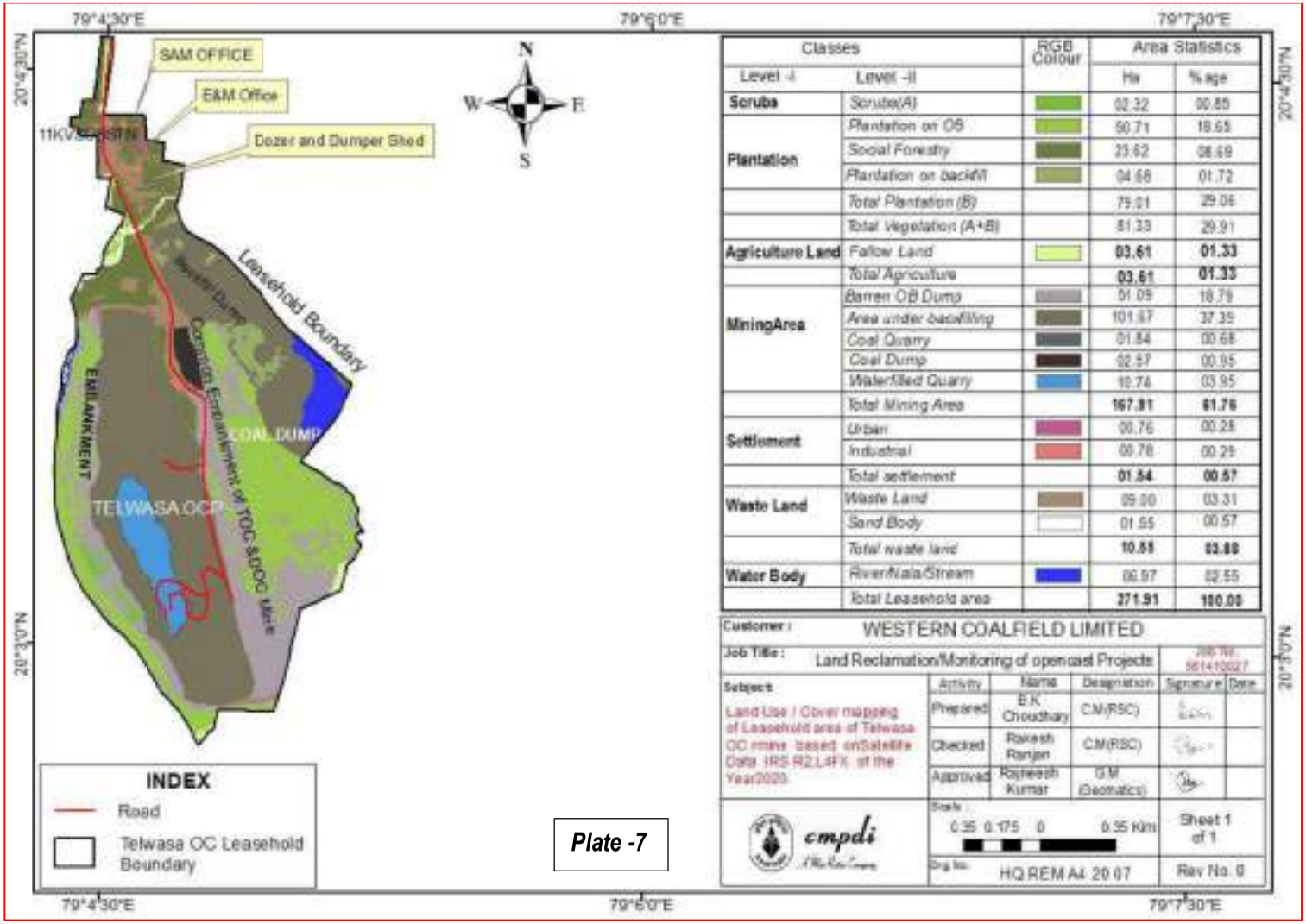
22°11'0"N
22°10'0"N
Urthan OCM Leasehold Boundary
DUMP D-3
Urthan Village
Workshop
Mgr Office
URCHAN OCM
CHP
DUMP D-2
N
S
W
E
AREA STATISTICS
Classes
Level -I
Level -II
RGB Colour
Area Statistics
Ha
%
Scrubs
Scrubs(A)
29.02
09.21
Plantation
Social Forest
06.87
02.18
Plantation on OB
05.79
01.84
Total Plantation (B)
12.66
04.02
Total Vegetation (A+B)
41.68
13.23
Agriculture Land
Fallow Land
101.93
32.36
Crop Land
28.47
09.04
Total Agriculture Land
130.40
41.40
Mining Area
Coal Quarry
12.12
03.85
Barren OB Dump
64.91
20.61
Water filled Quarry
07.33
02.33
Coal Dump
05.10
01.62
Area Under backfilling
02.36
00.75
Total Mining Area
91.82
29.16
Settlement
Urban
00.92
00.28
Rural
01.67
00.53
Industrial
00.55
00.17
Total Settlement
03.14
00.98
Waste Land
Waste Land
47.96
15.23
Total Waste Land
47.96
15.23
Total Leasehold area
315.00
100.00
Customer :
WESTERN COALFIELD LIMITED
Job Title :
Land Reclamation monitoring of OC Projects
Job No
561410027
Subject :
Land Use/Cover mapping of leasehold Area of Urthan OC mine based on Satellite data IRS P2 LISS4 of the year 2020
Activity
Name
Designation
Signature
Date
Prepared
B.K.Choudhary
C.M(RSC)
Checked
Rakesh Ranjan
C.M(RSC)
Approved
Rajeesh Kumar
S.M (Reclamation)
Scale
Sheet 1of1
Drg No
HQ REM A4 20 06
Rev No:0
cmpdi
INDEX
Road
Leasehold Boundary

Plate -6



Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	% age
Scruba	Scruba(A)		02.32	00.85
Plantation	Plantation on OB		50.71	18.65
	Social Forestry		23.62	08.69
	Plantation on backfill		04.68	01.72
	Total Plantation (B)		79.01	29.06
	Total Vegetation (A+B)		81.33	29.91
Agriculture Land	Fallow Land		03.61	01.33
	Total Agriculture		03.61	01.33
MiningArea	Barren OB Dump		51.09	18.79
	Area under backfilling		101.67	37.39
	Coal Quarry		01.84	00.68
	Coal Dump		02.57	00.95
	Waterfilled Quarry		10.74	03.95
	Total Mining Area		167.91	61.76
Settlement	Urban		00.76	00.28
	Industrial		00.78	00.29
	Total settlement		01.54	00.57
Waste Land	Waste Land		09.00	03.31
	Sand Body		01.55	00.57
	Total waste land		10.55	03.88
Water Body	River/Nala/Stream		06.97	02.55
	Total Leasehold area		271.91	100.00

Customer : WESTERN COALFIELD LIMITED

Job Title : Land Reclamation/Monitoring of opencast Projects

Job No. 561410027

Subject: Land Use / Cover mapping of Leasehold area of Telwasa OC mine based on Satellite Data IRS R2 LISFX of the Year2020

Activity	Name	Designation	Signature	Date
Prepared	B.K. Choudhary	CM(RSC)		
Checked	Rakesh Ranjan	CM(RSC)		
Approved	Rajneesh Kumar	G.M (Geomatics)		

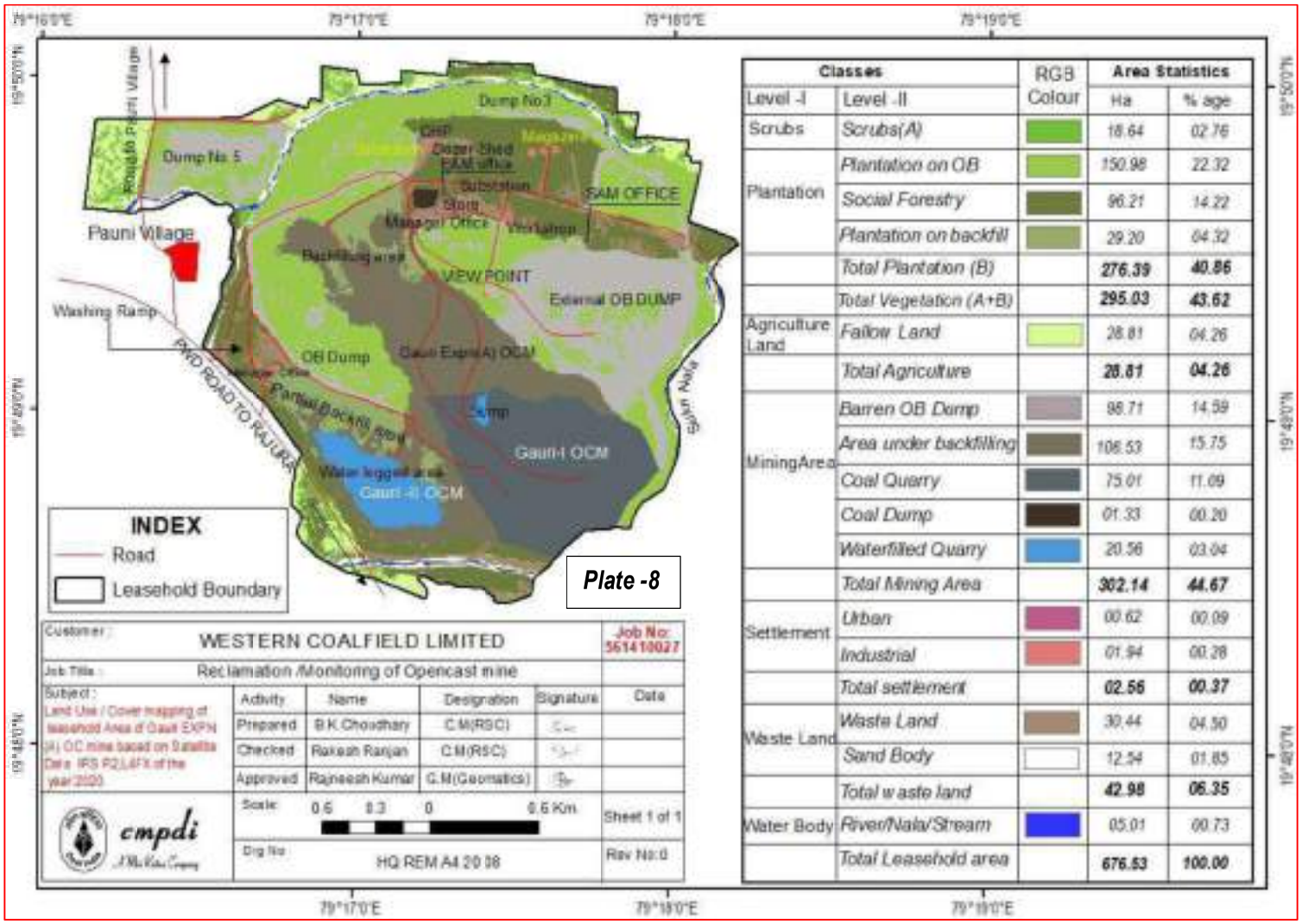
cmpdi

Scale : 0.35 0.175 0 0.35 Km

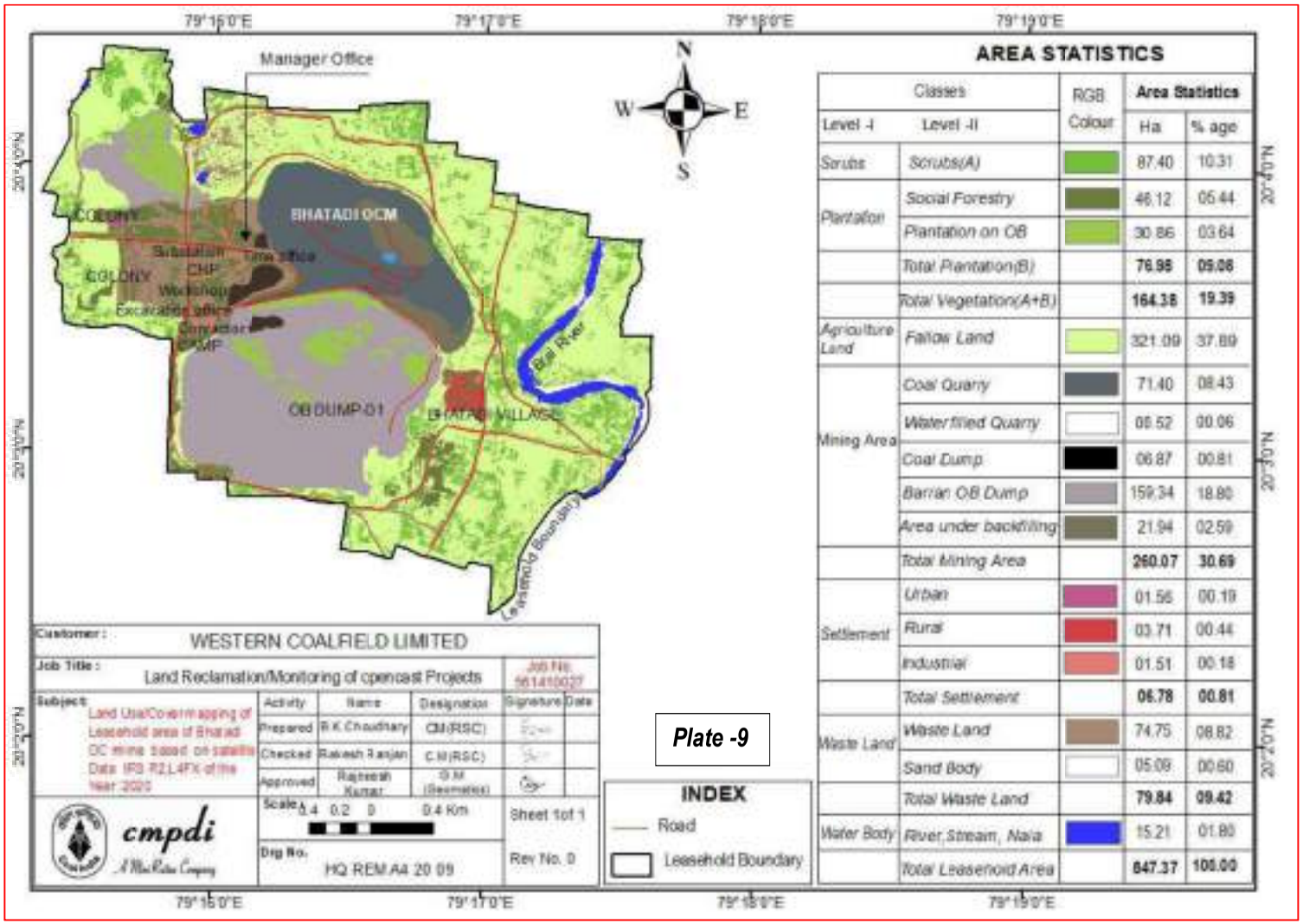
Sheet 1 of 1

Drg. No. HQ REM A4 20 07

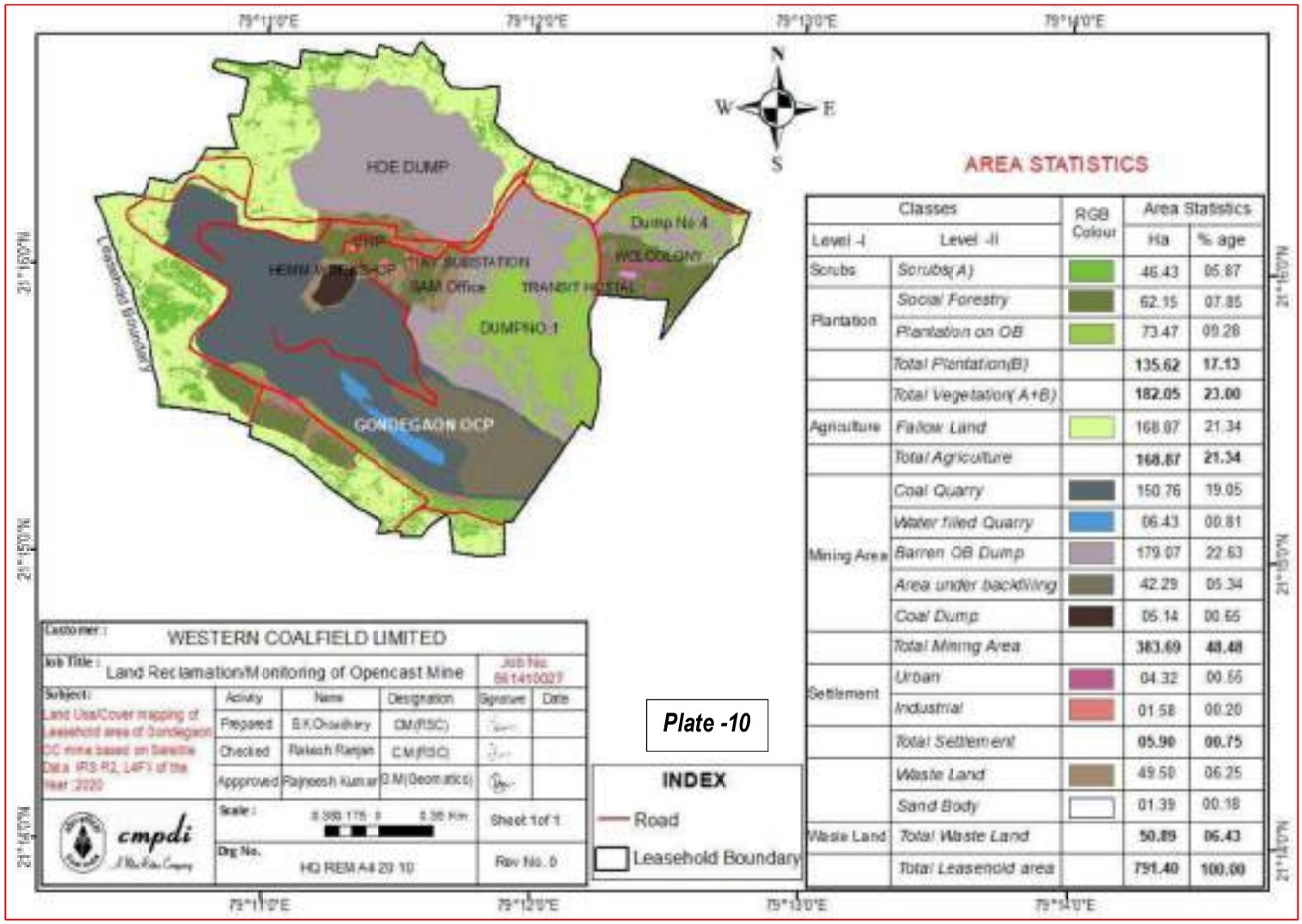
Rev No. 0



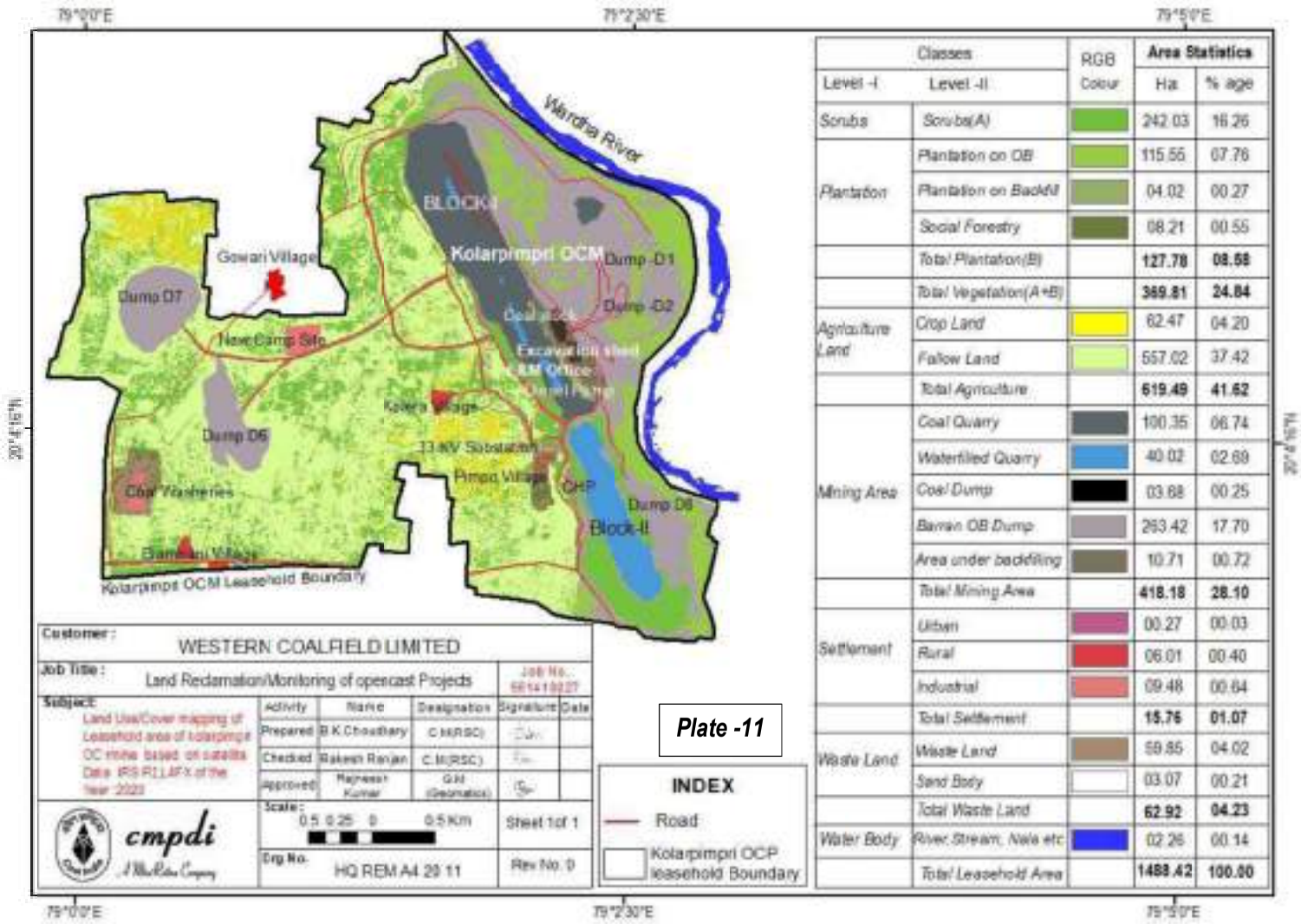
Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	% age
Scrubs	*Scrubs(A)*		18.64	02.76
Plantation	*Plantation on OB*		150.98	22.32
	Social Forestry		96.21	14.22
	Plantation on backfill		29.20	04.32
	Total Plantation (B)		**276.39**	**40.86**
	Total Vegetation (A+B)		**295.03**	**43.62**
Agriculture Land	*Fallow Land*		28.81	04.26
	Total Agriculture		**28.81**	**04.26**
MiningArea	*Barren OB Dump*		98.71	14.59
	Area under backfilling		106.53	15.75
	Coal Quarry		75.01	11.09
	Coal Dump		01.33	00.20
	Waterfilled Quarry		20.56	03.04
	Total Mining Area		**302.14**	**44.67**
Settlement	*Urban*		00.62	00.09
	Industrial		01.94	00.28
	Total settlement		**02.56**	**00.37**
Waste Land	*Waste Land*		30.44	04.50
	Sand Body		12.54	01.85
	Total waste land		**42.98**	**06.35**
Water Body	*River/Nala/Stream*		05.01	00.73
	Total Leasehold area		**676.53**	**100.00**



Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	% age
Scrubs	Scrubs(A)		87.40	10.31
Plantation	Social Forestry		46.12	05.44
	Plantation on OB		30.86	03.64
	Total Plantation(B)		**76.98**	**09.08**
	Total Vegetation(A+B)		**164.38**	**19.39**
Agriculture Land	Fallow Land		321.09	37.89
Mining Area	Coal Quarry		71.40	08.43
	Waterfilled Quarry		00.52	00.06
	Coal Dump		06.87	00.81
	Barren OB Dump		159.34	18.80
	Area under backfilling		21.94	02.59
	Total Mining Area		**260.07**	**30.69**
Settlement	Urban		01.56	00.19
	Rural		03.71	00.44
	Industrial		01.51	00.18
	Total Settlement		**06.78**	**00.81**
Waste Land	Waste Land		74.75	08.82
	Sand Body		05.09	00.60
	Total Waste Land		**79.84**	**09.42**
Water Body	River,Stream, Nala		15.21	01.80
	Total Leasehold Area		**847.37**	**100.00**



Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	% age
Scrubs	Scrubs(A)		46.43	05.87
Plantation	Social Forestry		62.15	07.85
	Plantation on OB		73.47	09.28
	Total Plantation(B)		135.62	17.13
	Total Vegetation(A+B)		182.05	23.00
Agriculture	Fallow Land		168.87	21.34
	Total Agriculture		168.87	21.34
Mining Area	Coal Quarry		150.76	19.05
	Water filled Quarry		06.43	00.81
	Barren OB Dump		179.07	22.63
	Area under backfilling		42.29	05.34
	Coal Dump		05.14	00.65
	Total Mining Area		383.69	48.48
Settlement	Urban		04.32	00.55
	Industrial		01.58	00.20
	Total Settlement		05.90	00.75
	Waste Land		49.50	06.25
	Sand Body		01.39	00.18
Waste Land	Total Waste Land		50.89	06.43
	Total Leasehold area		791.40	100.00



Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	% age
Scrubs	Scrubs(A)		242.03	16.26
Plantation	Plantation on OB		115.55	07.76
	Plantation on Backfill		04.02	00.27
	Social Forestry		08.21	00.55
	Total Plantation(B)		**127.78**	**08.58**
	Total Vegetation(A+B)		**369.81**	**24.84**
Agriculture Land	Crop Land		62.47	04.20
	Fallow Land		557.02	37.42
	Total Agriculture		**619.49**	**41.62**
Mining Area	Coal Quarry		100.35	06.74
	Waterfilled Quarry		40.02	02.69
	Coal Dump		03.68	00.25
	Barren OB Dump		263.42	17.70
	Area under backfilling		10.71	00.72
	Total Mining Area		**418.18**	**28.10**
Settlement	Urban		00.27	00.03
	Rural		06.01	00.40
	Industrial		09.48	00.64
	Total Settlement		**15.76**	**01.07**
Waste Land	Waste Land		59.85	04.02
	Sand Body		03.07	00.21
	Total Waste Land		**62.92**	**04.23**
Water Body	River,Stream, Nala etc		02.26	00.14
	Total Leasehold Area		**1488.42**	**100.00**

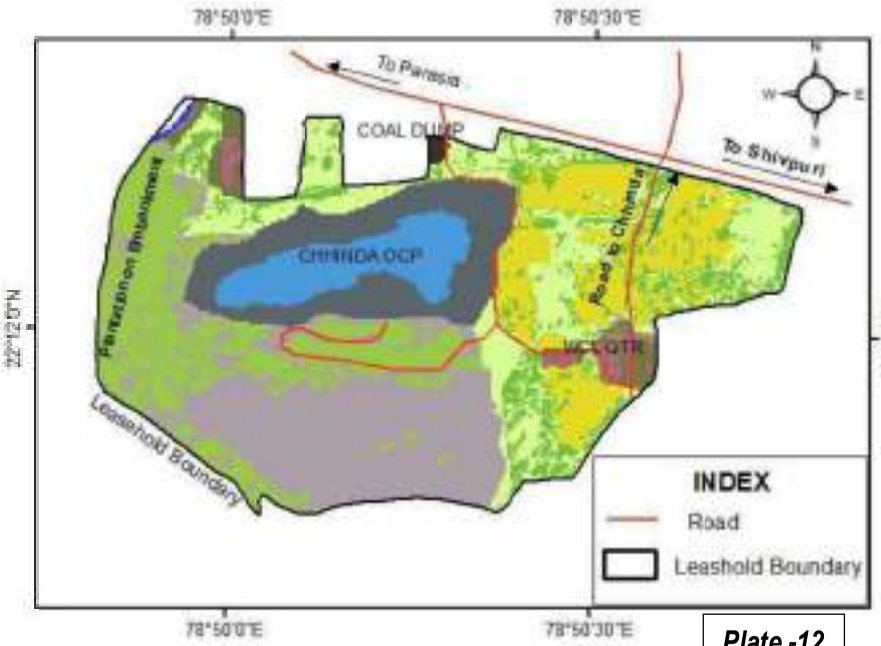
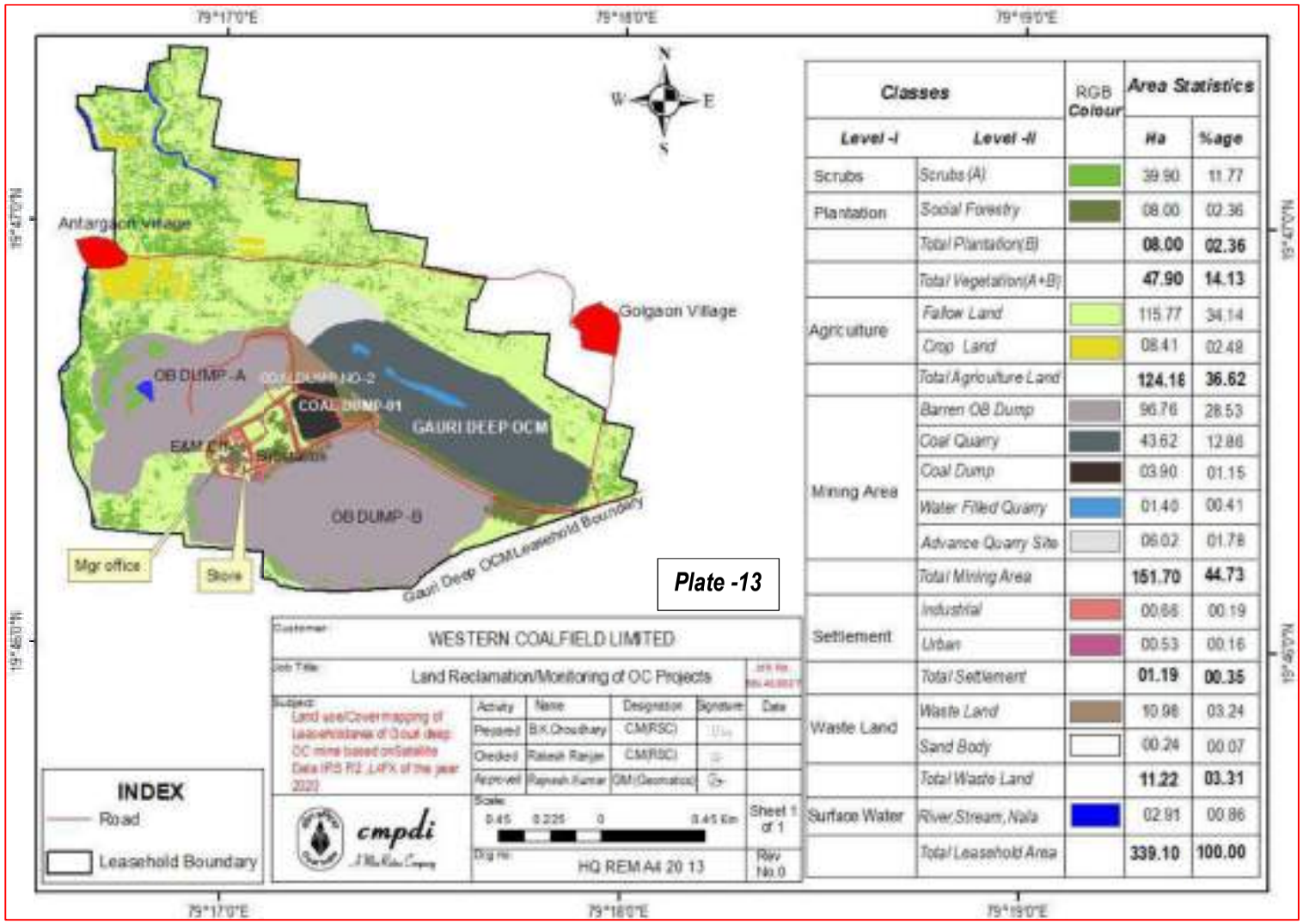


Plate -12

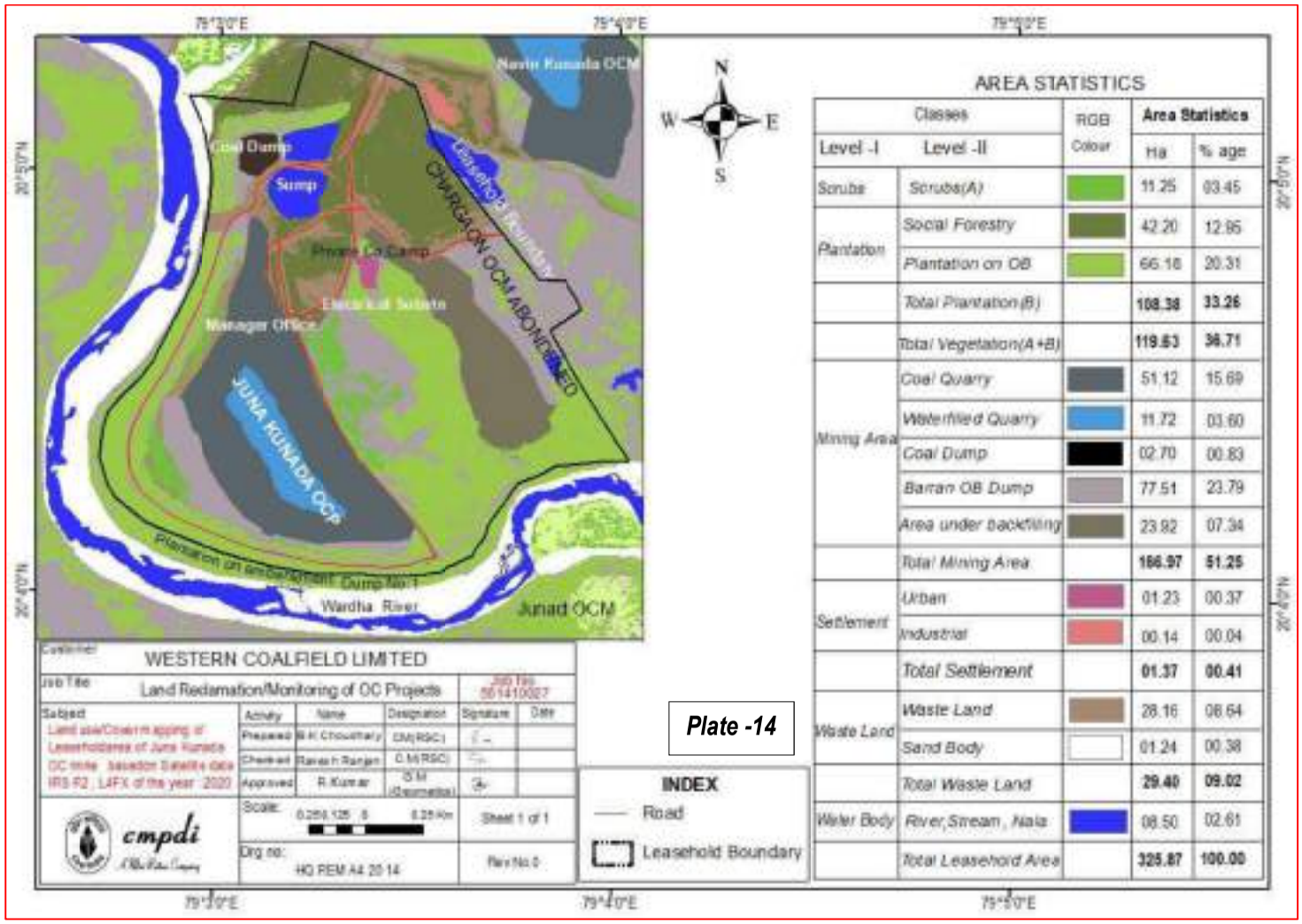
Customer :	WESTERN COALFIELD LIMITED				
Job Title :	Land Reclamation monitoring of OC Projects			Job No: 561410027	
Subject: Land Use/Cover mapping of leasehold Area of Chhinda OC mine based on IRS R2,L4FX Satelite data of the year 2020	Activity	Name	Designation	Signature	Date
	Prepared	B.K.Choudhary	C.M(RSC)		
	Checked	Rakesh Ranjan	C.M(RSC)		
	Approved	Rajneesh Kumar	GM (Geomatics)		
cmpdi A Mini Ratna Company	Scale: 0.2 0.1 0 0.2 Km			Sheet 1of1	
	Drg No HQ REM A4 20 12			Rev No:0	

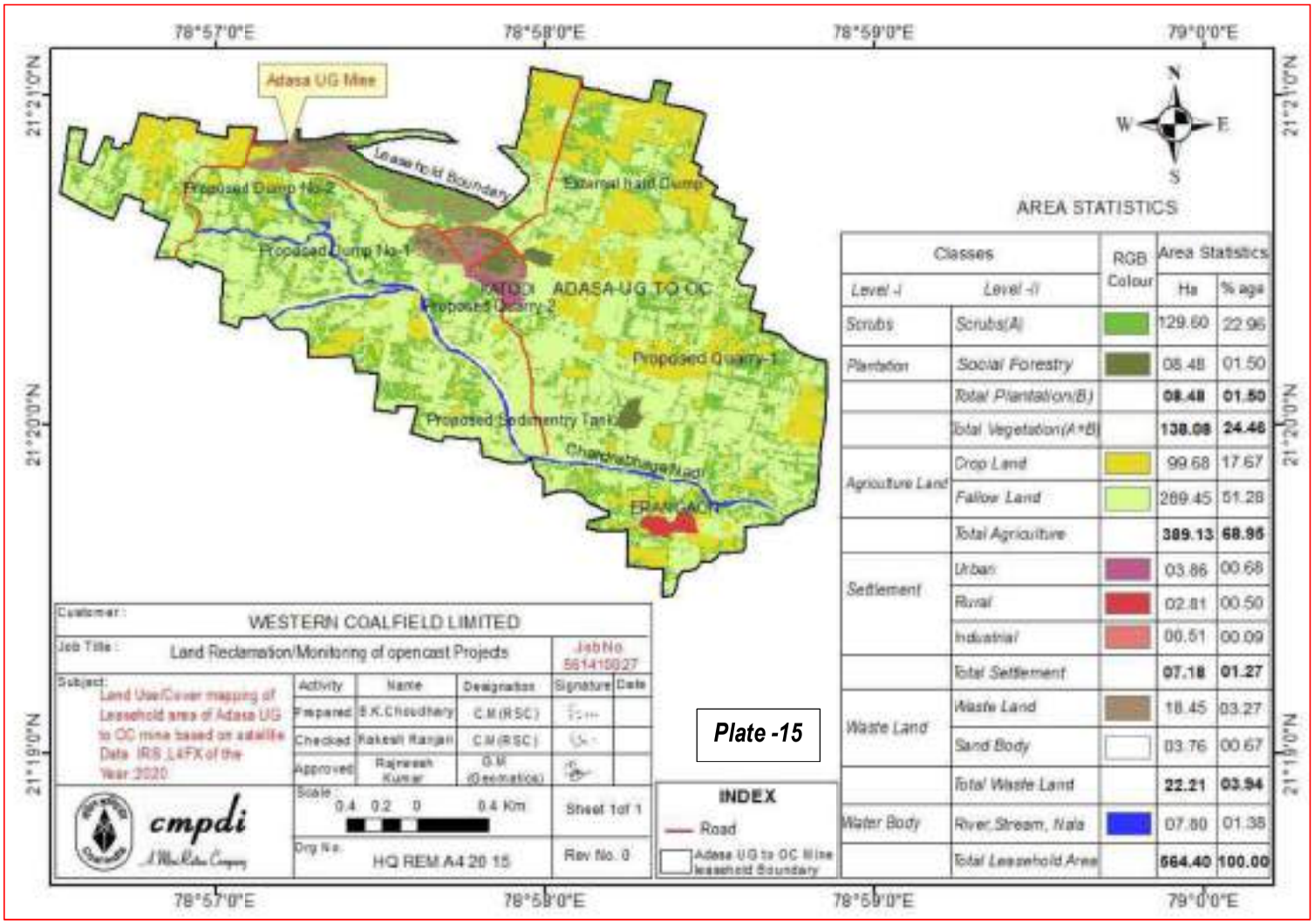
AREA STATISTICS

Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	% age
Scrubs	Scrubs (A)		09.98	09.36
Plantation	Plantation on OB		20.44	19.16
	Social Forestry		02.87	02.69
	Total Plantation (B)		**23.31**	**21.85**
	Total Vegetation (A+B)		**33.29**	**31.21**
Agriculture Land	Fallow Land		13.54	12.70
	Crop Land		11.54	10.82
	Total Agriculture		**25.08**	**23.52**
Mining Area	Barren OB Dump		22.50	21.09
	Coal Quarry		16.28	15.26
	Coal Dump		00.31	00.29
	Water filled Quarry		07.01	06.57
	Total Mining Area		**46.10**	**43.21**
Settlement	Urban		01.03	00.96
	Total Settlement		**01.03**	**00.96**
Waste Land	Waste Land		00.75	00.70
	Sand Body		00.24	00.22
	Total Waste Land		**00.99**	**00.92**
Water Body	River,Nala,Stream etc		00.19	00.16
	Total Water Body		**00.19**	**01.28**
	Total Leasehold area		106.68	100.00



Classes		RGB Colour	Area Statistics	
Level -I	Level -II		Ha	%age
Scrubs	Scrubs (A)		39.90	11.77
Plantation	Social Forestry		08.00	02.36
	Total Plantation(B)		**08.00**	**02.36**
	Total Vegetation(A+B)		**47.90**	**14.13**
Agriculture	Fallow Land		115.77	34.14
	Crop Land		08.41	02.48
	Total Agriculture Land		**124.18**	**36.62**
Mining Area	Barren OB Dump		96.76	28.53
	Coal Quarry		43.62	12.86
	Coal Dump		03.90	01.15
	Water Filled Quarry		01.40	00.41
	Advance Quarry Site		06.02	01.78
	Total Mining Area		**151.70**	**44.73**
Settlement	Industrial		00.66	00.19
	Urban		00.53	00.16
	Total Settlement		**01.19**	**00.35**
Waste Land	Waste Land		10.98	03.24
	Sand Body		00.24	00.07
	Total Waste Land		**11.22**	**03.31**
Surface Water	River,Stream, Nala		02.91	00.86
	Total Leasehold Area		**339.10**	**100.00**


Navin Kunada OCM
Coal Dump
Sump
Leasehold Boundary
CHARGAON OCM ABONDONED
Private Co.Camp
Electrical Substn
Manager Office
JUNA KUNADA OCP
Plantation on Barren OB Dump No.1
Wardha River
Junad OCM
N
S
E
W
WESTERN COALFIELD LIMITED
Land Reclamation/Monitoring of OC Projects
Job No 561410027
Activity
Name
Designation
Signature
Date
Prepared
Checked
Approved
Scale:
Sheet 1 of 1
Drg no:
HQ REM A4 20 14
Rev No 0
cmpdi
INDEX
Road
Leasehold Boundary
Plate -14
AREA STATISTICS
Classes
Level -I
Level -II
RGB Colour
Area Statistics
Ha
% age
Scrubs
Scrubs(A)
11.25
03.45
Plantation
Social Forestry
42.20
12.95
Plantation on OB
66.18
20.31
Total Plantation(B)
108.38
33.26
Total Vegetation(A+B)
119.63
36.71
Mining Area
Coal Quarry
51.12
15.69
Waterfilled Quarry
11.72
03.60
Coal Dump
02.70
00.83
Barren OB Dump
77.51
23.79
Area under backfilling
23.92
07.34
Total Mining Area
166.97
51.25
Settlement
Urban
01.23
00.37
Industrial
00.14
00.04
Total Settlement
01.37
00.41
Waste Land
Waste Land
28.16
08.64
Sand Body
01.24
00.38
Total Waste Land
29.40
09.02
Water Body
River,Stream , Nala
08.50
02.61
Total Leasehold Area
325.87
100.00


78°57'0"E
78°58'0"E
78°59'0"E
79°0'0"E
21°21'0"N
21°20'0"N
21°19'0"N
Adasa UG Mine
Leasehold Boundary
External Hall Dump
Proposed Dump No-2
Proposed Dump No-1
ADASA UG TO OC
Proposed Quarry-2
Proposed Quarry-1
Proposed Sedimentry Tank
Chandrabhaga Nadi
N
S
E
W
AREA STATISTICS
Classes
RGB Colour
Area Statistics
Level -I
Level -II
Ha
% age
Scrubs
Scrubs(A)
129.60
22.96
Plantation
Social Forestry
08.48
01.50
Total Plantation(B)
08.48
01.50
Total Vegetation(A+B)
138.08
24.46
Agriculture Land
Crop Land
99.68
17.67
Fallow Land
289.45
51.28
Total Agriculture
389.13
68.95
Settlement
Urban
03.86
00.68
Rural
02.81
00.50
Industrial
00.51
00.09
Total Settlement
07.18
01.27
Waste Land
Waste Land
18.45
03.27
Sand Body
03.76
00.67
Total Waste Land
22.21
03.94
Water Body
River,Stream, Nala
07.60
01.35
Total Leasehold Area
564.40
100.00
Customer :
WESTERN COALFIELD LIMITED
Job Title :
Land Reclamation/Monitoring of opencast Projects
Job No 561410027
Subject:
Land Use/Cover mapping of Leasehold area of Adasa UG to OC mine based on satellite Data IRS L4FX of the Year 2020
Activity
Name
Designation
Signature
Date
Prepared
B.K.Choudhary
C.M.(RSC)
Checked
Rakesh Ranjan
C.M.(RSC)
Approved
Rajneesh Kumar
G.M (Geomatics)
cmpdi
Scale :
0.4 0.2 0 0.4 Km
Sheet 1of 1
Drg No.
HQ REM A4 20 15
Rev No. 0
Plate -15
INDEX
Road
Adasa UG to OC Mine leasehold Boundary

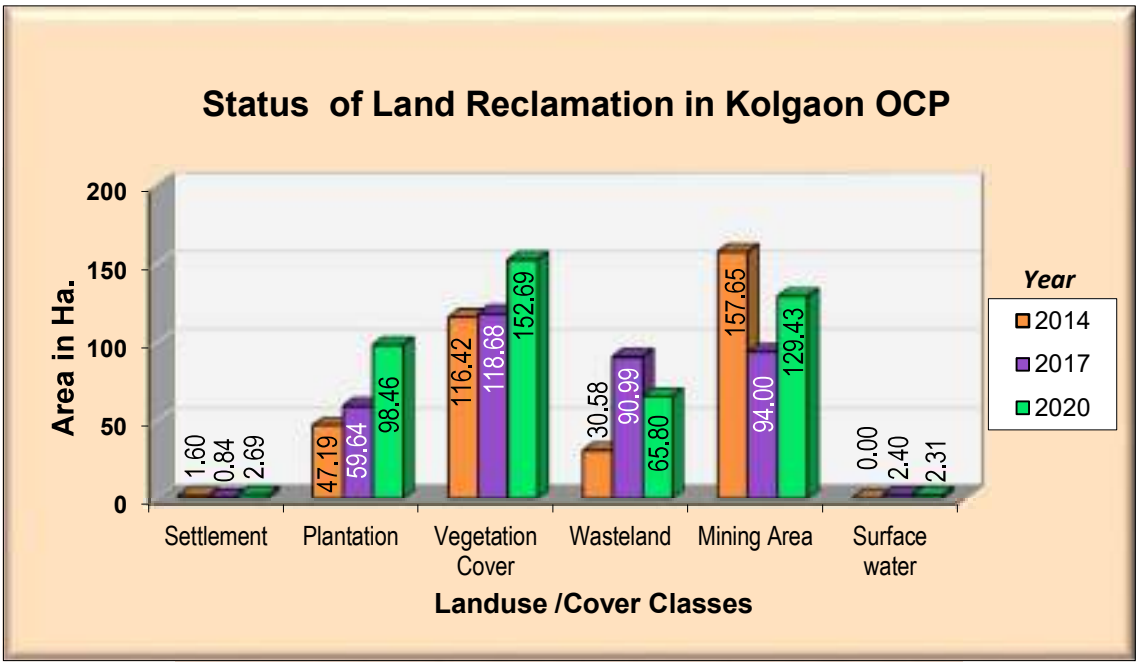
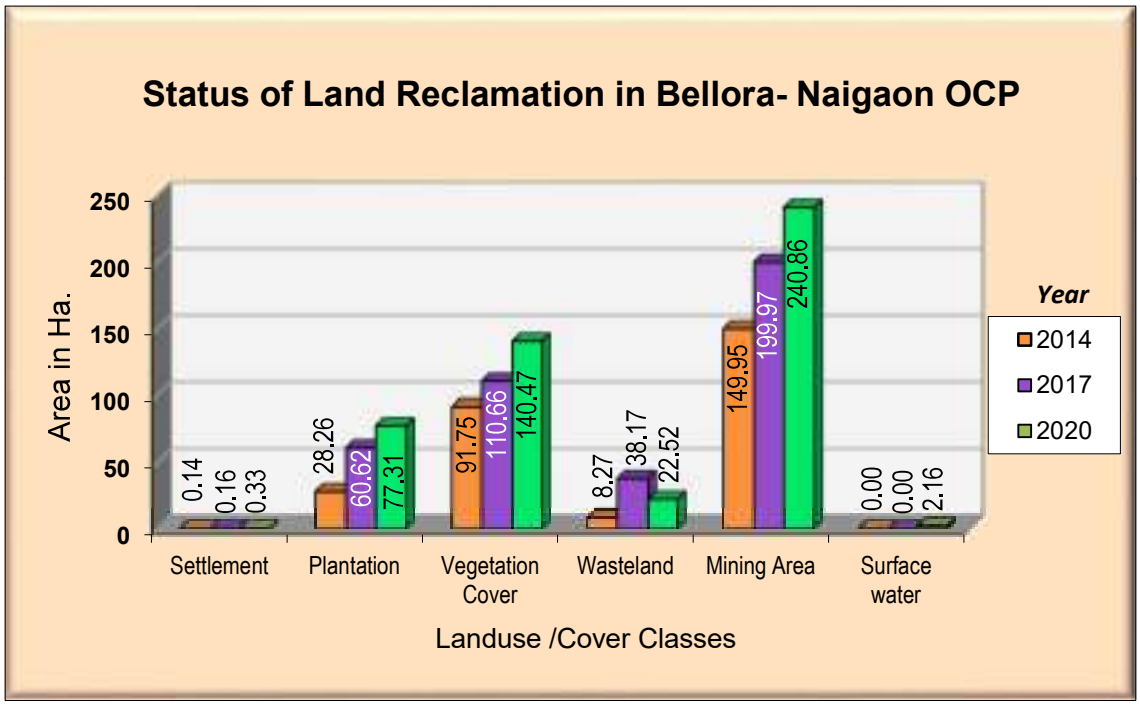


Figure-3



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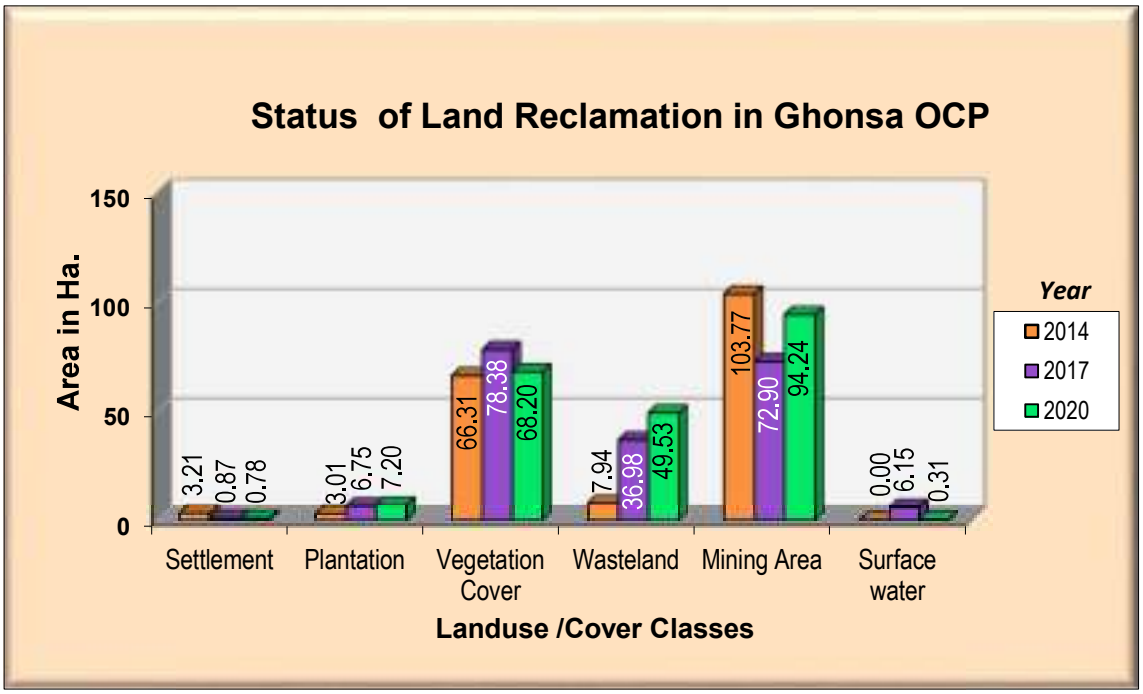

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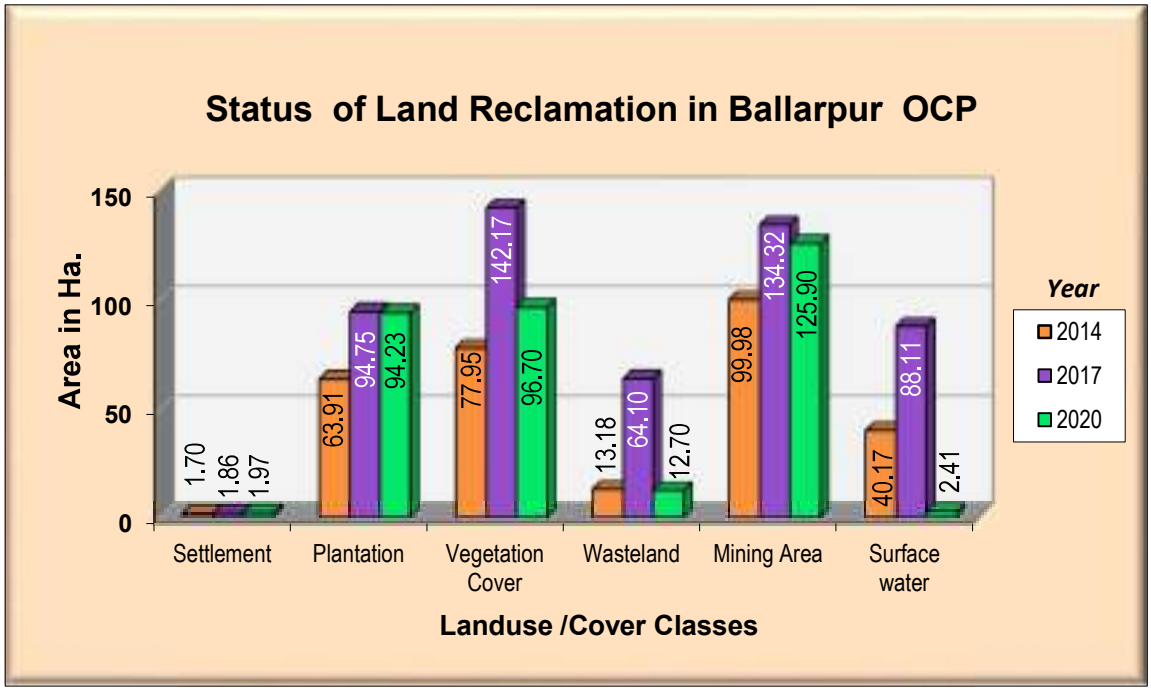

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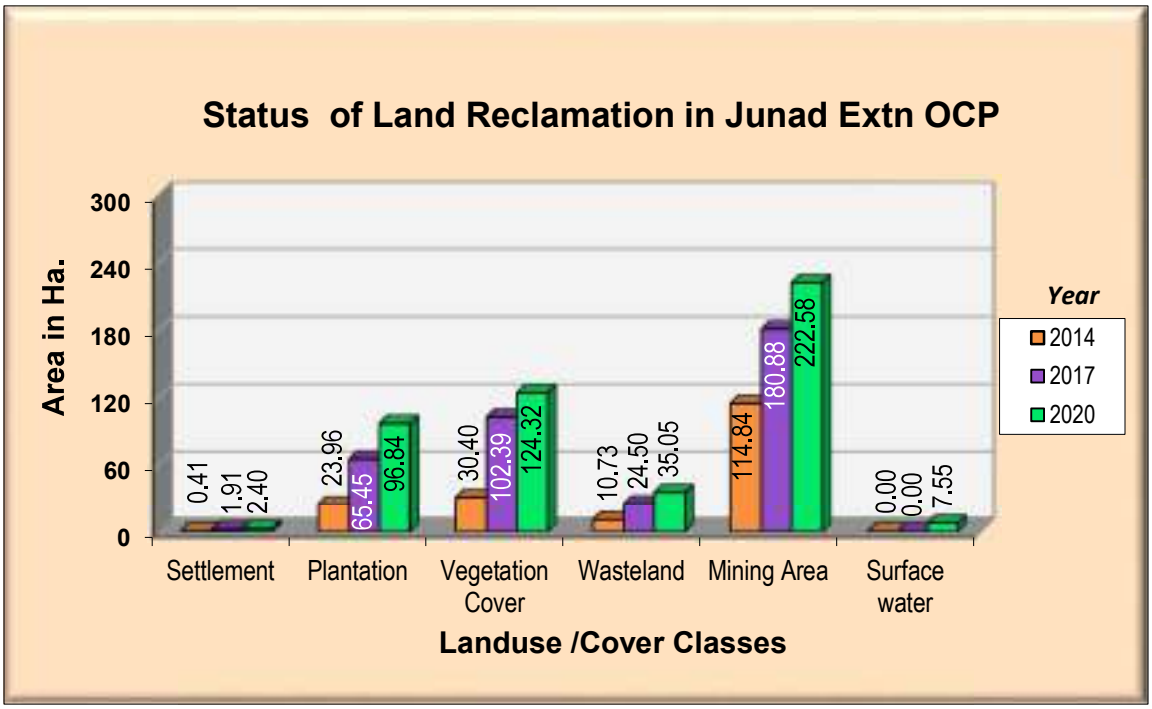

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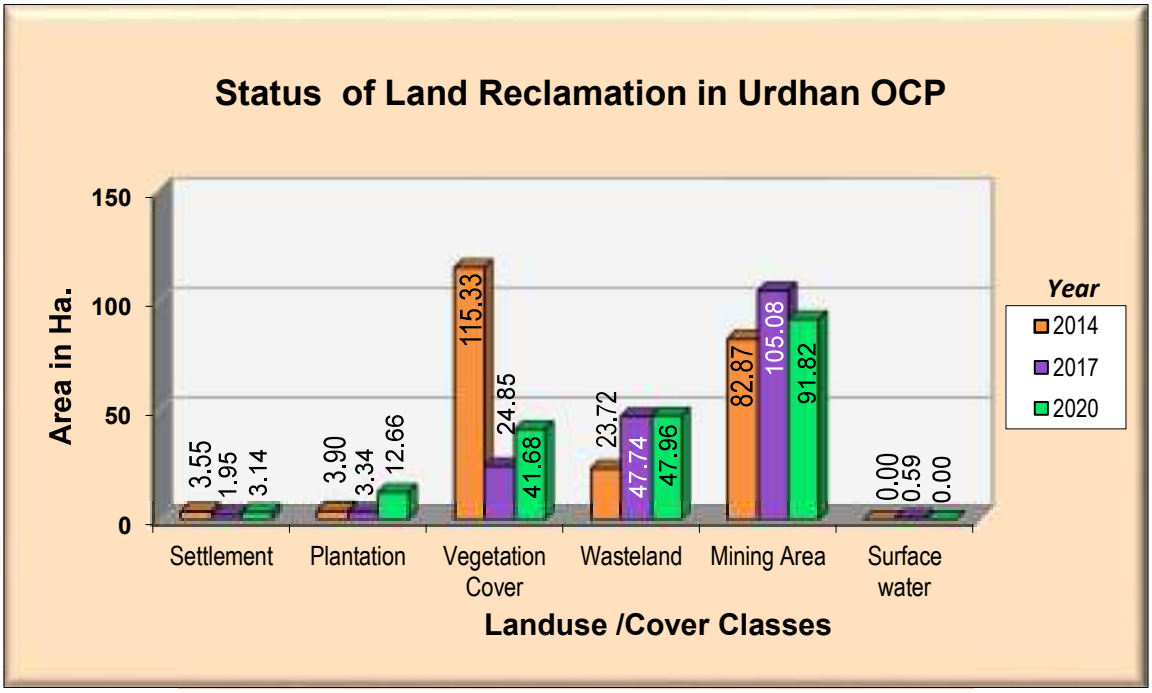

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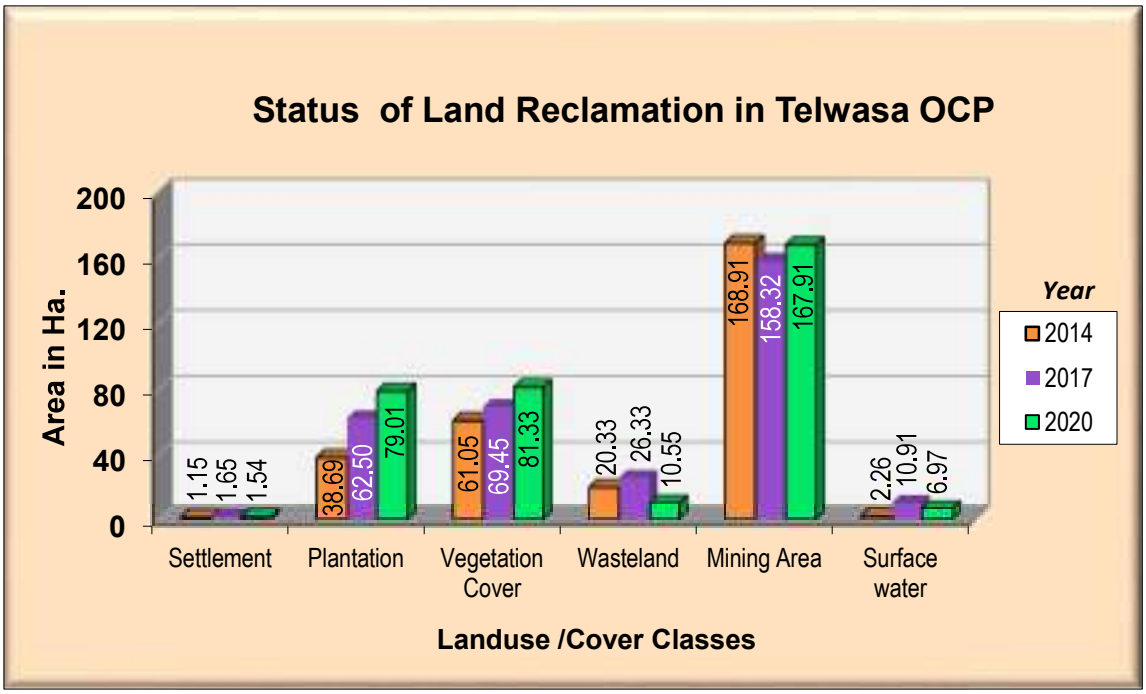

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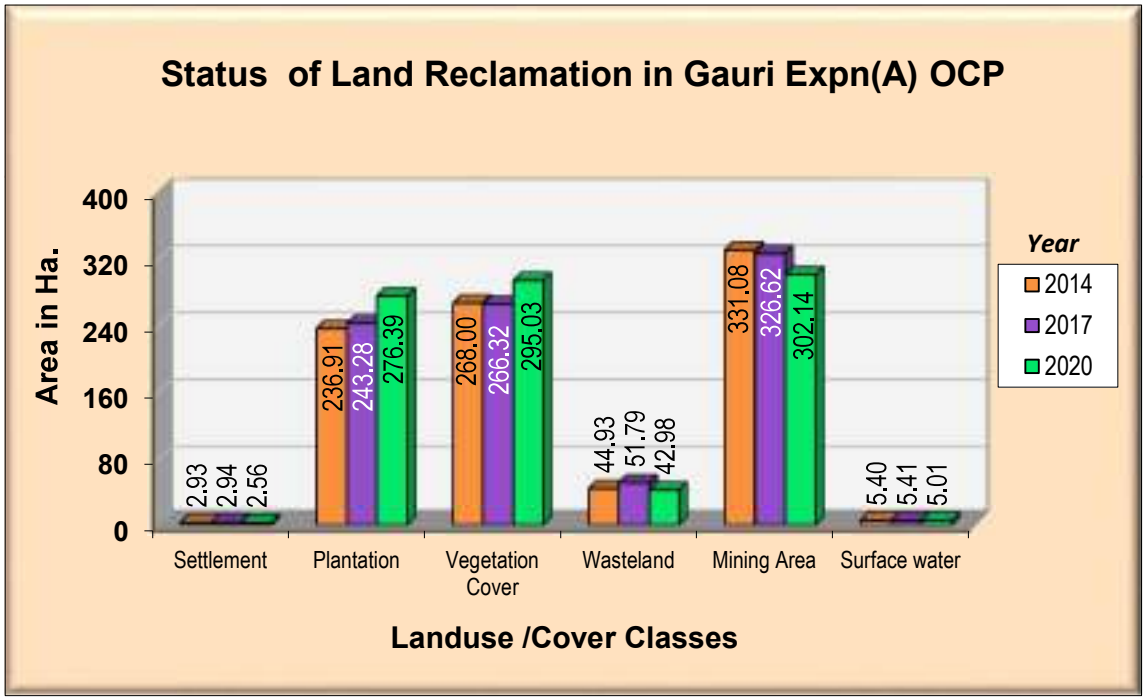

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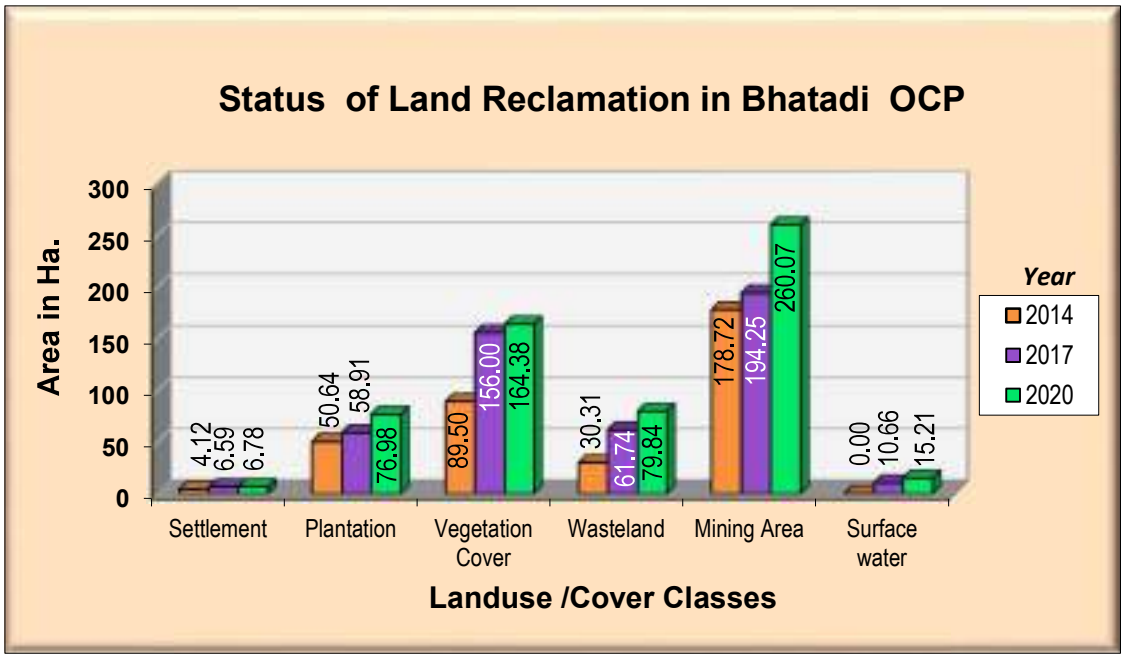

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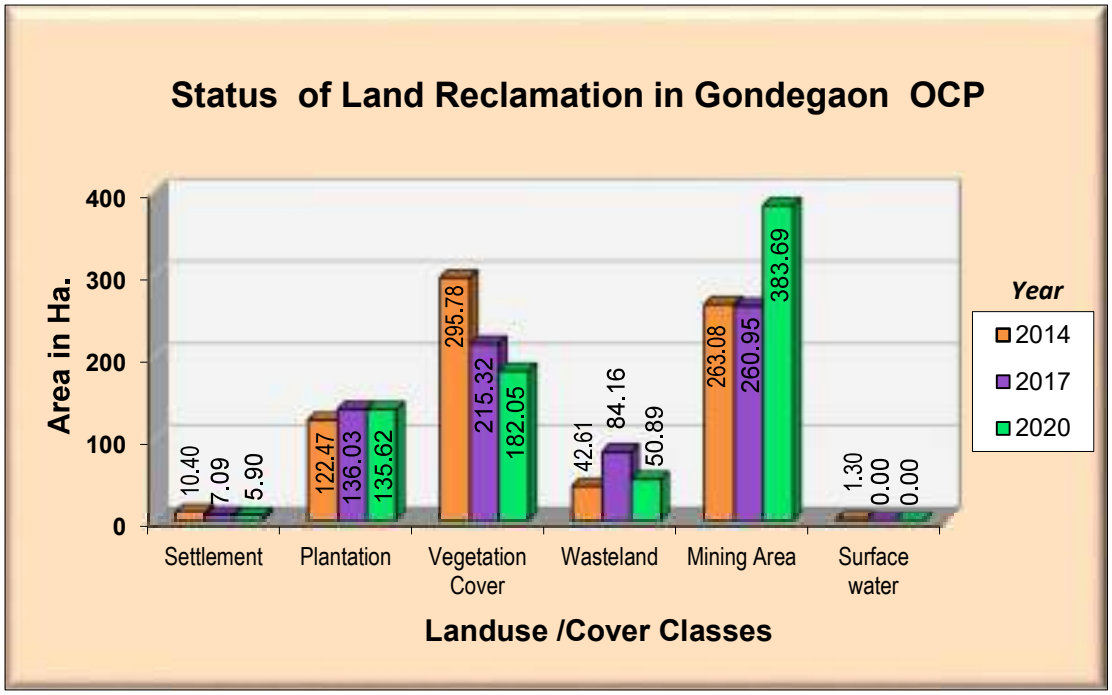

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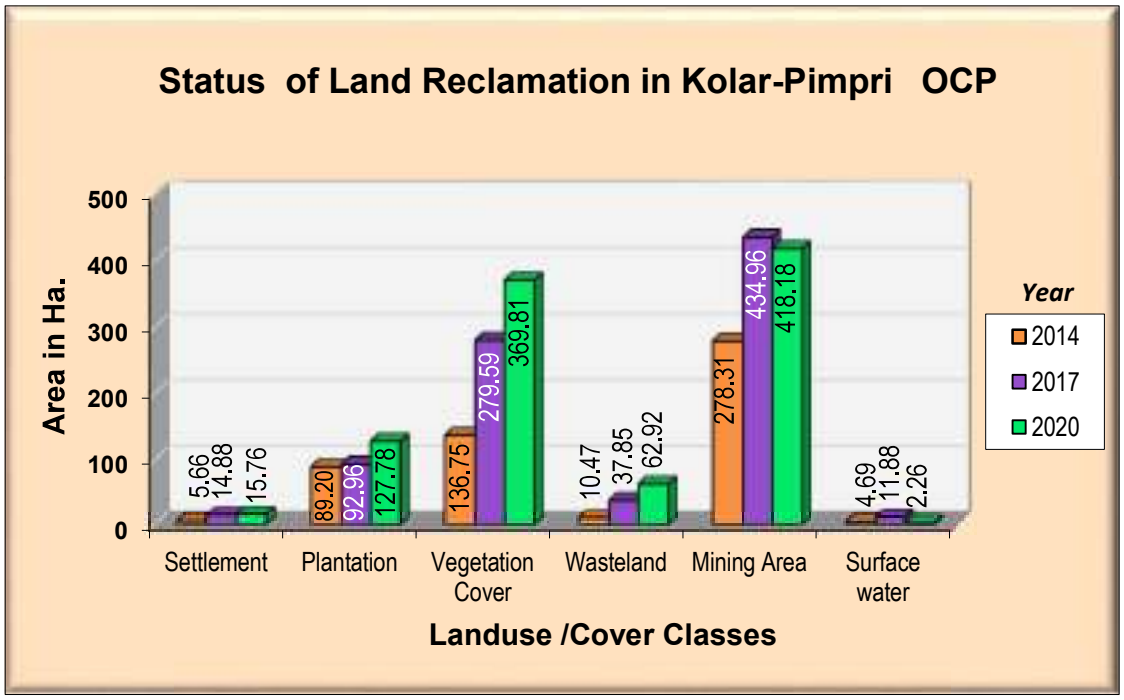

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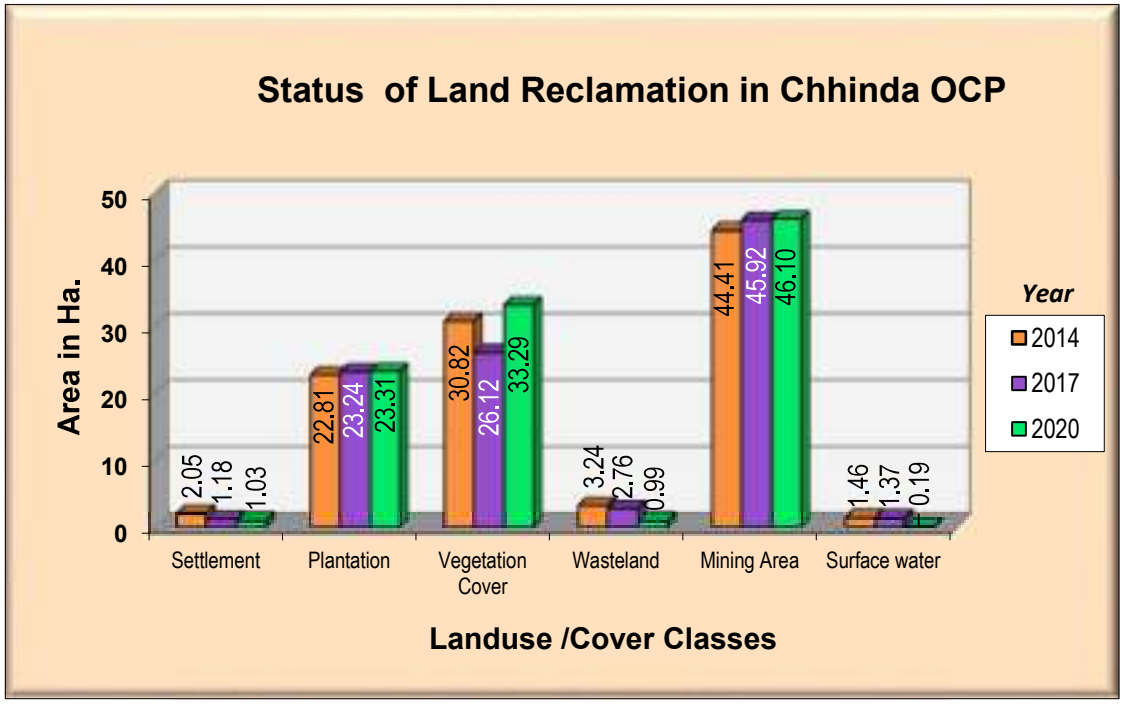

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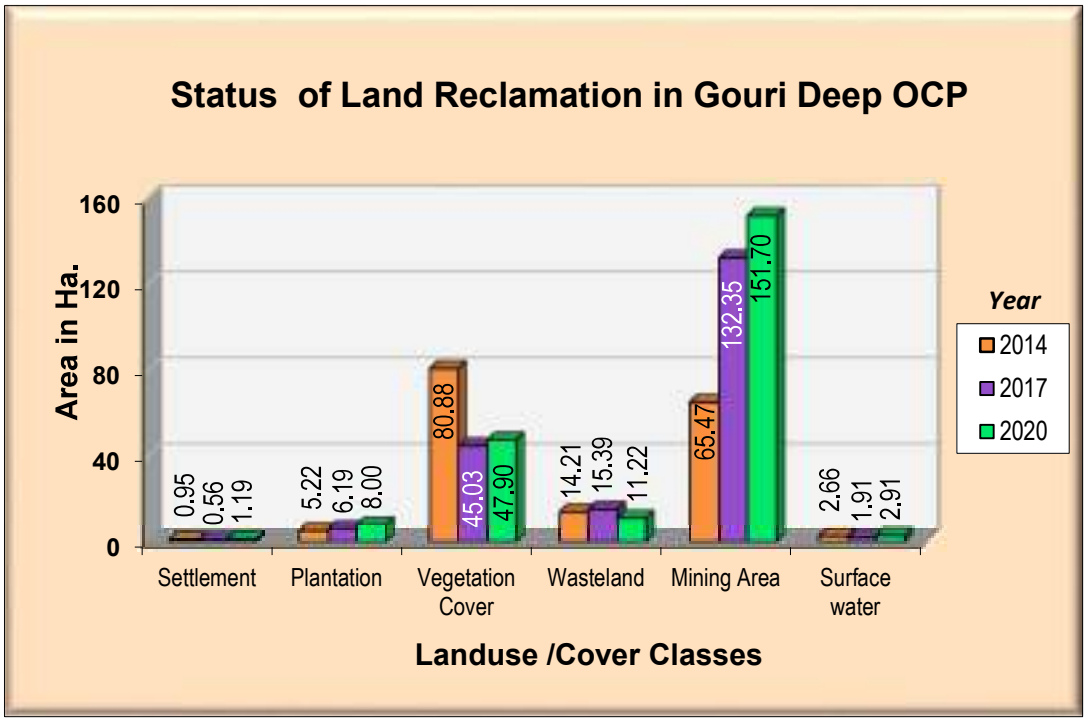
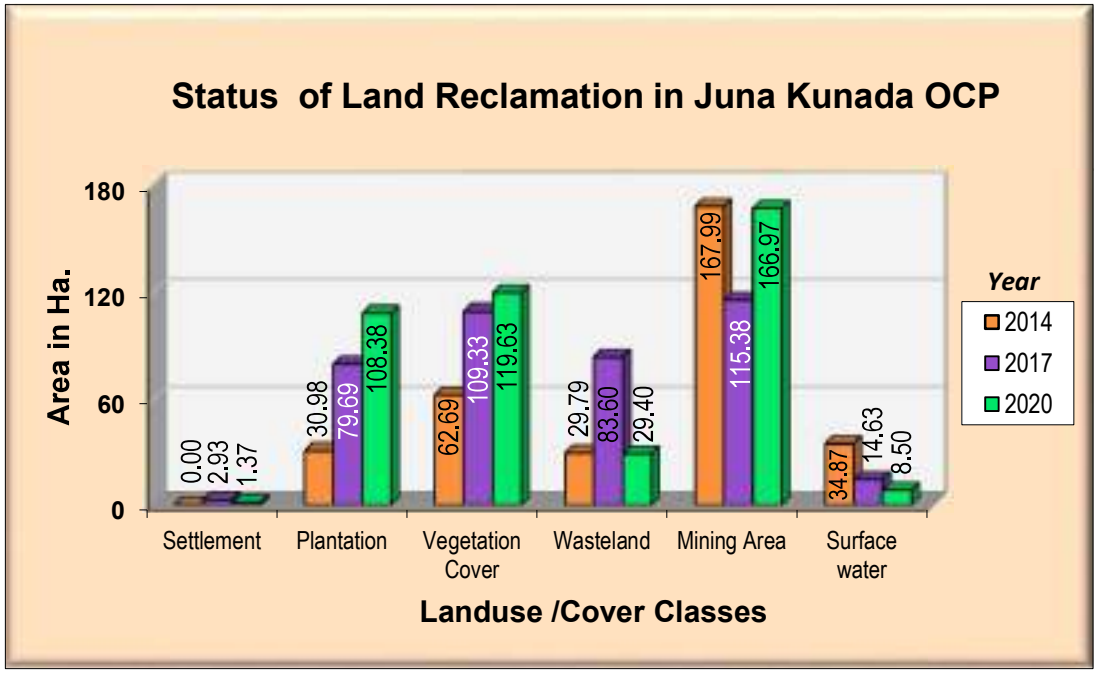


Figure -15



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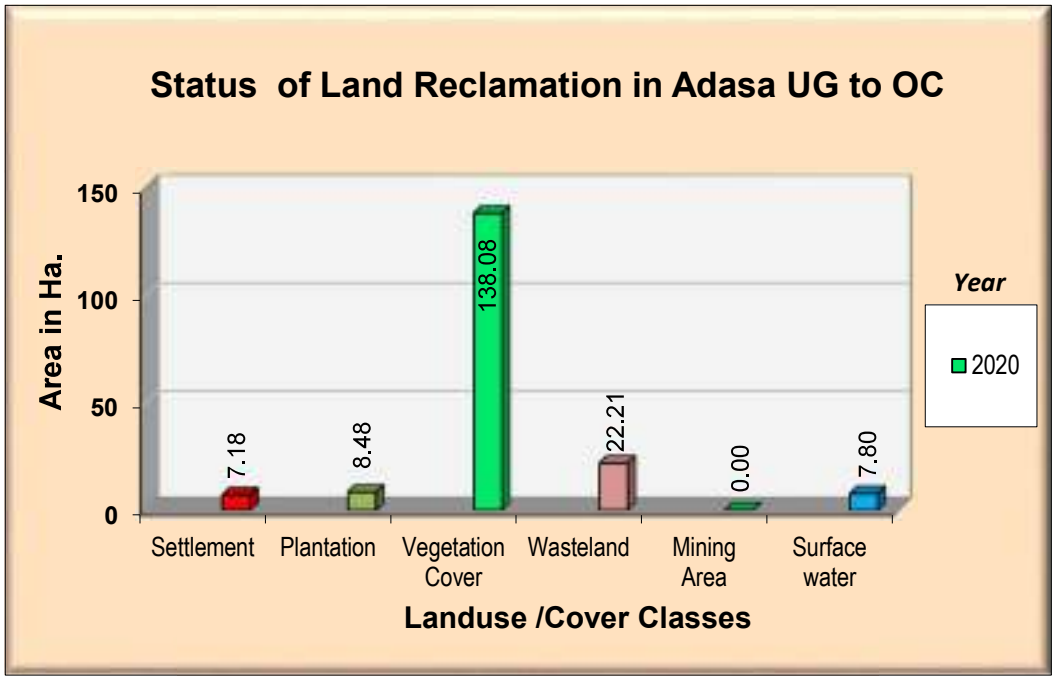
Status of Land Reclamation in Adasa UG to OC
Area in Ha.
150
100
50
0
7.18
8.48
138.08
22.21
0.00
7.80
Settlement
Plantation
Vegetation Cover
Wasteland
Mining Area
Surface water
Landuse /Cover Classes
Year
2020

Figure -17

Photograph 1: Plantation on Barren OB in Gondegaon OCP

Photograph 2: Plantation on Barren OB in Junad Extn OCP

Photograph 3: Plantation on embankment in Kolgaon OCP

Photograph 4: Plantation on Barren OB dump in Kolgaon OC

Photograph 5: Plantation under social forestry in Bellora- Naigaoni OCP

Photograph 6: Plantation on Barren OB Dump in Bellora- Naigaoni OCP

Photograph 7: Plantation on embankment in Ballarpur OCP

Photograph 8: Plantation on backfill in Gauri Expn(A) OCP

Photograph 9: Plantation on embankment in Juna Kunada OCP

Photograph 10: Plantation on Barren OB dump in Juna Extn OCP

Photograph 11: Plantation on Barren OB in Telwasa OCP

Photograph 12: Plantation on embankment in Chhinda OCP

Photograph 13: Plantation under social forestry in Gauri Deep OCP

Photograph 14: Plantation on Barren OB dump in Bhatadi OCP

Central Mine Planning & Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)
Gondwana Place, Kanke Road, Ranchi 834031, Jharkhand
Phone : (+91) 651 2230001, 2230002, 2230483, FAX (+91) 651 231447, 2231851Wesite : www.cmpdi.co.in, Email : cmpdihq@cmpdi.co.in

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Bellora Naigaon Deep Oc Mine		
Project Address:	Near Bellora Village, Wardha Valley Coalfield		
Village:	Belora	Block:	Wani
District:	Yavatmal	State:	Maharashtra
Pin Code:			
Communication Address:	General Manager (env), Wcl (hq), Coal Estate, Civil Line, Nagpur, Nagpur, Maharashtra - 440001		
Address of CGWB Regional Office :	Central Ground Water Board Central Region, N.s. Building, Civil Lines, Nagpur, Maharashtra - 440001		

1.	**NOC No.:**	CGWA/NOC/MIN/ORIG/2021/13797			
2.	Application No.:	21-4/768/MH/MIN/2017	3.	Category: (GWRE 2020)	Safe
4.	Project Status:	Existing Project	5.	NOC Type:	New
6.	**Valid from:**	24/11/2021	7.	**Valid up to:**	23/11/2023

8. Ground Water Abstraction Permitted:

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
18.00	6570.00			11200.00	4088000.00		

9. Details of ground water abstraction /Dewatering structures

	Total Existing No.:1						**Total Proposed No.:0**					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	0	1	0	0	0	0	0	0	0	0
Dewatering Structure*	0	0	0	0	0	2	0	0	0	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

10.	Ground Water Abstraction/Restoration Charges paid (Rs.):	12283710.00

11.	Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
			Manual	DWLR**	DWLR With Telemetry
	**DWLR - Digital Water Level Recorder	2	0	1	1

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

पानी बचाये – जीवन बचाये
SAVE WATER - SAVE LIFE

CENTRAL GROUND WATER AUTHORITY

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) Industries abstracting ground water in excess of 100 m 3 /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.

25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.

26) In case of new infrastructure projects having ground water abstraction of more than 20 m3/day, the firm/entity shall ensure implementation of dual water supply system in the projects.

27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.

28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.

29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

CENTRAL GROUND WATER AUTHORITY

Gmail

Environment Department Wani Area WCL <waniarea.environdept@gmail.com>

Ground water level monitoring report for the period December 2022 -August 2023 and Ground water quality analysis report for the year 2023 with respect to mines of WCL Wani Area

1 message

Environment Department Wani Area WCL <waniarea.environdept@gmail.com> Thu, Nov 23, 2023 at 8:11 PM
To: Central Ground Water Authority <cgwa@nic.in>, rdcr-cgwb@nic.in, psms.cpcb@nic.in, EC Compliance Maharashtra <eccompliance-mh@gov.in>, apccfcentral-ngp-mef@gov.in, RO Chandrapur <rochandrapur@mpcb.gov.in>, SRO Chandrapur <srochandrapur@mpcb.gov.in>, tscr-cgwb <tscr-cgwb@nic.in>
Cc: "GM CGM(MINING),WANIAREA" <agmwani.wcl@coalindia.in>, "GM GM(ENVIRONMENT)" <gmenvironment.wcl@coalindia.in>, irsreddy@coalindia.in, samghugussubarea@gmail.com, pp.karmakar@coalindia.in, Mungoli Opencast <sammungoli@gmail.com>, sanjaymmishra@coalindia.in, neeljaysubarea@gmail.com, ckjain@coalindia.in, pengangaocm@gmail.com, Raveendra R <raveendrar.ravi@gmail.com>, hemantbothra@coalindia.in

Dear Sir,

In compliance with the condition stipulated in Environmental Clearance and CGWA NOC of coal mines of WCL, Wani Area, Ground water level monitoring report for the period December 2022 - August 2023 and Ground water quality analysis report for the year 2023 with respect to following mines of WCL Wani Area are attached in below mentioned google drive link for your kind perusal.

1. Bellora Naigaon Deep OC,
2. Ghugus OC Expn.,
3. Kolgaon OC Expn.,
4. Mungoli OC Expn.,
5. Niljai Deep OC and
6. Penganga OC

https://drive.google.com/drive/folders/1qgk4tVxNkcb6iHxSUaEEdTmFPH0rQ3Cg?usp=drive_link

Thanking you.

With regards,
Area Nodal Officer(Environment),
Wani Area, WCL.

REPORT ON

MONITORING OF GROUND WATER LEVEL

OF

BELLORA NAIGAON DEEP OC MINE,

WANI AREA

WESTERN COALFIELDS LTD.

PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB -2023 (WINTER) , MAY-2023 (PRE-MONSOON) & AUG-23 (MONSOON)

M/s Anacon Laboratories Pvt. Ltd., Nagpur

MoEF&CC (GOI) and NABL Recognized Laboratory
ISO 9001:2015, ISO 14001:2015, ISO 45001:2018
Lab. & Consultancy: FP-34, 35, Food Park,
MIDC, Butibori, Nagpur – 441122
Mob: +91-9372960077
Email: ***ngp@anacon.in***
Website: ***www.anaconlaboratories.com***

Report No. ANqr /PD/20A/2023/199

2022-23 & 2023-24

Certificate

The Ground water Level monitoring has been carried out with due diligence and the Monitoring of Ground Water Level of all observation wells Report have been prepared as per the scope of work order no. वेकोलि/मुख्यालय/पर्यावरण/14-L/77 on date: 08.12.2022.

The report encompasses the Monitoring of Ground water level reports of observation wells pertaining to the BELLORA NAIGAON DEEP OC MINE, Wani area of Yeotmal District, M.S.

Anacon Laboratories Pvt. Ltd. gratefully acknowledges the full cooperation rendered by concerned WCL Officials for timely completion of the project.

Ajinkya Nakod
(Geologist)

Gyanchand Bohra
NABET Accredited EIA Expert
for Hydrogeology & Geology

Nagpur.
September-October-2023

(Dr. D. G. Garway)
Head of Organization
Anacon Laboratories Pvt. Ltd., Nagpur

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INTRODUCTION

Western Coalfields Limited (WCL) is one of the eight Subsidiary Companies of Coal India Limited (CIL) which is under administrative control of Ministry of Coal. The Company incorporated under the Companies Act, 1956 has its registered office at Coal Estate, Civil Lines, Nagpur–440001. WCL has been conferred "Mini-ratna" status on 15 March 2008. It has mining operation spread over the states of Maharashtra (in Nagpur, Chandrapur & Yeotmal Districts) and Madhya Pradesh (in Betul and Chhindwara Districts). It has been divided into 10 administrative areas. The Company is a major source of supplies of coal to the industries located in Western India in the States of Maharashtra, Madhya Pradesh, Gujarat and also in Southern India in the States of Andhra Pradesh, Tamil Nadu, Karnataka and Kerala. A large numbers of Power Houses under Maharashtra, Madhya Pradesh, Gujarat, Karnataka, Punjab and Uttar Pradesh - Electricity Boards are major consumers of its coal along with cement, steel, chemical, fertilizer, paper and brick Industries in these states.

M/s Anacon Laboratories Pvt. Ltd. has been awarded the Work of "Groundwater level Monitoring (i.e. bore well / piezometer Water levels) and Water quality analysis (as per IS10500) for 76 projects / mines of WCL (situated in the state of Madhya Pradesh – Chhindwara & Betul districts and Maharashtra – Nagpur, Chandrapur & Yeotmal districts) for one year as per condition stipulated in Environmental Clearance letters issued by MoEF & CC & NOC issued by CGWA" vide work order वेकोलि/मुख्यालय/पर्यावरण/14-L/77 on date: 08.12.2022.

This Ground Water Level Monitoring report is prepared BELLORA NAIGAON DEEP OC MINE, of Wani area of WCL for 4 seasons i.e. PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB -2023 (WINTER) , MAY-2023 (PRE-MONSOON) & AUG-23 (MONSOON). This mine is located in Wani Area of Yeotmal District, Maharashtra.

GENERAL HYDROGEOLOGICAL CONDITION

The Deccan Trap which is prevalent rock type of the district is the contrast in the nature of water bearing properties of the different units having secondary porosities constituting them. The massive traps with weathered zones and fractures, the vesicular traps with their minutely interconnected and partly filled vesicles and the inter-trappean with their primary porosities play role in determining the groundwater possibilities of the different part of the area.

Groundwater occurs under both water table and confined conditions in the Deccan lava flows. The near surface weathered and jointed zones of massive trap units and vesicular traps constitute the main water table aquifer. Depth to water table of this zone varies between 3.00 to 15.00 mtr. The deeper aquifer is present under confined conditions.

The Gondwana sediments especially the Barakars and Kamthis are respectively Coarse grained and medium to coarse grained sandstones have higher porosities. The Motur stage dominated by shales is less pervious to groundwater. In Gondwana groundwater occurs under both water table and confined conditions. Depth to water table of first zone varies between 1.50 to 16.00 mtr.

The Shales act as confining aquicludes. The Vindhyan dolomities and limestones have poor primary porosities but are characterized by fracture porosities and solution cavities. The fractures have widened with increase in permeability as a result of karstification.

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In the Vindhyans, groundwater is mainly under water table conditions and depth to water table ranges between 0.60 to 13.50 mtr. Alluvial formations restricted to river courses are constituted of gravels, sands and clays which are erratically distributed throughout the alluvium. This results in highly variable primary porosities for depending upon sand/clay ratio. In recent alluvium deposits also, groundwater occurs mainly under water table conditions. Depth to water level ranges between 3.00 to 14.00 mtr.

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BELLORA NAIGAON DEEP OC MINE,

WANI NORTH AREA

WESTERN COALFIELDS LTD.

PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB -2023 (WINTER) , MAY-2023 (PRE-MONSOON) & AUG-23 (MONSOON)

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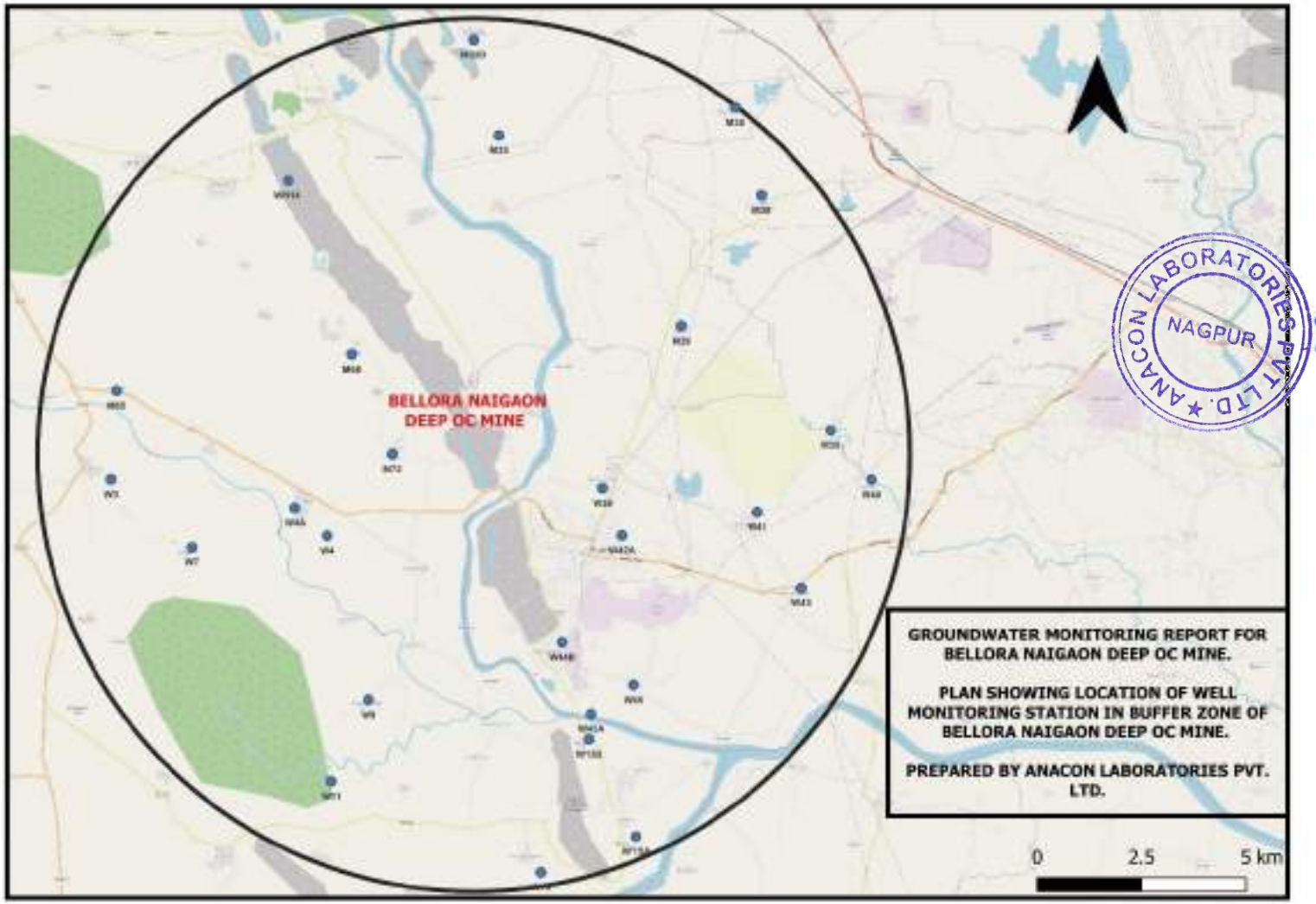

FIGURE-I: GROUND WATER MONITORING STATION (OBSERVATION WELLS IN AND AROUND OF BELLORA NAIGAON DEEP OC MINE)

TABLE-I: Ground Water level Monitoring data from dugwells/piezometers in buffer zone of Bellora -Naigaon Deep OC, Wani Area, WCL

SR.NO	Well No. BA	Name of village	Well location	Latitude	Longitude	R.L. in m	Well dia (m)	Well depth (m bmp)	Height of measuring point (m agl)	Depth to Water (BGL-Below Ground Level)				UTILITY	G/F
										Dec-22	JAN-FEB-23	MAY-23	Aug-23		
1	W3	Sirpur	700 m W of village in field, near to Mendholi road junction	19°57'33.3283058629647"	79°0'28.9777407693123"	210	4.21	7.05	0.27	2.1	2.8	4.8	1.50	DOMESTIC	LIMESTONE
2	W4	Punwat	W of village, low lying area, Twin wells 50m apart	19°57'9.94109204433613"	79°3'0.7767873664260 96"	216	4.57	4.93	0.67	1.1	3.3	4.3	2.60	DOMESTIC	BASALT
3	W4A	Punwat 2	Near Hospital	19°57'9.85"	79°3'0.75"	221	2.3	8	0.34	2.5	2.9	3.9	2.75	DOMESTIC	BASALT
4	W7	Navegaon	About of 300 m N of village, adjacent to Sirpur road	19°56'37.5497120752541"	79°1'35.7345278628395"	220	3.81	4.67	0.24	2.1	3.1	4.3	3.00	DOMESTIC	BASALT
5	W9	Abai	11m W of village, adjacent to road to village.	19°54'31.714780553672"	79°4'1.4185141405937 5"	211	3.2	8.4	0.3	2.6	3.3	5.9	2.50	IRRIGATION	BASALT
6	W11	Shivala	W of village, adjacent to nalla, near to Primary school.	19°53'24.4004044253188"	79°3'30.774253886131 6"	223	2.74	8.66	0.82	3.4	3	4.3	3.70	IRRIGATION	SHELLY LIMESTONE
7	W13 B	Mugoli	SE of village, adjacent to road	19°53'59.2138939079931"	79°7'3.1902744153330 7"	224	4.2	15	0.3	4.6	5.9	10.1	4.10	IRRIGATION	SHELLY LIMESTONE
8	W'15 A	Sakhara	At the eastern edge of the village & apposite High School	19°52'38.8793979522816"	79°7'42.037241727540 5"	214	5.3	17	0.4	4.3	6.35	8.9	3.25	IRRIGATION	SHELLY LIMESTONE

SR.NO	Well No. BA	Name of village	Well location	Latitude	Longitude	R.L. in m	Well dia (m)	Well depth (m bmp)	Height of measuring point (m agl)	Depth to Water (BGL-Below Ground Level)				UTILITY	G/F
										Dec-22	JAN-FEB-23	MAY-23	Aug-23		
9	W16	Kolgaon Navin (pz) pump installed	TW in the primary health centre under construction &about 50 m S of road	19°52'9.41567992899763"	79°6'23.6245258122289"	198	4.2	14	0.3	3.5	4.9	7.0	2.40	DOMESTIC	SHELLY LIMESTONE
10	W38	Mahtardevi	S of the village, adjacent to village road	19°57'26.2228297765034"	79°7'14.6609240236034"	212	2.47	15.12	0.67	4.6	5	8.1	3.10	IRRIGATION	SHELLY LIMESTONE
11	W39	Sonegaon	100 m N of village, near to road culvert	19°58'13.9702453706434"	79°10'22.7201696166788"	194	3.11	12.04	0.85	3.1	5.65	8.7	4.20	IRRIGATION	BASALT
12	W40	Anturla	S of village, near to Bus stop	19°57'33.1010745574105"	79°10'56.4042024139781"	198	2.74	13.78	0.73	4.9	7	8.8	3.90	IRRIGATION	BASALT
13	W41	Shengaon (DCB)	N of village, near GP office	19°57'6.50548680146699"	79°9'22.3561162196154"	194	3.11	12.04	0.85	6.5	7.3	9.0	4.80	IRRIGATION	BASALT
14	W42A	Ghugus	In ST Church compound	19°56'47.3279286546415"	79°7'30.3245314715968"	197	2.62	12	0.3	5.3	9.4	11.8	5.10	DOMESTIC	BASALT
15	W43	Pandharkawda	70 m S of Ghugus - Chandrapur road, near Ambedkar statue	19°56'3.83547657934713"	79°9'58.5304496236154"	224	2.74	9.85	0.73	3.5	4.3	5.4	2.40	DOMESTIC	SHELLY LIMESTONE
16	W44B	Nakoda	N of village, opp. bus stop, near Ambedkar Bhawan	19°55'19.0149829894537"	79°6'41.0888938918015"	194	2.28	11.31	0.88	4.2	5.2	7.3	3.60	IRRIGATION	SHELLY LIMESTONE
17	W45	Usegaon	W of village, near Kasinath Maharaj Mandir	19°54'43.8012640178783"	79°7'40.0704770628113"	198	3.26	14.44	0.55	2.3	5.75	7.8	2.80	IRRIGATION	BASALT

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SR.NO	Well No. BA	Name of village	Well location	Latitude	Longitude	R.L. in m	Well dia (m)	Well depth (m bmp)	Height of measuring point (m agl)	Depth to Water (BGL-Below Ground Level)				UTILITY	G/F
										Dec-22	JAN-FEB-23	MAY-23	Aug-23		
18	W45A	USEGAON 2	CENTER OF VILLAGE	19°54'20"	79°7'5"	202	3.6	11.2	0.3	3.1	4	9.2	2.40	IRRIGATION	BASALT
19	WN14	KESURLI(B)	TW near Kesurli More on E of Wani road	20°1'40"	79°2'55.2"	210	4	9.3	0.5	2.9	4.55	6.2	1.90	D/I	
20	M32B	Dhorwasa	W of village, adjacent to road & near to embankment	20°3'36"	79°5'28"	204	2.62	9.54	0.54	1.6	3	4.9	3.30	IRRIGATION	BASALT
21	M35	Pipri	1.5 km NE of village, adjacent to Bhadravati road, near to road culvart infield	20°2'17.27"	79°5'49.07"	215	1.98	9.38	GL	3.8	4.5	7.7	3.10	IRRIGATION	SHELLY LIMESTONE
22	M36	Goraja	SE of village (60 m outside) near Hanuman Mandir	20°2'40.24"	79°9'4.01"	208	2.22	15.15	0.55	4.7	6.2	11.1	3.60	IRRIGATION	BASALT
23	M38	Sakharwai (DCB)	C of village, near ZP school	20°1'27.85"	79°9'25.94"	204	2.16	9.42	0.36	1.85	3.2	4.4	3.20	IRRIGATION	BASALT
24	M39	Mursa	W of village Ghugus road in field near road junction for Bensan	19°59'39.98"	79°8'19.71"	221	2.32	10.85	0.7	3.1	2.8	5.2	1.70	DOMESTIC	BASALT
25	M65	BETWEEN CHARGAON AND SHELU	IN THE CENTER OF THE VILLAGE	19°58'46.59"	79°0'33.54"	205	3.6	8.7	0.5	2.3	3	5.7	2.10	IRRIGATION	BASALT
26	M68	TARODA VILLAGE	OUT SIDE THE VILLAGE IN AGRICULTURE LAND	19°59'16.44"	79°3'47.46"	210	4	9.3	0.4	3.3	4.1	8.4	2.00	IRRIGATION	SHELLY LIMESTONE

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SR.NO	Well No. BA	Name of village	Well location	Latitude	Longitude	R.L. in m	Well dia (m)	Well depth (m bmp)	Height of measuring point (m agl)	Depth to Water (BGL-Below Ground Level)				UTILITY	G/F
										Dec-22	JAN-FEB-23	MAY-23	Aug-23		
27	M72	KUMBHARI	SOUTH 100M TO THE BHASKAR KIRANA STORE	19°57'54.26"	79°4'20.97"	220	3.6	11.2	0.5	3.1	6.8	9.4	3.20	IRRIGATION	SHELLY LIMESTONE

Note :- m.bmp - metre below measuring point, m.agl -metre above ground level, m.bgl - metre below ground level D - Domestic , I - Irrigation , GP - Gram Panchyat , DCB- Dug cum Borewell, NA- Not Accessible

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ANALYSIS REPORT

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 17

Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-17 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M32B): (Majri Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	07.05.2023 Not Mentioned	Dhorwasa

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	274.75
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	165.90
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	115.2
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.68
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	32.14
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL- 2)
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.32
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	27.94
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	885
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	420
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.20
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.24
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● **BDL- Below detection limit. ● DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1, 4, 7, 12, 14 & 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Gadgay
Deputy Quality Manager

.....END OF REPORT.....

Thanks For putting in your faith and trust in our services, We at Anacon Laboratories cherish our relationship. We put in a lot of hard work to ensure that you have a seamless experience at every step of our relationship. In order to ensure that your next experience will be significantly better, we welcome your feedback over email on feedback@anacon.in

Anacon Laboratories Pvt. Ltd. Nagpur Lab
FP-34, 35,Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045685558 Email : info@anacon.in
https: // www.anaconlaboratories.com

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 34

Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-34 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M35): (Majri Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	08.05.2023 Not Mentioned	Pipri

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	243.35
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	204.19
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	124.18
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.72
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	43.83
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	7.54
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.19
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	31.13
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	955
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	492
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL(DL- 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.21
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● **BDL- Below detection limit.** ● **DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1, 4, 7, 12, 14 & 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Mangesh Pande
Technical Manager

Sneha Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

.....END OF REPORT.....

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TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 35 Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Fatala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-35 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water	

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M36): (Majri Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Moharle	08.05.2023 / Not Mentioned	Goraja

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	227.65
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	197.81
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	139.2
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.74
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	26.29
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	39.35
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.73
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	30.51
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	949
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	456
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL(DL- 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.29
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1, 4, 12, 14 & 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By		Authorized Signatory
Mangesh Fande Technical Manager	Shefali Raut Deputy Technical Manager	Chandan Gariyay Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 36 Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-36 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M38): (Majri Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Moburle	08.05.2023 Not Mentioned	Sakharwai (DCB)

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	219.8
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	178.66
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	148.8
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.75
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	35.06
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	40.33
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.12
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	23.53
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	978
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	516
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.80
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.19
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1, 4, 7, 12, 14 & 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Sanjay Gadway
Deputy Quality Manager

.....END OF REPORT.....

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TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 37 Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-37 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M39); (Majri Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	08.05.2023 Not Mentioned	Mursa

Tests Required: Chemical Testing.

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	211.95
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	140.38
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	100.8
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.67
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	52.59
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.49
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.19
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	23.75
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	852
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	468
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.70
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.30
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1, 4, 7, 12, 14 & 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By		Authorized Signatory
Manjeet Fande Technical Manager	Shahil Raut Deputy Technical Manager	Deepti Gadway Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 38

Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-38 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M65): (Majri Area)	Drinking	1 Ltr

Sample Collected By		Sampling Location
Mr. Mahesh Mohurle	**Sampling Date** 08.05.2023 **Sampling Time** Not Mentioned	Between Chargaon And Shelu

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	243.35
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	165.90
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	120
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.82
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	40.90
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.14
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.98
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	25.94
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	1030
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	588
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.04
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.18
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be referred to tested sample(s) and applicable to tested parameters only ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● **BDL- Below detection limit.** ● **DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1, 4, 7, 12, 14 & 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Mangesh Fande
Technical Manager

Sushil Raut
Deputy Technical Manager

Authorized Signatory

Chaitanya Garvay
Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 41

Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futalo Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-41 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M68); (Majri Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	08.05.2023 Not Mentioned	Taroda Village

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	274.5
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	185.04
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	76.8
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.69
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	35.06
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.96
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.39
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	16.76
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	820
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	336
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL(DL- 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1, 4, 7, 11 & 14 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Mangesh Pande
Technical Manager

Shefali Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Chavan
Deputy Quality Manager

END OF REPORT

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+ 91 8045685558 Email : info@anacon.in
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Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 45

Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-45 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

Sample Name	**Sample Particulars/Details**	**Purpose of analysis**	**Quantity Received**
Ground Water	Ground Water (Well No.: M72): (Majri Area)	Drinking	1 Ltr

Sample Collected By	**Sampling Date** / **Sampling Time**	**Sampling Location**
Mr. Mahesh Mohurle	08.05.2023 / Not Mentioned	Kumbhari

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	251.2
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	134.00
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	139.2
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.64
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	23.37
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL-2)
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.91
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	25.36
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	856
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	444
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL(DL- 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1, 4, 12 & 14 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Mingesh Pande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chetanya Gedway
Deputy Quality Manager

-----END OF REPORT-----

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 1 Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-1 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W3); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	11.05.2023 Not Mentioned	Sirpur

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	127.86
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	83.75
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	48
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.58
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.68
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	12.90
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.88
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	9.78
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	238
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	68
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.58
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.06
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **The Submitted Sample complies with IS:10500:2012 for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.**

Verified By **Authorized Signatory**

Mangesh Fande Technical Manager	Snehal Raut Deputy Technical Manager	Chinmay Garway Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 2

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-2 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W4); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	11.05.2023 Not Mentioned	Punwat

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	182.4
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	58.2
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	57.6
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.68
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.68
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	12.918
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.47
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	4.42
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	328
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	62.8
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.28
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.05
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **The Submitted Sample complies with IS:10500:2012 for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.**

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

END OF REPORT

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 3 Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-3 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W4A); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	11.05.2023 Not Mentioned	Punwat 2

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	180
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	66.96
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	48
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.52
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	14.61
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	16.981
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.21
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	13.980
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	359
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	80
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.73
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.24
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By **Authorized Signatory**

Mangesh Fande Technical Manager	Sochal Raut Deputy Technical Manager	Chinmay Gadway Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 4 Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-4 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W7); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	11.05.2023 Not Mentioned	Navegaon

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	168
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	48.08
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	72
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.64
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.68
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	17.058
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.24
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	14.28
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	372
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	108.28
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.17
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.29
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By **Authorized Signatory**

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Chinmay Gadway
Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC5458230000001690F
Test Report No.: AL.PL/29062023/20- 5

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** AL.PL/08062023/W-3/41-5 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W9); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	11.05.2023 Not Mentioned	Abai

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	120.41
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	78.08
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	24
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.34
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.68
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	8.775
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.66
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	8.23
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	335
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	108
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.38
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.22
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By		Authorized Signatory
Mangesh Fande Technical Manager	Snehal Raut Deputy Technical Manager	Chinmay Gadway Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 7 Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-7 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W11); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	11.05.2023 Not Mentioned	Shivala

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	157
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	150.27
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	52.8
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.48
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.64
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	14.333
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.74
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	36.71
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	455
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	96.7
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.27
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.14
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By **Authorized Signatory**

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Chinmay Garway
Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 8

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-8 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W13B); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	11.05.2023 Not Mentioned	Mugoli

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing I. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	152
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	194.79
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	52.8
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.63
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	22.49
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	14.368
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.62
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	36.79
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	448
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	50.72
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.37
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.11
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By | **Authorized Signatory**

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Chinmay Garway
Deputy Quality Manager

END OF REPORT

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Anacon Laboratories

TC 5458

Test Report

ULR No.- TC5458230000001690F
Test Report No.: ALPL/29062023/20- 9

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-9 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W'15A); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	11.05.2023 Not Mentioned	Sakhara

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	197.52
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	189.23
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	96
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.42
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	BDL(DL- 2)
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.812
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.70
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	10.49
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	446.14
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.4
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	39.09
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.42
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.19
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	0.10

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● **BDL- Below detection limit.** ● **DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 4 & 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By | **Authorized Signatory**

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Chinmay Chawan
Deputy Quality Manager

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FP-34, 35,Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045685558 Email : info@anacon.in
https: // www.anaconlaboratories.com

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC5458230000001690F
Test Report No.: ALPL/29062023/20- 10 Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-10 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W16); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	11.05.2023 Not Mentioned	Kolgaon Navin (pz) pump installed

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	205.7
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	189.23
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	63.36
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.58
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.64
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.879
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.13
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	10.65
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	451
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	35.7
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.15
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.20
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs ● Liability of Anacon Labs is limited to invoiced amount only ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● **BDL:- Below detection limit.** ● **DL:- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1 & 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By **Authorized Signatory**

Mangesh Fande
Technical Manager

Sneeral Raut
Deputy Technical Manager

Chinmay Garway
Deputy Quality Manager

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Anacon Laboratories Pvt. Ltd. Nagpur Lab
FP-34, 35,Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045685558 Email : info@anacon.in
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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 21

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-21 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W38); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	12.05.2023 / Not Mentioned	Mahtardevi

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminum, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	132.1
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	251.2
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	68.64
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.48
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	6.42
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	7.944
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.59
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	55.99
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	476
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	85.2
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.30
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.23
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	0.11

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be referred to tested sample(s) and applicable to tested parameters only ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise ● #Permissible limit in absence of an alternate source for drinking water ● 'mg/l' is equivalent to 'ppm' ● **BDL:- Below detection limit.** ● **DL:- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By | **Authorized Signatory**

For
Mangesh Fande
Technical Manager

Sachal Raut
Deputy Technical Manager

Chinmay Gadway
Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 22

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-22 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W39); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	12.05.2023 Not Mentioned	Sonegaon

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	137
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	235.5
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	68.64
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.72
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.64
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	7.946
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.73
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	55.98
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	488
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	99.00
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.09
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.27
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20-23

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-23 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W40); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	12.05.2023 Not Mentioned	Anturia

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	165.80
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	28.65
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	52.8
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.38
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	6.42
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	23.607
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.89
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	14.25
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	342
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	104
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.52
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.28
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	2.10

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Mangesh Fande
Technical Manager

Shefali Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garlapay
Deputy Quality Manager

END OF REPORT

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TC 5458

Test Report

ULR No.- TC5458230000001690F
Test Report No.: ALPL/29062023/20- 24

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-24 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W41); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	12.05.2023 Not Mentioned	Shengaon (DCB)

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	128.28
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	96.18
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	68.64
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL - 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.64
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	6.42
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	23.63
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.97
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	58.19
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	368
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	97.08
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.43
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.15
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	0.11

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

per
Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

END OF REPORT

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 25

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-25 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W42A); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	12.05.2023 Not Mentioned	Ghugus

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	198.93
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	88.68
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	52.8
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.43
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	6.42
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	19.067
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.75
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	32.416
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	408
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	69.78
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.09
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.11
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Gaikway
Deputy Quality Manager

END OF REPORT

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TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: AL.PL/29062023/20- 26

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** AL.PL/08062023/W-3/41-26 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W43); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	12.05.2023 Not Mentioned	Pandharkawda

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	118.62
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	82.20
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	52.80
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.24
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	9.64
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	19.197
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.75
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	32.37
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	348
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	92.18
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.35
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.15
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

For Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

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TC 5458

Test Report

ULR No.- TC5458230000001690F
Test Report No.: ALPL/29062023/20- 27 Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-27 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W44B); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	12.05.2023 Not Mentioned	Nakoda

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	128.51
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	93.42
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	66.48
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.43
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.85
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	18.82
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.63
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	70.35
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	402
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	87.98
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.61
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.13
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	0.17

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Verified By **Authorized Signatory**

for
Mangesh Fande
Technical Manager

Shefali Raut
Deputy Technical Manager

Chinmay Garway
Deputy Quality Manager

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Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 28

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-28 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W45); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	12.05.2023 Not Mentioned	Usegaon

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	162
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	94.28
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	48.27
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.48
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	6.42
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	18.695
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.92
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	69.97
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	433
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	88.26
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.59
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.26
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. **● BDL:- Below detection limit. ● DL:- DL Indicates detection limit of instrument /method and shall be considered as 'absent'.**

REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test no. 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By		Authorized Signatory
Mangesh Fande Technical Manager	Snehal Raut Deputy Technical Manager	Chinmay Garway Deputy Quality Manager

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Anacon Laboratories Pvt. Ltd. Nagpur Lab
FP-34, 35,Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045685558 Email : info@anacon.in
https: // www.anaconlaboratories.com

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001690F
Test Report No.: ALPL/29062023/20- 29

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-3/41-29 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 27.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: W45A); (Wani Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	13.05.2023 Not Mentioned	Usegaon 2

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminum, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	117.85
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	172.53
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	68.64
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.28
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	6.45
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	13.388
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.13
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	60.50
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	438
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	80.23
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.37
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.06
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	0.59

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REMARKS: As requested by the client, sample was tested for above parameters only. **The Submitted Sample complies with IS:10500:2012 for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.**

Verified By

for Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

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+ 91 8045685558 Email : info@anacon.in
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TC 5458

Test Report

ULR No.- TC545823000001677F
Test Report No.: ALPL/29062023/06- 4

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/09062023/W-1/59-4 **Inward Date** 09.06.2023 **Reference** -	**Analysis Start** 09.06.2023 **Analysis End** 26.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Water	Water (Well No.- WN14) (Wani North Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	14.05.2023 Not Mentioned	Kesurli (B)

Tests Required: Alkalinity, Colour, Chloride, Calcium, Residual Chlorine, Fluoride, Magnesium, Nitrate, Odour, pH, Sulphate, TDS, Turbidity, Total Hardness, Arsenic, Aluminium, Boron, Copper, Cadmium, Iron, Lead, Manganese, Nickel, Selenium, Total Chromium, Zinc

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	219.8
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	153.14
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	148.8
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.82
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	32.142
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	14.95
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.75
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	18.73
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	914
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	504
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.16
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.28
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. **As per IS 10500 : 2012, for test nos. 1, 4, 7, 12, 14 & 22 sample exceeds acceptable limit, however, the result is within permissible limit, indicating that with respect to the tested parameter, it can be used for drinking purpose in absence of an alternate source.**

Verified By

Manglesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

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FP-34, 35,Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122
+ 91 8045685558 Email : info@anacon.in
https: // www.anaconlaboratories.com

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Environment Department Wani Area WCL <waniarea.environdept@gmail.com>

Environment Monitoring Reports for the months from April 2023 to September 2023; Surface water monitoring report QE June 2023,Drinking water monitoring report QE June 2023, Effluent Water Monitoring Report QE December 2022 and Heavy metal report QE June 2023 of mines of WCL Wani Area

1 message

Environment Department Wani Area WCL <waniarea.environdept@gmail.com> Sat, Nov 25, 2023 at 11:10 AM
To: EC Compliance Maharashtra <eccompliance-mh@gov.in>, RO Chandrapur <rochandrapur@mpcb.gov.in>, SRO Chandrapur <srochandrapur@mpcb.gov.in>, apccfcentral-ngp-mef@gov.in
Cc: "GM CGM(MINING),WANIAREA" <agmwani.wcl@coalindia.in>, neeljaysubarea@gmail.com, pengangaocm@gmail.com, Mungoli Opencast <sammungoli@gmail.com>, samghugussubarea@gmail.com, irsreddy@coalindia.in, ckjain@coalindia.in, sanjaymmishra@coalindia.in, pp.karmakar@coalindia.in, Raveendra R <raveendrar.ravi@gmail.com>, hemantbothra@coalindia.in, "GM GM(ENVIRONMENT)" <gmenvironment.wcl@coalindia.in>

Dear Sir,

Please find herewith attached google drive link for Environment Monitoring Reports for the months from April 2023 to September 2023; Surface water monitoring report QE June 2023,Drinking water monitoring report QE June 2023, Effluent Water Monitoring Report QE December 2022 and Heavy metal report QE June 2023 of following mines of WCL Wani Area.
1. Bellora Naigaon Deep OC,
2. Ghugus OC Expn.,
3. Kolgaon OC Expn.,
4. Mungoli OC Expn.,
5. Niljai Deep OC and
6. Penganga OC

https://drive.google.com/drive/folders/1uXi6HxOeF466_dgXn0PUmcP7uPd0uHJ_?usp=drive_link

Thanking You.

With Regards,
Area Nodal Officer,
Environment Department,
Wani Area HQ,
Western Coalfields Limited

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ENVIRONMENTAL MONITORING REPORT

NAIGAON OC

WANI AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

APRIL 2023

Environment Laboratory
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AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

TEST REPORT NO.	RIN/TR/APRIL-23/20		DATE OF ISSUE	30-05-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)			
SAMPLE DESCRIPTION	AIR SAMPLE		SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:			13-04-23 TO 15-05-23

SAM OFFICE		WNGOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
07-04-23	08-04-23	262	156	60	22	16	Clear Sky / Calm
22-04-23	23-04-23	270	162	64	20	14	Clear Sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**-**	**120**	**120**	

WORKSHOP ETP NOCM		WNOA2					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
06-04-23	07-04-23	246	170	60	20	14	Clear Sky / Calm
21-04-23	22-04-23	244	166	56	22	18	Clear Sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**60**	**120**	**120**	

BELLORA REHABILITATION VILLAGE		WNGOA2					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
07-04-23	08-04-23	120	60	40	16	14	Clear Sky / Calm
22-04-23	23-04-23	118	50	36	12	BDL	Clear Sky / Calm
NAAQS, 2009		**-**	**100**	**60**	**80**	**80**	

FILTER PLANT NEAR VIP GUEST HOUSE		WNGOA3					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
07-04-23	08-04-23	128	60	34	12	10	Clear Sky / Calm
22-04-23	23-04-23	126	64	36	14	10	Clear Sky / Calm
NAAQS, 2009		**-**	**100**	**60**	**80**	**80**	

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

FUGITIVE DUST MONITORING

TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017) & PM2.5: USEPA Quality Assurance	
SAMPLE DESCRIPTION	Air sample(Fugitive)	
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:	13-04-23 TO 15-05-23

WEIGHT BRIDGE		WNGOF1		
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	
FROM	TO	5	5	
20-04-23	21-04-23	389	250	Clear Sky / Lightbreeze

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

SAMPLE DESCRIPTION	Water sample	
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)	
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 13-04-23 TO 15-05-23

MINE WATER DISCHARGE:	WNGOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-04-23	3.48	46	20	BDL
22-04-23	3.50	52	36	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNGOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-04-23	6.66	48	76	BDL
22-04-23	6.5	40	80	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JUNE-2015
SAMPLING METHOD	LSOP 6

CHP:	WNGON1		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
APRIL'23	12-04-23	65.4	63.0
APRIL'23	27-04-23	63.8	61.2
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

COLONY(GHUGUS):	WNGON1		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
APRIL'23	12-04-23	44.2	43.1
APRIL'23	27-04-23	43.9	42.2
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Ashwin B Wasnik
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ENVIRONMENTAL MONITORING REPORT

NAIGAON OC

WANI AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

MAY 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102
CMPDI
REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
JARIPATKA, NAGPUR, PIN – 440 014

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

TEST REPORT NO.	RIN/TR/MAY-23/20		DATE OF ISSUE	30-06-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)			
SAMPLE DESCRIPTION	AIR SAMPLE		SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:			16-05-23 TO 15-06-23

SAM OFFICE		WNGOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
08-05-23	09-05-23	277	160	62	20	16	Clear Sky / Calm
22-05-23	23-05-23	262	148	73	18	14	Clear Sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**-**	**120**	**120**	

WORKSHOP ETP NOCM		WNOA2					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
07-05-23	08-05-23	248	163	55	18	14	Clear Sky / Calm
21-05-23	22-05-23	240	167	60	20	16	Clear Sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**60**	**120**	**120**	

BELLORA REHABILITATION VILLAGE		WNGOA2					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
08-05-23	09-05-23	112	56	37	14	12	Clear Sky / Calm
22-05-23	23-05-23	121	50	41	12	10	Clear Sky / Calm
NAAQS, 2009		**-**	**100**	**60**	**80**	**80**	

FILTER PLANT NEAR VIP GUEST HOUSE		WNGOA3					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
08-05-23	09-05-23	122	55	42	12	10	Clear Sky / Calm
22-05-23	23-05-23	118	62	34	14	12	Clear Sky / Calm
NAAQS, 2009		**-**	**100**	**60**	**80**	**80**	

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

SAMPLE DESCRIPTION	Water sample	
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)	
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 16-05-23 TO 15-06-23

MINE WATER DISCHARGE:	WNGOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-05-23	3.68	42	24	BDL
22-05-23	3.45	36	28	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNGOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-05-23	6.4	58	60	BDL
22-05-23	8.04	46	72	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JUNE-2015
SAMPLING METHOD	LSOP 6

CHP:		WNGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAY'23	13-05-23	65.3	64.4
MAY'23	24-05-23	65.5	64.8
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

COLONY(GHUGUS):		WNGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAY'23	13-05-23	44.6	43.4
MAY'23	24-05-23	45.3	44.7
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Ashwin B Wasnik
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ENVIRONMENTAL MONITORING REPORT

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JUNE 2023

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JARIPATKA, NAGPUR, PIN – 440 014

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/20		DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)			
SAMPLE DESCRIPTION	AIR SAMPLE		SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:			16-06-23 TO 15-07-23

SAM OFFICE		WNGOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
09-06-23	10-06-23	260	154	68	22	18	Clear Sky / Calm
23-06-23	24-06-23	266	140	71	20	16	Rainy Sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**-**	**120**	**120**	

WORKSHOP ETP NOCM		WNOA2					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
08-06-23	09-06-23	240	158	50	16	14	Clear Sky / Calm
22-06-23	23-06-23	250	170	62	18	15	Clear Sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**60**	**120**	**120**	

BELLORA REHABILITATION VILLAGE		WNGOA2					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
09-06-23	10-06-23	116	58	32	12	10	Clear Sky / Calm
23-06-23	24-06-23	114	62	36	14	12	Rainy Sky / Calm
NAAQS, 2009		**-**	**100**	**60**	**80**	**80**	

FILTER PLANT NEAR VIP GUEST HOUSE		WNGOA3					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
09-06-23	10-06-23	126	67	46	14	12	Clear Sky / Calm
23-06-23	24-06-23	120	60	40	12	10	Rainy Sky / Calm
NAAQS, 2009		**-**	**100**	**60**	**80**	**80**	

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

SAMPLE DESCRIPTION	Water sample	
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)	
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 16-06-23 TO 15-07-23

MINE WATER DISCHARGE:	WNGOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
09-06-23	3.46	34	28	BDL
23-06-23	3.40	26	32	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNGOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
09-06-23	6.76	36	44	BDL
23-06-23	7.77	33	40	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JUNE-2015
SAMPLING METHOD	LSOP 6

CHP:	WNGON1		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JUNE'23	11-06-23	64.9	64.4
JUNE'23	24-06-23	64.6	64.1
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

COLONY(GHUGUS):	WNGON1		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JUNE'23	11-06-23	43.8	43.1
JUNE'23	24-06-23	43.4	42.8
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Ashwin B Wasnik
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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report		TC-7102
TEST REPORT NO.	RIN/TR/JULY-23/20	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-07-23 TO 14-08-23

SAM OFFICE	WNGOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)				ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2
FROM	TO	5	5	2	6	10
08-07-2023	09-07-2023	296	187	56	21	12	CLEAR / CALM
23-07-2023	24-07-2023	271	168	53	19	11	CLOUDY / CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**-**	**120**	**120**	

WORKSHOP ETP NOCM	WNOA2					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)				ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2
FROM	TO	5	5	2	6	10
06-07-2023	07-07-2023	283	183	63	23	11	RAINY / CALM
20-07-2023	21-07-2023	273	162	58	21	BDL	RAINY / CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**60**	**120**	**120**	

BELLORA REHABILITATION VILLAGE	WNGOA2				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)			ENVIRONMENT CONDITIONS (Sky/Wind)
		PM_{10}	$PM_{2.5}$	NO_2	SO_2
FROM	TO	5	2	6	10
08-07-2023	09-07-2023	87	37	16	BDL	CLEAR / CALM
23-07-2023	24-07-2023	76	34	13	BDL	CLOUDY / CALM
NAAQS, 2009		**100**	**60**	**80**	**80**	

FILTER PLANT NEAR VIP GUEST HOUSE	WNGOA3				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)			ENVIRONMENT CONDITIONS (Sky/Wind)
		PM_{10}	$PM_{2.5}$	NO_2	SO_2
FROM	TO	5	2	6	10
08-07-2023	09-07-2023	89	41	17	BDL	CLEAR / CALM
23-07-2023	24-07-2023	74	38	15	BDL	CLOUDY / CALM
NAAQS, 2009		**100**	**60**	**80**	**80**	

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

FUGITIVE DUST MONITORING

TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017) & PM2.5: USEPA Quality Assurance	
SAMPLE DESCRIPTION	Air sample(Fugitive)	
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:	16-07-23 TO 14-08-23

WEIGHT BRIDGE		WNGOF1		
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	
FROM	TO	5	5	
13-07-2023	14-07-2023	447	278	CLEAR / CALM

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

SAMPLE DESCRIPTION	Water sample	
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)	
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 16-07-23 TO 14-08-23

MINE WATER DISCHARGE:	WNGOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-07-2023	3.44	38	20	BDL
23-07-2023	3.12	42	24	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNGOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-07-2023	7.82	38	32	BDL
23-07-2023	7.28	30	36	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JULY-2015
SAMPLING METHOD	LSOP 6

CHP:	WNGON1		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JULY'23	12-07-2023	65.5	63.1
JULY'23	28-07-2023	67.8	66.9
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

COLONY(GHUGUS):	WNGON1		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JULY'23	12-07-2023	46.4	44.5
JULY'23	28-07-2023	47.4	46.3
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

TEST REPORT NO.	RIN/TR/AUG-23/20		DATE OF ISSUE	30-09-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)			
SAMPLE DESCRIPTION	AIR SAMPLE		SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:			15-08-23 TO 15-09-23

SAM OFFICE		WNGOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
07-08-2023	08-08-2023	318	203	61	23	11	CLOUDY / CALM
22-08-2023	23-08-2023	288	189	57	20	10	CLOUDY / CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**-**	**120**	**120**	

WORKSHOP ETP NOCM		WNOA2					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
10-08-2023	11-08-2023	308	196	61	22	10	CLEAR / CALM
17-08-2023	18-08-2023	262	153	53	20	BDL	RAINY / CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**60**	**120**	**120**	

BELLORA REHABILITATION VILLAGE		WNGOA2				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)				ENVIRONMENT CONDITIONS (Sky/Wind)
		PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	2	6	10	
07-08-2023	08-08-2023	91	41	17	BDL	CLOUDY / CALM
22-08-2023	23-08-2023	84	38	15	BDL	CLOUDY / CALM
NAAQS, 2009		**100**	**60**	**80**	**80**	

FILTER PLANT NEAR VIP GUEST HOUSE		WNGOA3				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)				ENVIRONMENT CONDITIONS (Sky/Wind)
		PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	2	6	10	
07-08-2023	08-08-2023	83	37	16	BDL	CLOUDY / CALM
22-08-2023	23-08-2023	78	34	14	BDL	CLOUDY / CALM
NAAQS, 2009		**100**	**60**	**80**	**80**	

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

SAMPLE DESCRIPTION	Water sample	
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)	
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 15-08-23 TO 15-09-23

MINE WATER DISCHARGE:	WNGOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
07-08-2023	3.68	42	16	BDL
22-08-2023	3.76	36	20	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNGOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
07-08-2023	7.42	42	28	BDL
22-08-2023	8.13	48	44	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, AUG-2015
SAMPLING METHOD	LSOP 6

CHP:		WNGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
AUG'23	13-08-2023	68.4	66.6
AUG'23	19-08-2023	66.4	65.1
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

COLONY(GHUGUS):		WNGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
AUG'23	13-08-2023	47.4	45.5
AUG'23	19-08-2023	47.5	45.5
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Ashwin B Wasnik
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ENVIRONMENTAL MONITORING REPORT

NAIGAON OC

WANI AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

SEPTEMBER 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102
CMPDI
REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102	
TEST REPORT NO.	RIN/TR/SEPT-23/20	DATE OF ISSUE	27-10-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		15-09-23 TO 15-10-23

SAM OFFICE		WNGOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
07-09-23	08-09-23	297	194	63	22	10	CLOUDY/CALM
22-09-23	23-09-23	268	180	56	19	BDL	RAINY/LIGHTBREEZE
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**-**	**120**	**120**	

WORKSHOP ETP NOCM		WNOA2					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
14-09-23	15-09-23	283	186	58	20	10	CLOUDY/CALM
28-09-23	29-09-23	328	211	64	23	11	CLOUDY/CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 2000		**600**	**300**	**60**	**120**	**120**	

BELLORA REHABILITATION VILLAGE		WNGOA2				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)				ENVIRONMENT CONDITIONS (Sky/Wind)
		PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	2	6	10	
07-09-23	08-09-23	98	43	16	BDL	CLOUDY/CALM
22-09-23	23-09-23	77	33	13	BDL	RAINY/LIGHTBREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

FILTER PLANT NEAR VIP GUEST HOUSE		WNGOA3				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)				ENVIRONMENT CONDITIONS (Sky/Wind)
		PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	2	6	10	
07-09-23	08-09-23	94	38	17	BDL	CLOUDY/CALM
22-09-23	23-09-23	81	33	15	BDL	RAINY/LIGHTBREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

SAMPLE DESCRIPTION	Water sample	
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)	
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 15-09-23 TO 15-10-23

MINE WATER DISCHARGE:	WNGOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
07-09-23	3.98	46	16	BDL
23-09-23	4.54	42	20	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNGOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
07-09-23	7.42	48	36	BDL
23-09-23	7.99	52	40	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	TC-7102

NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, SEPT-2015
SAMPLING METHOD	LSOP 6

CHP:		WNGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
SEPT'23	14-09-23	68.6	65.4
SEPT'23	26-09-23	67.6	65.5
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

COLONY(GHUGUS):		WNGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
SEPT'23	14-09-23	47.4	44.4
SEPT'23	26-09-23	46.6	44.7
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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DRINKING WATER MONITORING REPORT

WANI AREA

WESTERN COALFIELDS LTD.

JOB NO.4094423068

QE-JUNE 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102
CMPDI
REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
JARIPATKA, NAGPUR, PIN – 440 014

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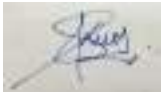
Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Drinking water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/DW20	DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NILJAI DEEP OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	2		

NAME OF LOCATION:	FILTER PLANT			SAMPLING DATE:	21-05-23	
					IS 10500:2012	
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	4	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	2	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.40	6.5 to 8.5	No relaxation
5	Total Hardness (as $CaCO_3$) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	228	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl^-)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	48	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	0.092	0.2	1
9	Fluoride (as F^-)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.34	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	410	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	49.6	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	25.27	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	0.037	0.1	0.3
15	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	99.8	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500-NO3-B UV Spectrophotometric method:2017	0.5	3.21	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation

19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method:2014	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 23rd Edition 4500 B-C Carmine Method:2017	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23:2014	4	160	200	600
25	Nickel-mg/l	APHA, 23rd Edition 3113 B AAS FLAME Method:2017	0.005	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	APHA (23rd Edition) 3113B AAS-GTA Method:2017	0.005	BDL	0.1	0.2

BDL: BELOW DETECTION LIMIT



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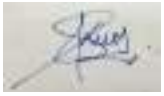
Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Drinking water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/DW21	DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	MUGOLI OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	2		

NAME OF LOCATION:	FILTER PLANT			SAMPLING DATE:	23-05-23	
					IS 10500:2012	
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	4	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	2	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	8.18	6.5 to 8.5	No relaxation
5	Total Hardness (as $CaCO_3$) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	220	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl^-)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	36	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	0.073	0.2	1
9	Fluoride (as F^-)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	1.72	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	400	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	56	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	19.44	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	BDL	0.1	0.3
15	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	110.6	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500-NO3-B UV Spectrophotometric method:2017	0.5	2.91	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation

19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method:2014	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 23rd Edition 4500 B-C Carmine Method:2017	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23:2014	4	152	200	600
25	Nickel-mg/l	APHA, 23rd Edition 3113 B AAS FLAME Method:2017	0.005	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	APHA (23rd Edition) 3113B AAS-GTA Method:2017	0.005	BDL	0.1	0.2

BDL: BELOW DETECTION LIMIT



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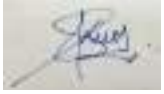
Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Drinking water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/DW22	DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	GHUGUS OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	2		

NAME OF LOCATION:	TRANSIT HOSTEL			SAMPLING DATE:	23-05-23	
					IS 10500:2012	
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	3	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	3	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.76	6.5 to 8.5	No relaxation
5	Total Hardness (as $CaCO_3$) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	164	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl^-)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	46	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	0.082	0.2	1
9	Fluoride (as F^-)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.30	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	360	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	46.4	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	11.66	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	BDL	0.1	0.3
15	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	92.8	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500-NO3-B UV Spectrophotometric method:2017	0.5	3.79	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation

19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method:2014	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 23rd Edition 4500 B-C Carmine Method:2017	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23:2014	4	172	200	600
25	Nickel-mg/l	APHA, 23rd Edition 3113 B AAS FLAME Method:2017	0.005	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	APHA (23rd Edition) 3113B AAS-GTA Method:2017	0.005	BDL	0.1	0.2

BDL: BELOW DETECTION LIMIT



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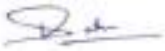

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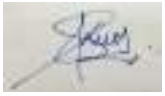
Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Drinking water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/DW23	DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	GHUGUS OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	2		

NAME OF LOCATION:	FILTER PLANT			SAMPLING DATE:	23-05-23	
					IS 10500:2012	
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	4	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	1	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	8.17	6.5 to 8.5	No relaxation
5	Total Hardness (as $CaCO_3$) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	216	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl^-)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	46	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	0.127	0.2	1
9	Fluoride (as F^-)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.38	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	410	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	51.2	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	21.38	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	BDL	0.1	0.3
15	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	102.4	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500-NO3-B UV Spectrophotometric method:2017	0.5	3.35	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation

19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method:2014	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 23rd Edition 4500 B-C Carmine Method:2017	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23:2014	4	188	200	600
25	Nickel-mg/l	APHA, 23rd Edition 3113 B AAS FLAME Method:2017	0.005	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	APHA (23rd Edition) 3113B AAS-GTA Method:2017	0.005	BDL	0.1	0.2

BDL: BELOW DETECTION LIMIT



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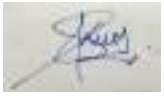
Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Drinking water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/DW24	DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	PENGANGA OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	2		

NAME OF LOCATION:	FILTER PLANT			SAMPLING DATE:	27-05-23	
					IS 10500:2012	
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	2	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	2	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.02	6.5 to 8.5	No relaxation
5	Total Hardness (as $CaCO_3$) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	180	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl^-)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	24	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	0.075	0.2	1
9	Fluoride (as F^-)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.42	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	306	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	32	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	24.3	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	BDL	0.1	0.3
15	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	64.2	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500-NO3-B UV Spectrophotometric method:2017	0.5	3.46	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation

19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method:2014	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 23rd Edition 4500 B-C Carmine Method:2017	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23:2014	4	160	200	600
25	Nickel-mg/l	APHA, 23rd Edition 3113 B AAS FLAME Method:2017	0.005	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	APHA (23rd Edition) 3113B AAS-GTA Method:2017	0.005	BDL	0.1	0.2

BDL: BELOW DETECTION LIMIT



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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Drinking water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/DW25	DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	C W S TADALI	SAMPLING PLAN: LQR 47	
NO. OF PAGES	2		

NAME OF LOCATION:	FILTER PLANT			SAMPLING DATE:	06-05-23	
					IS 10500:2012	
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	2	5	15
2	Odour	IS 3025 Part-5:2014	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Neplometric Method: 2012	1	3	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.89	6.5 to 8.5	No relaxation
5	Total Hardness (as $CaCO_3$) - mg/l	IS 3025 Part-21 EDTA Metod: 2014	4	168	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl^-)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	38	250	1000
8	Residual Chlorine -mg/l	APHA, 23rd Edition 4500-G DPD Colorometric method: 2017	0.02	0.03	0.2	1
9	Fluoride (as F^-)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.419	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	470	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40 : 2014	1.6	31	75	200
12	Magnesium (as Mg) -mg/l	APHA (23rd Ed.) 3500 B, Calculation Method:2017	3	23	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method: 2006	0.02	BDL	0.1	0.3
15	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	71	200	400
16	Nitrates (as NO3) - mg/l	APHA (23rd Edition) 4500-NO3-B UV Spectrophotometric method:2017	0.5	10.98	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	0.01	No relaxation

19	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method:2014	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 23rd Edition 4500 B-C Carmine Method:2017	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23:2014	4	216	200	600
25	Nickel-mg/l	APHA, 23rd Edition 3113 B AAS FLAME Method:2017	0.005	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	APHA (23rd Edition) 3113B AAS-GTA Method:2017	0.005	BDL	0.1	0.2

BDL: BELOW DETECTION LIMIT

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SURFACE WATER MONITORING REPORT

WANI AREA

WESTERN COALFIELDS LTD.

JOB NO.4634420034

QE-JUNE 2023

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102
CMPDI
REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Surface water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/SW23	DATE OF ISSUE	31-08-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	PENGANGA OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	UP STREAM OF PENGANGA RIVER W.R.T. MINE DISCHARGE	SAMPLING DATE:	27-05-23

SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.38
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	4
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	386
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	4.4
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44 : 1993 (RA 2014)	2	3.0
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL
10	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL
14	Fluoride (as F^-)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	1.12
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO^3 B UV Spectrophotometric Method: 2017	0.5	1.08
17	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	57.27
18	Chlorides (as Cl^-)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	40

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Surface water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/SW24	DATE OF ISSUE	31-08-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	PENGANGA OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	DOWN STREAM OF PENGANGA RIVER W.R.T. MINE DISCHARGE	SAMPLING DATE:	27-05-23

SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.67
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	2
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	402
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	5.1
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44 : 1993 (RA 2014)	2	3.6
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL
10	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL
14	Fluoride (as F^{-})- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.38
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO^{3} B UV Spectrophotometric Method: 2017	0.5	0.58
17	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	31.87
18	Chlorides (as Cl^{-})- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	24

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TEST REPORT NO.	RIN/TR/JUNE-23/SW25	DATE OF ISSUE	31-08-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	MUGOLI OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	UP STREAM OF PENGANGA RIVER W.R.T. MINE DISCHARGE	SAMPLING DATE:	23-05-23

SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.70
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	1
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	263
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	4.3
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44 : 1993 (RA 2014)	2	4.2
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL
10	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL
14	Fluoride (as F^-)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.36
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO^3 B UV Spectrophotometric Method: 2017	0.5	1.03
17	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	86.30
18	Chlorides (as Cl^-)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	42

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Surface water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/SW26	DATE OF ISSUE	31-08-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	MUGOLI OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	DOWN STREAM OF PENGANGA RIVER W.R.T. MINE DISCHARGE			SAMPLING DATE:	23-05-23
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**ANALYSIS RESULT**	
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.38	
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	3	
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	380	
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL	
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	3.6	
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44 : 1993 (RA 2014)	2	4.8	
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL	
10	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	BDL	
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	
14	Fluoride (as F^-)- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.37	
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO^3 B UV Spectrophotometric Method: 2017	0.5	1.04	
17	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	54.25	
18	Chlorides (as Cl^-)- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	38	

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TEST REPORT NO.	RIN/TR/JUNE-23/SW27	DATE OF ISSUE	31-08-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NILJAI OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	UP STREAM OF NALA NR WARDHA RIVER W.R.T. MINE DISCHARGE	SAMPLING DATE:	21-05-23

SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.37
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	2
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	346
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	4.6
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44 : 1993 (RA 2014)	2	3.6
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL
10	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	0.031
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL
14	Fluoride (as F^{-})- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.34
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO^{3} B UV Spectrophotometric Method: 2017	0.5	0.84
17	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	110.2
18	Chlorides (as Cl^{-})- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	40

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Surface water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/JUNE-23/SW28	DATE OF ISSUE	31-08-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
NAME OF AREA	WANI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NILJAI OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	DOWN STREAM OF NALA NR WARDHA RIVER W.R.T. MINE DISCHARGE			SAMPLING DATE:	21-05-23
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**ANALYSIS RESULT**	
1	pH Value	IS 3025 Part-11 Electrometric Method: 2017	2	7.72	
2	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method: 2017	1	3	
3	TDS -mg/l	IS 3025 Part-16 Gravimetric Method: 2017	25	370	
4	Oil & Greese - mg/l	IS 3025 (Part 39): 1991 (RA 2003) Partition gravimetric Method	2	BDL	
5	Dissolved Oxygen - mg/l	IS 3025 (Part-38):1989 (RA 2003) Winkler Azide Method	0.1	4.9	
6	B.O.D. (3 days at 27°C) - mg/l	IS 3025 Part 44 : 1993 (RA 2014)	2	5.4	
7	Arsenic (As)-mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	
8	Lead as (Pb) -mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.005	BDL	
9	Hexavalent Chromium -mg/l	APHA, 23rd Edition 3500-Cr B Colorimetric Method: 2017	0.01	BDL	
10	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method :2014	0.03	0.033	
11	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method:2014	0.01	BDL	
12	Selenium (Se) –mg/l	APHA, 23rd Edition 3114 C AAS-VGA Method:2017	0.005	BDL	
13	Cadmium as (Cd)- mg/l	APHA, 23rd Edition 3113 B AAS GTA Method:2017	0.0005	BDL	
14	Fluoride (as F^{-})- mg/l	APHA, 23rd Edition 4500-F D SPADNS Method: 2017	0.02	0.40	
15	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method:2014	0.06	BDL	
16	Nitrate Nitrogen - mg/l	APHA, 23rd Edition 4500-NO^{3} B UV Spectrophotometric Method: 2017	0.5	0.96	
17	Sulphate (as SO_4^{-2}) -mg/l	APHA (23rd Edition) 4500E Turbidimetric Method:2017	2	64.42	
18	Chlorides (as Cl^{-})- mg/l	IS 3025 Part-32 1988 Argentometric Method:2014	2	40	

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ENVIRONMENTAL MONITORING REPORT w.r.t. HEAVY METALS IN AMBIENT AIR

WANI AREA

WESTERN COALFIELDS LTD.

APRIL 2023 TO JUNE 2023

Environment Laboratory

CMPDI

REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2015 COMPANY

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1	HEAVY METAL ANALYSIS REPORT	1 TO 18

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM66	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	NILJAI DEEP OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	CIVIL OFFICE -NILJAI	WNOA-1	06-04-2023
2	WORKSHOP ETP NOCM-I	WNOA-2	06-04-2023
3	NILJAI COLONY	WNOA-3	06-04-2023
4	TARODA VILLAGE	WNOA-4	06-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value				National Ambient Air Quality Standard NAAQS, 2009
				WNOA-1	WNOA-2	WNOA-3	WNOA-4	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	BDL	BDL	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	BDL	BDL	BDL	BDL	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	BDL	BDL	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	BDL	BDL	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM67	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	NAIGAON OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	SAM OFFICE	WNGOA-1	07-04-2023
2	BELLORA REHABILLITATION VILLAGE	WNGOA-3	07-04-2023
3	FILTER PLANT NEAR VIP GUEST HOUSE	WNGOA-4	07-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value			National Ambient Air Quality Standard NAAQS, 2009
				WNGOA-1	WNGOA-3	WNGOA-4	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	BDL	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	0.0074	BDL	BDL	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	BDL	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	BDL	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM68	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	GHUGHUS OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	ACC PATCH NAER ACC COLONY	WGOA-1	08-04-2023
2	SAM OFFICE	WGOA-2	07-04-2023
3	RAM NAGUR COLONY	WGOA-3	08-04-2023
4	GHUGUS VILLAGE (GP OFFICE)	WGOA-4	07-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value				National Ambient Air Quality Standard NAAQS, 2009
				WGOA-1	WGOA-2	WGOA-3	WGOA-4	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	BDL	BDL	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	BDL	BDL	BDL	BDL	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	BDL	BDL	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	BDL	BDL	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM69	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	PENGANGA OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	MANAGER OFFICE / WORKSHOP	WPOA-1	10-04-2023
2	NEAR MINE	WPOA-2	10-04-2023
3	WIRUR VILLAGE	WPOA-3	10-04-2023
4	GADEGAON VILLAGE	WPOA-4	10-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value				National Ambient Air Quality Standard NAAQS, 2009
				WPOA-1	WPOA-2	WPOA-3	WPOA-4	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	BDL	BDL	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	BDL	0.0079	BDL	BDL	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	0.0051	BDL	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	0.0016	BDL	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM70	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	MUNGOLI OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	SUB-STATION	WMOA-1	09-04-2023
2	SAM OFFICE	WMOA-2	08-04-2023
3	KAILASHNAGAR TOWNSHIP NEAR FILTER PLANT	WMOA-3	09-04-2023
4	TUBWELL NEAR SAKHARA VILLAGE	WMAO-4	08-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value				National Ambient Air Quality Standard NAAQS, 2009
				WMOA-1	WMOA-2	WMOA-3	WMAO-4	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	BDL	BDL	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	BDL	BDL	BDL	BDL	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	BDL	BDL	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	BDL	BDL	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	BDL	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM71	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	KOLGAON OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	MANAGER OFFICE	WKOA-1	09-04-2023
2	KOLGAON VILLAGE	WKOA-3	09-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value		National Ambient Air Quality Standard NAAQS, 2009
				WKOA-1	WKOA-2	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	0.0079	BDL	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM72	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	NILJAI DEEP OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	CHP	WNOF-1	19-04-2023
2	WEIGH BRIDGE	WNOF-2	19-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value		National Ambient Air Quality Standard NAAQS, 2009
				WNOF-1	WNOF-2	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	0.0084	0.0089	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	0.0052	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM73	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	NAIGAON OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	WIEGH BRIDGE	WNGOF-1	20-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value	National Ambient Air Quality Standard NAAQS, 2009
				WNGOF-1	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	0.0084	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	0.0018	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM74	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	GHUGHUS OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	CHP	WGOF-1	21-04-2023
2	RAILWAY SIDING	WGOF-2	21-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value		National Ambient Air Quality Standard NAAQS, 2009
				WGOF-1	WGOF-2	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	0.0078	0.0081	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	0.0051	0.0048	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM75	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	PENGANGA OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	NEAR WORKSHOP/KARGIL CHOWK	WPOF-1	23-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value	National Ambient Air Quality Standard NAAQS, 2009
				WPOF-1	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	0.0076	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	**

BDL: BELOW DETECTION LIMIT

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM76	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	MUNGOLI OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	SECURITY CHECK POST	WMOF-1	22-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value	National Ambient Air Quality Standard NAAQS, 2009
				WMOF-1	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	0.0080	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	0.0046	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	**

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals

TEST REPORT NO.	RIN/TR/JUNE /HM78	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	KOLGAON OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	WIEGH BRIDGE	WGKF-1	22-04-2023

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value	National Ambient Air Quality Standard NAAQS, 2009
				WGKF-1	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	0.0084	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	0.0019	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	**

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EFFLUENT WATER MONITORING REPORT

WANI AREA

WESTERN COALFIELDS LTD.

JOB NO.4634420034

QE-DECEMBER 2022

Environment Laboratory

NABL ACCREDITED VIDE NO TC-7102 UP TO 28.06.2022

CMPDI

REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
JARIPATKA, NAGPUR, PIN – 440 014

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Effluent water quality monitoring data	TC-7102

TEST REPORT NO.	RIN/TR/DEC'22 /MD37	DATE OF ISSUE	30-01-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
NAME OF AREA	WANI AREA	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NILJAI DEEP OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	MINE WATER DISCHARGE			SAMPLING DATE:		05-11-2022
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**Standard for Discharge PARTA Schedule VI**	**Analysis result**	**Remarks**
1	pH Value	IS 3025/11:1983 Electrometric	2	5.5 to 9.0	7.89	
2	Temperature (°C)	IS 3025 (Part-9)	4°	Te < Ts + 5OC	23.8	
3	Colour (Hazen)	APHA 23rd Edition Platinum Cobalt	1	*	7	
4	Odour	IS 3025/05: 1983, Physical, Qualitative	Qualitative	Unobjectionable	Unobjectionable	
5	TSS mg/l	IS 3025/17:1984 Gravimetric	10	100	16	
6	Oil & Grease mg/l	IS 3025/39: 1991 Partition Gravimetric	2	10	BDL	
7	C.O.D mg/l	APHA,23rd Edition Closed Reflux	4	250	28	
8	B.O.D. (3days at 27°C mg/l)	IS 3025 (Part 44) : 1993	2	30	82	
9	Residual Chlorine mg/l	APHA, 23rd Edition DPD	0.02	1	0.08	
10	Ammonical Nitrogen mg/l	IS 3025 (Part-34) : 1988	0.02	50	47	
11	Total Kjeldahl Nitrogen mg/l	APHA, 23rd Edition Kjeldahl	1	100	1.39	
12	Dissolved Phosphate mg/l	APHA, 23rd Edition Molybdovanadate	0.3	5	1.62	
13	Arsenic (As)-mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.2	BDL	
14	Lead as (Pb) -mg/l	APHA, 23rd Edition AAS-GTA	0.005	0.1	BDL	
15	Hexavalent Chromium mg/l	APHA, 23rd Edition 1,5-Diphenylcarbohydrazide	0.01	0.1	0.008	
16	Total Chromium -mg/l	IS-3025 (Part 52) : 2003 AAS Flame	0.03	2	BDL	
17	Copper (as Cu) -mg/l	IS-3025/42 : 1992 AAS-Flame	0.03	3	BDL	
18	Zinc as (Zn) -mg/l	IS-3025/49 : 1994 AAS-Flame	0.01	5	0.012	
19	Selenium (Se) –mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.05	BDL	
20	Nickel-mg/l	IS-3025 (Part 54) : 2003 AAS Flame Method	0.5	3	BDL	
21	Cadmium as (Cd)- mg/l	APHA, 23rd Edition AAS-GTA	0.0005	2	BDL	
22	Fluoride (as F-)- mg/l	APHA, 23rd Edition SPADNS	0.02	2	0.98	
23	Sulphide - mg/l	APHA, 23rd Edition Methylene blue	0.1	2	0.008	
24	Iron - mg/l	IS-3025/53 : 2003 AAS Flame	0.06	3	BDL	
25	Manganese as (Mn)- mg/l	IS-3025/59 : 2006 AAS Flame	0.02	2	BDL	
26	Nitrates Nitrogen(as NO3) - mg/l	APHA, 23rd Edition UV - Spectrophotometric	0.5	10	1.5	

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Effluent water quality monitoring data	

TEST REPORT NO.	RIN/TR/DEC'22 /MD38	DATE OF ISSUE	30-01-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
NAME OF AREA	WANI AREA	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NAIGAON OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	MINE WATER DISCHARGE				SAMPLING DATE:	06-11-2022
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**Standard for Discharge PARTA Schedule VI**	**Analysis result**	**Remarks**
1	pH Value	IS 3025/11:1983 Electrometric	2	5.5 to 9.0	3.13	
2	Temperature (°C)	IS 3025 (Part-9)	4°	Te < Ts + 5OC	23.6	
3	Colour (Hazen)	APHA 23rd Edition Platinum Cobalt	1	*	2	
4	Odour	IS 3025/05: 1983, Physical, Qualitative	Qualitative	Unobjectionable	Unobjectionable	
5	TSS mg/l	IS 3025/17:1984 Gravimetric	10	100	42	
6	Oil & Grease mg/l	IS 3025/39: 1991 Partition Gravimetric	2	10	BDL	
7	C.O.D mg/l	APHA,23rd Edition Closed Reflux	4	250	20	
8	B.O.D. (3days at 27°C mg/l)	IS 3025 (Part 44) : 1993	2	30	3.8	
9	Residual Chlorine mg/l	APHA, 23rd Edition DPD	0.02	1	0.02	
10	Ammonical Nitrogen mg/l	IS 3025 (Part-34) : 1988	0.02	50	0.44	
11	Total Kjeldahl Nitrogen mg/l	APHA, 23rd Edition Kjeldahl	1	100	1.43	
12	Dissolved Phosphate mg/l	APHA, 23rd Edition Molybdovanadate	0.3	5	0.47	
13	Arsenic (As)-mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.2	BDL	
14	Lead as (Pb) -mg/l	APHA, 23rd Edition AAS-GTA	0.005	0.1	BDL	
15	Hexavalent Chromium mg/l	APHA, 23rd Edition 1,5-Diphenylcarbohydrazide	0.01	0.1	0.008	
16	Total Chromium -mg/l	IS-3025 (Part 52) : 2003 AAS Flame	0.03	2	BDL	
17	Copper (as Cu) -mg/l	IS-3025/42 : 1992 AAS-Flame	0.03	3	BDL	
18	Zinc as (Zn) -mg/l	IS-3025/49 : 1994 AAS-Flame	0.01	5	0.024	
19	Selenium (Se) –mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.05	BDL	
20	Nickel-mg/l	IS-3025 (Part 54) : 2003 AAS Flame Method	0.5	3	0.76	
21	Cadmium as (Cd)- mg/l	APHA, 23rd Edition AAS-GTA	0.0005	2	BDL	
22	Fluoride (as F-)- mg/l	APHA, 23rd Edition SPADNS	0.02	2	0.9	
23	Sulphide - mg/l	APHA, 23rd Edition Methylene blue	0.1	2	0.006	
24	Iron - mg/l	IS-3025/53 : 2003 AAS Flame	0.06	3	0.748	
25	Manganese as (Mn)- mg/l	IS-3025/59 : 2006 AAS Flame	0.02	2	8.4	
26	Nitrates Nitrogen(as NO3) - mg/l	APHA, 23rd Edition UV - Spectrophotometric	0.5	10	0.5	

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TEST REPORT NO.	RIN/TR/DEC'22 /MD39	DATE OF ISSUE	30-01-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
NAME OF AREA	WANI AREA	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	PENGANGA OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	MINE WATER DISCHARGE				SAMPLING DATE:	09-11-2022
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**Standard for Discharge PARTA Schedule VI**	**Analysis result**	**Remarks**
1	pH Value	IS 3025/11:1983 Electrometric	2	5.5 to 9.0	7.8	
2	Temperature (°C)	IS 3025 (Part-9)	4°	Te < Ts + 5OC	23.7	
3	Colour (Hazen)	APHA 23rd Edition Platinum Cobalt	1	*	4	
4	Odour	IS 3025/05: 1983, Physical, Qualitative	Qualitative	Unobjectionable	Unobjectionable	
5	TSS mg/l	IS 3025/17:1984 Gravimetric	10	100	40	
6	Oil & Grease mg/l	IS 3025/39: 1991 Partition Gravimetric	2	10	BDL	
7	C.O.D mg/l	APHA,23rd Edition Closed Reflux	4	250	56	
8	B.O.D. (3days at 27°C mg/l)	IS 3025 (Part 44) : 1993	2	30	6.3	
9	Residual Chlorine mg/l	APHA, 23rd Edition DPD	0.02	1	0.06	
10	Ammonical Nitrogen mg/l	IS 3025 (Part-34) : 1988	0.02	50	0.58	
11	Total Kjeldahl Nitrogen mg/l	APHA, 23rd Edition Kjeldahl	1	100	1.46	
12	Dissolved Phosphate mg/l	APHA, 23rd Edition Molybdovanadate	0.3	5	0.31	
13	Arsenic (As)-mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.2	BDL	
14	Lead as (Pb) -mg/l	APHA, 23rd Edition AAS-GTA	0.005	0.1	BDL	
15	Hexavalent Chromium mg/l	APHA, 23rd Edition 1,5-Diphenylcarbohydrazide	0.01	0.1	0.002	
16	Total Chromium -mg/l	IS-3025 (Part 52) : 2003 AAS Flame	0.03	2	BDL	
17	Copper (as Cu) -mg/l	IS-3025/42 : 1992 AAS-Flame	0.03	3	BDL	
18	Zinc as (Zn) -mg/l	IS-3025/49 : 1994 AAS-Flame	0.01	5	BDL	
19	Selenium (Se) –mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.05	BDL	
20	Nickel-mg/l	IS-3025 (Part 54) : 2003 AAS Flame Method	0.5	3	BDL	
21	Cadmium as (Cd)- mg/l	APHA, 23rd Edition AAS-GTA	0.0005	2	BDL	
22	Fluoride (as F-)- mg/l	APHA, 23rd Edition SPADNS	0.02	2	1.37	
23	Sulphide - mg/l	APHA, 23rd Edition Methylene blue	0.1	2	0.008	
24	Iron - mg/l	IS-3025/53 : 2003 AAS Flame	0.06	3	0.104	
25	Manganese as (Mn)- mg/l	IS-3025/59 : 2006 AAS Flame	0.02	2	0.023	
26	Nitrates Nitrogen(as NO3) - mg/l	APHA, 23rd Edition UV - Spectrophotometric	0.5	10	0.6	

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Effluent water quality monitoring data	

TEST REPORT NO.	RIN/TR/DEC'22 /MD40	DATE OF ISSUE	30-01-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
NAME OF AREA	WANI AREA	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	MUGOLI OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	MINE WATER DISCHARGE				SAMPLING DATE:	08-11-2022
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**Standard for Discharge PARTA Schedule VI**	**Analysis result**	**Remarks**
1	pH Value	IS 3025/11:1983 Electrometric	2	5.5 to 9.0	7.4	
2	Temperature (°C)	IS 3025 (Part-9)	4°	Te < Ts + 5OC	23.9	
3	Colour (Hazen)	APHA 23rd Edition Platinum Cobalt	1	*	6	
4	Odour	IS 3025/05: 1983, Physical, Qualitative	Qualitative	Unobjectionable	Unobjectionable	
5	TSS mg/l	IS 3025/17:1984 Gravimetric	10	100	42	
6	Oil & Grease mg/l	IS 3025/39: 1991 Partition Gravimetric	2	10	BDL	
7	C.O.D mg/l	APHA,23rd Edition Closed Reflux	4	250	36	
8	B.O.D. (3days at 27°C mg/l)	IS 3025 (Part 44) : 1993	2	30	1.2	
9	Residual Chlorine mg/l	APHA, 23rd Edition DPD	0.02	1	0.04	
10	Ammonical Nitrogen mg/l	IS 3025 (Part-34) : 1988	0.02	50	0.124	
11	Total Kjeldahl Nitrogen mg/l	APHA, 23rd Edition Kjeldahl	1	100	1.028	
12	Dissolved Phosphate mg/l	APHA, 23rd Edition Molybdovanadate	0.3	5	0.5	
13	Arsenic (As)-mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.2	BDL	
14	Lead as (Pb) -mg/l	APHA, 23rd Edition AAS-GTA	0.005	0.1	0.2	
15	Hexavalent Chromium mg/l	APHA, 23rd Edition 1,5-Diphenylcarbohydrazide	0.01	0.1	0.006	
16	Total Chromium -mg/l	IS-3025 (Part 52) : 2003 AAS Flame	0.03	2	BDL	
17	Copper (as Cu) -mg/l	IS-3025/42 : 1992 AAS-Flame	0.03	3	BDL	
18	Zinc as (Zn) -mg/l	IS-3025/49 : 1994 AAS-Flame	0.01	5	0.07	
19	Selenium (Se) –mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.05	BDL	
20	Nickel-mg/l	IS-3025 (Part 54) : 2003 AAS Flame Method	0.5	3	0.27	
21	Cadmium as (Cd)- mg/l	APHA, 23rd Edition AAS-GTA	0.0005	2	0.011	
22	Fluoride (as F-)- mg/l	APHA, 23rd Edition SPADNS	0.02	2	1.8	
23	Sulphide - mg/l	APHA, 23rd Edition Methylene blue	0.1	2	BDL	
24	Iron - mg/l	IS-3025/53 : 2003 AAS Flame	0.06	3	0.11	
25	Manganese as (Mn)- mg/l	IS-3025/59 : 2006 AAS Flame	0.02	2	2.6	
26	Nitrates Nitrogen(as NO3) - mg/l	APHA, 23rd Edition UV - Spectrophotometric	0.5	10	2.09	

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Effluent water quality monitoring data	

TEST REPORT NO.	RIN/TR/DEC'22 /MD41	DATE OF ISSUE	30-01-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
NAME OF AREA	WANI AREA	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	KOLGAON OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	MINE WATER DISCHARGE				SAMPLING DATE:	06-11-2022
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**Standard for Discharge PARTA Schedule VI**	**Analysis result**	**Remarks**
1	pH Value	IS 3025/11:1983 Electrometric	2	5.5 to 9.0	8.09	
2	Temperature (°C)	IS 3025 (Part-9)	4°	Te < Ts + 5OC	23.7	
3	Colour (Hazen)	APHA 23rd Edition Platinum Cobalt	1	*	5	
4	Odour	IS 3025/05: 1983, Physical, Qualitative	Qualitative	Unobjectionable	Unobjectionable	
5	TSS mg/l	IS 3025/17:1984 Gravimetric	10	100	26	
6	Oil & Grease mg/l	IS 3025/39: 1991 Partition Gravimetric	2	10	BDL	
7	C.O.D mg/l	APHA,23rd Edition Closed Reflux	4	250	32	
8	B.O.D. (3days at 27°C mg/l)	IS 3025 (Part 44) : 1993	2	30	4.6	
9	Residual Chlorine mg/l	APHA, 23rd Edition DPD	0.02	1	0.08	
10	Ammonical Nitrogen mg/l	IS 3025 (Part-34) : 1988	0.02	50	0.46	
11	Total Kjeldahl Nitrogen mg/l	APHA, 23rd Edition Kjeldahl	1	100	1.42	
12	Dissolved Phosphate mg/l	APHA, 23rd Edition Molybdovanadate	0.3	5	1.85	
13	Arsenic (As)-mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.2	BDL	
14	Lead as (Pb) -mg/l	APHA, 23rd Edition AAS-GTA	0.005	0.1	BDL	
15	Hexavalent Chromium mg/l	APHA, 23rd Edition 1,5-Diphenylcarbohydrazide	0.01	0.1	0.008	
16	Total Chromium -mg/l	IS-3025 (Part 52) : 2003 AAS Flame	0.03	2	BDL	
17	Copper (as Cu) -mg/l	IS-3025/42 : 1992 AAS-Flame	0.03	3	BDL	
18	Zinc as (Zn) -mg/l	IS-3025/49 : 1994 AAS-Flame	0.01	5	BDL	
19	Selenium (Se) –mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.05	BDL	
20	Nickel-mg/l	IS-3025 (Part 54) : 2003 AAS Flame Method	0.5	3	BDL	
21	Cadmium as (Cd)- mg/l	APHA, 23rd Edition AAS-GTA	0.0005	2	BDL	
22	Fluoride (as F-)- mg/l	APHA, 23rd Edition SPADNS	0.02	2	1.66	
23	Sulphide - mg/l	APHA, 23rd Edition Methylene blue	0.1	2	0.005	
24	Iron - mg/l	IS-3025/53 : 2003 AAS Flame	0.06	3	BDL	
25	Manganese as (Mn)- mg/l	IS-3025/59 : 2006 AAS Flame	0.02	2	BDL	
26	Nitrates Nitrogen(as NO3) - mg/l	APHA, 23rd Edition UV - Spectrophotometric	0.5	10	1.9	

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Effluent water quality monitoring data	

TEST REPORT NO.	RIN/TR/DEC'22 /MD37a	DATE OF ISSUE	30-01-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
NAME OF AREA	WANI AREA	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NILJAI DEEP OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	ETP WATER DISCHARGE				SAMPLING DATE:	05-11-2022
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**Standard for Discharge PARTA**	**Analysis result**	**Remarks**
1	pH Value	IS 3025/11:1983 Electrometric	2	5.5 to 9.0	7.89	
2	Temperature (°C)	IS 3025 (Part-9)	4°	Te < Ts + 5OC	23.8	
3	Colour (Hazen)	APHA 23rd Edition Platinum Cobalt	1	*	7	
4	Odour	IS 3025/05: 1983, Physical, Qualitative	Qualitative	Unobjectionable	Unobjectionable	
5	TSS mg/l	IS 3025/17:1984 Gravimetric	10	100	16	
6	Oil & Grease mg/l	IS 3025/39: 1991 Partition Gravimetric	2	10	BDL	
7	C.O.D mg/l	APHA,23rd Edition Closed Reflux	4	250	28	
8	B.O.D. (3days at 27°C mg/l)	IS 3025 (Part 44) : 1993	2	30	8.2	
9	Residual Chlorine mg/l	APHA, 23rd Edition DPD	0.02	1	0.08	
10	Ammonical Nitrogen mg/l	IS 3025 (Part-34) : 1988	0.02	50	0.47	
11	Total Kjeldahl Nitrogen mg/l	APHA, 23rd Edition Kjeldahl	1	100	1.39	
12	Dissolved Phosphate mg/l	APHA, 23rd Edition Molybdovanadate	0.3	5	1.62	
13	Arsenic (As)-mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.2	BDL	
14	Lead as (Pb) -mg/l	APHA, 23rd Edition AAS-GTA	0.005	0.1	BDL	
15	Hexavalent Chromium mg/l	APHA, 23rd Edition 1,5-Diphenylcarbohydrazide	0.01	0.1	0.008	
16	Total Chromium -mg/l	IS-3025 (Part 52) : 2003 AAS Flame	0.03	2	BDL	
17	Copper (as Cu) -mg/l	IS-3025/42 : 1992 AAS-Flame	0.03	3	BDL	
18	Zinc as (Zn) -mg/l	IS-3025/49 : 1994 AAS-Flame	0.01	5	BDL	
19	Selenium (Se) –mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.05	BDL	
20	Nickel-mg/l	IS-3025 (Part 54) : 2003 AAS Flame Method	0.5	3	BDL	
21	Cadmium as (Cd)- mg/l	APHA, 23rd Edition AAS-GTA	0.0005	2	BDL	
22	Fluoride (as F-)- mg/l	APHA, 23rd Edition SPADNS	0.02	2	0.98	
23	Sulphide - mg/l	APHA, 23rd Edition Methylene blue	0.1	2	0.008	
24	Iron - mg/l	IS-3025/53 : 2003 AAS Flame	0.06	3	BDL	
25	Manganese as (Mn)- mg/l	IS-3025/59 : 2006 AAS Flame	0.02	2	BDL	
26	Nitrates Nitrogen(as NO3) - mg/l	APHA, 23rd Edition UV - Spectrophotometric	0.5	10	1.5	

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SCIENTIFIC ASSISTANT

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Effluent water quality monitoring data	

TEST REPORT NO.	RIN/TR/DEC'22 /MD40a	DATE OF ISSUE	30-01-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
NAME OF AREA	WANI AREA	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	MUGOLI OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	ETP WATER DISCHARGE				SAMPLING DATE:	08-11-2022
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**Standard for Discharge PARTA Schedule VI**	**Analysis result**	**Remarks**
1	pH Value	IS 3025/11:1983 Electrometric	2	5.5 to 9.0	6.83	
2	Temperature (°C)	IS 3025 (Part-9)	4°	Te < Ts + 5OC	23.9	
3	Colour (Hazen)	APHA 23rd Edition Platinum Cobalt	1	*	6	
4	Odour	IS 3025/05: 1983, Physical, Qualitative	Qualitative	Unobjectionable	Unobjectionable	
5	TSS mg/l	IS 3025/17:1984 Gravimetric	10	100	40	
6	Oil & Grease mg/l	IS 3025/39: 1991 Partition Gravimetric	2	10	BDL	
7	C.O.D mg/l	APHA,23rd Edition Closed Reflux	4	250	36	
8	B.O.D. (3days at 27°C mg/l)	IS 3025 (Part 44) : 1993	2	30	4	
9	Residual Chlorine mg/l	APHA, 23rd Edition DPD	0.02	1	0.04	
10	Ammonical Nitrogen mg/l	IS 3025 (Part-34) : 1988	0.02	50	1.48	
11	Total Kjeldahl Nitrogen mg/l	APHA, 23rd Edition Kjeldahl	1	100	2.56	
12	Dissolved Phosphate mg/l	APHA, 23rd Edition Molybdovanadate	0.3	5	0.82	
13	Arsenic (As)-mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.2	BDL	
14	Lead as (Pb) -mg/l	APHA, 23rd Edition AAS-GTA	0.005	0.1	BDL	
15	Hexavalent Chromium mg/l	APHA, 23rd Edition 1,5-Diphenylcarbohydrazide	0.01	0.1	0.006	
16	Total Chromium -mg/l	IS-3025 (Part 52) : 2003 AAS Flame	0.03	2	BDL	
17	Copper (as Cu) -mg/l	IS-3025/42 : 1992 AAS-Flame	0.03	3	0.016	
18	Zinc as (Zn) -mg/l	IS-3025/49 : 1994 AAS-Flame	0.01	5	BDL	
19	Selenium (Se) –mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.05	BDL	
20	Nickel-mg/l	IS-3025 (Part 54) : 2003 AAS Flame Method	0.5	3	BDL	
21	Cadmium as (Cd)- mg/l	APHA, 23rd Edition AAS-GTA	0.0005	2	BDL	
22	Fluoride (as F-)- mg/l	APHA, 23rd Edition SPADNS	0.02	2	1.43	
23	Sulphide - mg/l	APHA, 23rd Edition Methylene blue	0.1	2	0.007	
24	Iron - mg/l	IS-3025/53 : 2003 AAS Flame	0.06	3	BDL	
25	Manganese as (Mn)- mg/l	IS-3025/59 : 2006 AAS Flame	0.02	2	BDL	
26	Nitrates Nitrogen(as NO3) - mg/l	APHA, 23rd Edition UV - Spectrophotometric	0.5	10	1.9	

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Effluent water quality monitoring data	

TEST REPORT NO.	RIN/TR/DEC'22 /MD37b	DATE OF ISSUE	30-01-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
NAME OF AREA	WANI AREA	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	NILJAI DEEP OC	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	STP WATER DISCHARGE				SAMPLING DATE:	05-11-2022
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**Standard for Discharge PARTA**	**Analysis result**	**Remarks**
1	pH Value	IS 3025/11:1983 Electrometric	2	5.5 to 9.0	6.94	
2	Temperature (°C)	IS 3025 (Part-9)	4°	Te < Ts + 5OC	23.7	
3	Colour (Hazen)	APHA 23rd Edition Platinum Cobalt	1	*	4	
4	Odour	IS 3025/05: 1983, Physical, Qualitative	Qualitative	Unobjectionable	Unobjectionable	
5	TSS mg/l	IS 3025/17:1984 Gravimetric	10	100	56	
6	Oil & Grease mg/l	IS 3025/39: 1991 Partition Gravimetric	2	10	BDL	
7	C.O.D mg/l	APHA,23rd Edition Closed Reflux	4	250	44	
8	B.O.D. (3days at 27°C mg/l)	IS 3025 (Part 44) : 1993	2	30	12	
9	Residual Chlorine mg/l	APHA, 23rd Edition DPD	0.02	1	0.03	
10	Ammonical Nitrogen mg/l	IS 3025 (Part-34) : 1988	0.02	50	1.12	
11	Total Kjeldahl Nitrogen mg/l	APHA, 23rd Edition Kjeldahl	1	100	1.78	
12	Dissolved Phosphate mg/l	APHA, 23rd Edition Molybdovanadate	0.3	5	0.6	
13	Arsenic (As)-mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.2	BDL	
14	Lead as (Pb) -mg/l	APHA, 23rd Edition AAS-GTA	0.005	0.1	BDL	
15	Hexavalent Chromium mg/l	APHA, 23rd Edition 1,5-Diphenylcarbohydrazide	0.01	0.1	0.038	
16	Total Chromium -mg/l	IS-3025 (Part 52) : 2003 AAS Flame	0.03	2	BDL	
17	Copper (as Cu) -mg/l	IS-3025/42 : 1992 AAS-Flame	0.03	3	BDL	
18	Zinc as (Zn) -mg/l	IS-3025/49 : 1994 AAS-Flame	0.01	5	BDL	
19	Selenium (Se) –mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.05	BDL	
20	Nickel-mg/l	IS-3025 (Part 54) : 2003 AAS Flame Method	0.5	3	BDL	
21	Cadmium as (Cd)- mg/l	APHA, 23rd Edition AAS-GTA	0.0005	2	BDL	
22	Fluoride (as F-)- mg/l	APHA, 23rd Edition SPADNS	0.02	2	0.68	
23	Sulphide - mg/l	APHA, 23rd Edition Methylene blue	0.1	2	0.003	
24	Iron - mg/l	IS-3025/53 : 2003 AAS Flame	0.06	3	BDL	
25	Manganese as (Mn)- mg/l	IS-3025/59 : 2006 AAS Flame	0.02	2	BDL	
26	Nitrates Nitrogen(as NO3) - mg/l	APHA, 23rd Edition UV - Spectrophotometric	0.5	10	1.6	

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Effluent water quality monitoring data	

TEST REPORT NO.	RIN/TR/DEC'22 /MD37d	DATE OF ISSUE	30-01-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	WATER SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
NAME OF AREA	CWS TADALI	SAMPLING METHOD: LSOP 5	
NAME OF PROJECT	CWS TADALI	SAMPLING PLAN: LQR 47	
NO. OF PAGES	1		

NAME OF LOCATION:	ETP WATER DISCHARGE				SAMPLING DATE:	06-11-2022
SL. NO.	**PARAMETER**	**TEST METHOD**	**DETECTION LIMIT**	**Standard for Discharge PARTA**	**Analysis result**	**Remarks**
1	pH Value	IS 3025/11:1983 Electrometric	2	5.5 to 9.0	5.23	
2	Temperature (°C)	IS 3025 (Part-9)	4°	Te < Ts + 5OC	21.7	
3	Colour (Hazen)	APHA 23rd Edition Platinum Cobalt	1	*	3	
4	Odour	IS 3025/05: 1983, Physical, Qualitative	Qualitative	Unobjectionable	Unobjectionable	
5	TSS mg/l	IS 3025/17:1984 Gravimetric	10	100	24	
6	Oil & Grease mg/l	IS 3025/39: 1991 Partition Gravimetric	2	10	2.4	
7	C.O.D mg/l	APHA,23rd Edition Closed Reflux	4	250	36	
8	B.O.D. (3days at 27°C mg/l)	IS 3025 (Part 44) : 1993	2	30	4.3	
9	Residual Chlorine mg/l	APHA, 23rd Edition DPD	0.02	1	BDL	
10	Ammonical Nitrogen mg/l	IS 3025 (Part-34) : 1988	0.02	50	0.28	
11	Total Kjeldahl Nitrogen mg/l	APHA, 23rd Edition Kjeldahl	1	100	4.1	
12	Dissolved Phosphate mg/l	APHA, 23rd Edition Molybdovanadate	0.3	5	0.49	
13	Arsenic (As)-mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.2	BDL	
14	Lead as (Pb) -mg/l	APHA, 23rd Edition AAS-GTA	0.005	0.1	BDL	
15	Hexavalent Chromium mg/l	APHA, 23rd Edition 1,5-Diphenylcarbohydrazide	0.01	0.1	BDL	
16	Total Chromium -mg/l	IS-3025 (Part 52) : 2003 AAS Flame	0.03	2	BDL	
17	Copper (as Cu) -mg/l	IS-3025/42 : 1992 AAS-Flame	0.03	3	BDL	
18	Zinc as (Zn) -mg/l	IS-3025/49 : 1994 AAS-Flame	0.01	5	BDL	
19	Selenium (Se) –mg/l	APHA, 23rd Edition AAS-VGA	0.005	0.05	BDL	
20	Nickel-mg/l	IS-3025 (Part 54) : 2003 AAS Flame Method	0.5	3	BDL	
21	Cadmium as (Cd)- mg/l	APHA, 23rd Edition AAS-GTA	0.0005	2	BDL	
22	Fluoride (as F-)- mg/l	APHA, 23rd Edition SPADNS	0.02	2	0.467	
23	Sulphide - mg/l	APHA, 23rd Edition Methylene blue	0.1	2	BDL	
24	Iron - mg/l	IS-3025/53 : 2003 AAS Flame	0.06	3	0.064	
25	Manganese as (Mn)- mg/l	IS-3025/59 : 2006 AAS Flame	0.02	2	0.028	
26	Nitrates Nitrogen(as NO3) - mg/l	APHA, 23rd Edition UV - Spectrophotometric	0.5	10	4.512	

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Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

FORM V

(See Rule 14)

Environmental Audit Report for the financial Year ending the 31st March 2023

Unique Application Number	Submitted Date
MPCB-ENVIRONMENT_STATEMENT-0000058722	21-09-2023

PART A

Company Information

Company Name	Application UAN number	
Bellora Naigaon Open Cast Mine	MPCB-CONSENT-0000165765	
Address		
WCL Wani Area Road, PO : Bellora		
Plot no	**Taluka**	**Village**
-	Wani	-
Capital Investment (In lakhs)	**Scale**	**City**
16617.82	LSI	Yavatmal
Pincode	**Person Name**	**Designation**
445304	Mr. Sanjay Mishra	SUB AREA MANAGER
Telephone Number	**Fax Number**	**Email**
9422135753	07722067696	waniarea.environdept@gmail.com
Region	**Industry Category**	**Industry Type**
SRO-Chandrapur	Red	R35 Mining and ore beneficiation
Last Environmental statement submitted online	**Consent Number**	**Consent Issue Date**
yes	Format1.0/CAC/UAN No.MPCBCONSENT-0000165765/CR/2307001628	2023-07-26
Consent Valid Upto	**Establishment Year**	**Date of last environment statement submitted**
2024-03-31	1996	Aug 25 2022 12:00:00:000AM
Industry Category Primary (STC Code) & Secondary (STC Code)		

Product Information

Product Name	Consent Quantity	Actual Quantity	UOM
COAL	1.25	1.25	MT/A

By-product Information

By Product Name	Consent Quantity	Actual Quantity	UOM
-	0	0	M3/Anum

Part-B (Water & Raw Material Consumption)

1) Water Consumption in m3/day

Water Consumption for	Consent Quantity in m3/day	Actual Quantity in m3/day
Process	0.00	0.00
Cooling	0.00	0.00
Domestic	15.00	15.00
All others	365.00	350.00
Total	380.00	365.00

2) Effluent Generation in CMD / MLD

Particulars	Consent Quantity	Actual Quantity	UOM
Trade effluent	4515	4515	CMD
Domestic effluent	12	12	CMD

2) Product Wise Process Water Consumption (cubic meter of process water per unit of product)

Name of Products (Production)	During the Previous financial Year	During the current Financial year	UOM
Coal	0	0	CMD

3) Raw Material Consumption (Consumption of raw material per unit of product)

Name of Raw Materials	During the Previous financial Year	During the current Financial year	UOM
Explosive	4.539	3.728	Kg/Annum

4) Fuel Consumption

Fuel Name	Consent quantity	Actual Quantity	UOM
Diesel	0	2469000	Ltr/A
Lubricants	0	77000	Ltr/A

Part-C

Pollution discharged to environment/unit of output (Parameter as specified in the consent issued)

[A] Water

Pollutants Detail	Quantity of Pollutants discharged (kL/day)	Concentration of Pollutants discharged(Mg/Lit) Except PH,Temp,Colour	Percentage of variation from prescribed standards with reasons		
	Quantity	Concentration	%variation	Standard	Reason
Mine water	4515	0	0	0	0

[B] Air (Stack)

Pollutants Detail	Quantity of Pollutants discharged (kL/day)	Concentration of Pollutants discharged(Mg/NM3)	Percentage of variation from prescribed standards with reasons		
	Quantity	Concentration	%variation	Standard	Reason
NO AIR STACK MONITORING	0	0	0	0	0

Part-D

HAZARDOUS WASTES

1) From Process

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
5.1 Used or spent oil	26.13	14.307	KL/A

5.2 Wastes or residues containing oil	3	2.03	Ton/Y

2) From Pollution Control Facilities

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
35.3 Chemical sludge from waste water treatment	15	3.99	Ton/Y

Part-E

SOLID WASTES

1) From Process

Non Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
Over burden	7993995.00	8107000	M3/Anum

2) From Pollution Control Facilities

Non Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
NIL	0	0	CMD

3) Quantity Recycled or Re-utilized within the unit

Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
0	0	0	CMD

Part-F

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

1) Hazardous Waste

Type of Hazardous Waste Generated	Qty of Hazardous Waste	UOM	Concentration of Hazardous Waste
5.1 Used or spent oil	50.0	KL/A	50 KL sent to recycler M/s Ranjana group of Industries Pvt Ltd
5.2 Wastes or residues containing oil	2.03	Ton/Y	2.03 tons disposed off at CHWTSDF Butibori
34.2 Sludge from treatment of waste water arising out of cleaning / disposal of barrels / containers	8.99	Ton/Y	8.99 tons disposed off at CHWTSDF Butibori

2) Solid Waste

Type of Solid Waste Generated	Qty of Solid Waste	UOM	Concentration of Solid Waste
Over Burden	8107000	M3/Anum	OB dumped is properly stacked at earmarked site

Part-G

Impact of the pollution Control measures taken on conservation of natural resources and consequently on the cost of production.

Description	Reduction in Water Consumption (M3/day)	Reduction in Fuel & Solvent Consumption (KL/day)	Reduction in Raw Material (Kg)	Reduction in Power Consumption (KWH)	Capital Investment(in Lacs)	Reduction in Maintenance(in Lacs)
Conservation of natural resources	0	-2.611	-384000	59000	34.1	0

Part-H

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

[A] Investment made during the period of Environmental Statement

Detail of measures for Environmental Protection	***Environmental Protection Measures***	***Capital Investment (Lacks)***
Procurement of Truck mounted mist cannon	Dust suppression	34.10

[B] Investment Proposed for next Year

Detail of measures for Environmental Protection	***Environmental Protection Measures***	***Capital Investment (Lacks)***
Installation of piezometer, construction of Borewell, piezometer sensor	Ground Water Quality Monitoring	7.0

Part-I

Any other particulars for improving the quality of the environment.

Particulars

Environmental protection and abatement of pollution

Name & Designation

Mr. Sanjay Mishra , Sub Area Manager, Niljai SA

UAN No:

MPCB-ENVIRONMENT_STATEMENT-0000058722

Submitted On:

21-09-2023

Compliance report with respect to Email circulated by Regional Office (Ministry Of Environment, Forest and Climate Change) dtd. 03/08/2023 regarding Development of green belt in the projects and its vicinity- Special Drive under ‘ Mission LiFE’

Details of seedling distribution to local people including project affected families:-

- **Bellora Naigaon OC**

Distribution details:-

Sr. No.	Location	Name of District	Types of plants	Sapling distributed (in Nos.)
1.	Bellora village	Yavatmal	**Fruit-Bearing Plants –** Mango, Lemon , Jackfruit, Guava **Other Plants –** Neem, Banyan, Peepal	100
2.	Niljai SA colony and offices	Yavatmal		100
			Total	200