

वेस्टर्न कोलफील्ड्स लिमिटेड

WESTERN COALFIELDS LIMITED

(मिनीरत्न कंपनी) (A Miniratna Company)

(कोल इंडिया लिमिटेड की अनुषंगी कंपनी)

(A Subsidiary of Coal India Limited)

उपक्षेत्रीय प्रबंधक कार्यालय, उमरेर उप क्षेत्र

पत्ता: वेकोली उमरेड क्षेत्र, पो. उमरेड तह. उमरेड

जिला नागपुर, महा. पिन-४४१२०४.



O/O THE SUB AREA MANAGER, UMRER SUB AREA

Address: WCL Umrer Area, PO: Umrer Dist. Nagpur, MH,

Pin. - 441204 AN ISO 9001-000 MINE

संदर्भ पत्र क्र. वेकोली/उक्षे/उउक्षे/उ.क्षे.प्र./२०२६/

दिनांक: 30.05.2026

प्रति,

The Additional Principal Chief Conservator of Forests

Ministry of Environment, Forest & Climate Change (MoEF& CC)

Integrated Regional Office

Ground Floor, East Wing,

"New Secretariat Building",

Civil Lines, Nagpur - 440001 (M.S.)

विषय: **Six Monthly Environmental Compliance Report of Makardhokra-II OC Project for the period from 01/10/2025 to 31/03/2026**

संदर्भ: **EC no. J-11015/276/20085-IA-II (M) dated 10.02.2009.**

Dear Sir/Madam,

Please find enclosed herewith Six-Monthly Environmental Compliance Report of Makardhokra-II OC Project for the period from 01/10/2025 to 31/03/2026.

It is requested that the same may kindly be taken on record and accepted.

Thanking you.

भवदिय
30/5/26

उपक्षेत्रीय प्रबंधक,

उमरेर क्षेत्र,

वेस्टर्न कोलफील्ड्स लिमिटेड

30/5/26

प्रतिलिपी:

- Area General Manager, W.C.L. Umrer Area
- General Manager (Min)/ HOD (Envt.), WCL
- Area Nodal Officer (Envt), W.C.L. Umrer Area

**WESTERN COALFIELDS LIMITED
(MINIRATNA COMPANY)**

**SIX MONTHLY ENVIRONMENTAL
COMPLIANCE REPORT**

(From 01/10/2025 to 31/03/2026)

IN RESPECT OF

**MAKARDHOKRA-II OPEN CAST
PROJECT**

**UMRER SUB AREA
UMRER AREA**

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Monitoring the Implementation of Environmental Safeguards
Ministry of Environment, Forest & Climate Change
Regional Office (West Central Zone), Nagpur

DATA SHEET

Name of the Project: Makardhokda-II (EXP.N.) Open Cast Project

S. No	Particulars	Details
1	Project Type : River Valley / Mining / Industry / Thermal / Nuclear/ Other (Specify)	Coal Mining
2	Name of the Project	Makardhokda-II- Open Cast Project
3	Clearance letter (s) OM No. & date	J-11015/276/2008 5-IA. (M) dated 10.02.09 for 1.5 MTPA
4	Location a) Districts b) State (s) c) Location Latitude/ Longitude	Nagpur Maharashtra 20° 50' 51" to 20° 52' 13" 79° 15' 17" to 79° 16' 26"
5	Address for Correspondence a) Address of the Concerned Project Chief Engineer (with Pin Code & Telephone /Telex / Fax numbers) b) Address of the Executive/Project Engineer / Manager (with Pin Code & Telephone /Telex /Fax numbers)	Sub Area Manager, Umrer Sub Area P.O.- Umrer Project, Tahsil- Umrer, Dist: Nagpur (MS) Pin No.- 441204 Phone: 07116 -247395 Manager, C/o Sub Area Manager, Umrer Sub Area P.O.- Umrer Project, Tahsil- Umrer, Dist: Nagpur (MS) Pin No.- 441204 Phone: 07116 -247395
6	a) Salient Features of the Project	i) Production Capacity : 1.5 MTPA ii) Total Lease Area : 258.23 Ha Agri. (Tenancy) Land : 258.23 Ha No forest land involved iii) Break up of Land use During Operation Quarry area : 91.95 ha Ex. OB Dumps : 62.08 ha

		Embankment : 32.85 ha Infrastructure : 2.75 ha Diversion of Nalla no. 2 & embankment : 17.40 ha Rationalization Area & blasting zone : <u>18.32 ha</u> 225.35 ha In addition to above 32.88 ha land nearby Umrer OCP was used for OB Dumping as per EC. iv) Life : Mine has been discontinued since Jan' 2017 v) Capital Out lay Rs.63.27 Crores vi) Method of mining : Open cast Mine with Shovel Dumper combination vii) Average Thickness of seam to be worked (m) Seam - I 3-4.5 Seam – II (Merge) 4-5 Seam – III (Bottom) 0.50-1.0 Seam – II (Top) 2.5-3.5 Seam – III 2.0-3.0 Seam – IV 4.0-4.50 Seam – V 4.50-4.70 Seam – VI 8.20-8.40 viii) Average gradient of seam : 1 in 5 ix) Quality of Coal : Grade D processed UHV (Coal/kg) : ROM 4471 x) Max proposed quarry depth (m) : 145.00 xi) Initial proposed quarry depth (m) : 27.00 xii) Net mineable reserves (Mt) : 9.821 xiii) Average stripping ration (m/t) : 4.138 xiv) Average energy consumption (kWh/t) : 5.23 xv) Water demand (kl) Colony : 141 Industrial : 119 xvi) Capital Outlay (Rs/t) Total : 892.48 Equity : 509.50
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		Loan : 391.58 xvii) Specific investment in Rs/m : 186.59 annual excavation
	b) Salient Features of the Environmental Management Plans	i) PH held on 23-09-2004 ii) Consent for 1.5 Mty issued by MPCB iii) Environmental Clearance for 1.5 MTPA coal production Issued by MOEF iv) Land use Pattern : (Post Mining) Afforested land : 194.11 ha (Ex. OB dump : 90.18 ha, Embankment : 32.85 ha, int. dump merged with OB dump No. 1:71.08 ha) Void/Water Body : 25.65 ha Infrastructure & road : 2.75 ha Diverted Nalla No. 2 & embankment : 17.40 ha Vacant land : 12.50 ha Mine uses : 5.82 ha v) Socio Economic Measures R&R for land oustees 226.96 lakhs provided as compensation for land losers vi) Plantation/Green Belt On Backfilled Area : 22 Ha On OB Dump : 28.92 Ha On Plain land/Undisturbed Area : 11.50 Ha vii) a) Pollution Control Measures Air/ Dust pollution Control Measures Plantation along haul road, service road, OB dump, vacant land, township, industrial complex, embankment, Maintenance of HEMMs & Transport vehicles Mobile & fixed water sprinkling on road, CHP, coal stock yard, workshop etc. b) Water Pollution Control Measures, Sedimentation pond for mine water treatment, workshop ETP for industrial effluent treatment, Domestic ETP for sewerage treatment c) Noise Pollution Control Measures Maintenance of HEMMs & Transport vehicles Development of green belt in between industrial complex & residential area, noise absorbing pads for noise generating machines, ear pugs & helmets to the workers, noise cabins to the HEM operators. d) Control of ground water depletion Creation of

		ponds for storage of mine treated water for recharging water table.		
		e) Disaster Management Plan		
		f) Progressive Mine Closure Plan		
		g) Monitoring & Management of Organization: For smooth working and handling of environment related jobs following organization is proposed		
		S.N	Measures/ Actions	Agency / Responsibility
		1	Environmental Control	(i) Area General Manager, Umrer Area (ii) Area Nodal Officer (Env.), Umrer Area (iii) Sub Area Manager, Makardhokda II OC (iv) Staff Officer (Civil), Umrer Area (v) Environmental Cell (WCL H.Q.)
		2	Environmental Monitoring	(i) Area General Manager, Umrer Area (ii) Staff Officer (Civil), Umrer Area (iii) Area Nodal Officer(Env.), Umrer Area (iv) Sub Area Manager, Makardhokda II OC (v) Environmental Cell (WCL H.Q.) (vi)CMPDIL, RI-IV Nagpur
		3	Reclamation	(i) Sub Area Manager, Makardhokda II OC (ii) Nodal Officer (Env.), MKD SA
7	Break up of the project area submergence area : forest & non-forest others	Forest Land : Nil Agri. (Tenancy) Land : 258.23 Ha Total Lease Area : 258.23 Ha		
8	Financial details	Capital Cost : Rs. 63.27 Crores		
	a) Project cost as originally planned and subsequent revised estimates and the year of price reference	a) Pollution Control : Rs. 242.37 lakhs		
		b) Scientific Studies : Rs. 35.00 lakhs		
	b) Allocation made for environmental	c) Rehabilitation cost for land oustees : Rs.226.96 lakhs		

	management plans with item wise and year wise break up	d) Sewerage Treatment & Construction of roads : Rs. 002.11 crores Revenue Cost for following works: Plantation Environmental Monitoring/ Auditing Socio-Economic Welfare measures Misc. Pollution Control Measures Compliance of statutory obligations like consent operate fee, water cess payment, authorization under different legislations.
	Benefit Cost ratio/Internal rate of return and the year of assessment.	110% : 23.77
9	• Forest land requirement • The status of approval for diversion of forest land for non-forestry use. • The status of clearing/felling. • The status of compensatory afforestation, if any Comments on the viability & sustainability of compensatory afforestation programme in the light of actual field experience so far.	No forest land involved hence not applicable
10	The status of clear felling in non-forest areas (such as submergence area of reservoir, approach road etc) if any with quantitative information required.	No forest Land involved hence not applicable
11	Status of construction (Actual & or planned) Date of commencement (Actual & or planned) Date of completion (Actual & or planned)	17/04/06 Jan'17
12	Reason for the delay, if the project is yet to start	N/A
13	Dates of site visit: Date on which the project was	

	monitored by the Regional Officer, MPCB on previous occasions if any Site Visit, Date of Site visits for this monitoring report	
14	Details of correspondence with project authorities for obtaining act on plans/information on status of compliance to safeguards other than the routine letters for logistic support for site visits) (The first monitoring report may contain the details of all the letters issued so far, but the later reports may cover only the letter issued subsequently.	N/A

**Compliance of Environmental clearance conditions in respect of Makardhokda II
(EXP.N.) OC project of WCL as on 30/09/2025**

Ref: MOEF Environment Clearance Letter No. J-11015/276/2008-IA. (M)

Dated 10.02.2009 for 1.5 MTPA

S. N	Compliance Condition	Status
1	The embankment constructed along the river boundary shall be of suitable dimensions and stabilized with plantation so as to withstand the peak water flow and prevent mine inundation.	Complied. The embankment is constructed as per the provision of approved Mining Plan. The height of the embankment provided to protect the mine along its boundary has been kept 6.00 meters above the HFL of the river. The width of embankment has been kept 30.00 m which is sufficient to protect the mine from peak flow of the river.
2	OB shall be stacked at two earmarked external OB dumpsite(s) only. The ultimate slope of the dump shall not exceed 28°. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional office located at Bhopal on yearly basis.	Complied. OB generated from Mine was stacked at OB dumps. Plantation is done on External OB dump covering an area of 28.92 Ha and the plantation has become self-sustaining.
3	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.	Complied. Presently there are no active OB dumps. Plantation is done covering an area of 28.92 Ha and the plantation has become self-sustaining in which chances of siltation & sediment flows are very less. However, garland drains of sufficient size, gradient, and length to cater the need of catchment area have been provided around O.B. Dumps and along quarry area. Sufficient capacity of sump is provided to retain silt.
4	Dimension of the retaining wall at the toe of	Complied.

	the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.	Presently there are no active OB dumps. On date, all inactive OB dumps are covered with vegetation which has become self-sustained. Chances of siltation & sediment flows are very less.
5	Crushers at the CHP 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.	Mine has been discontinued since Jan' 2017, so not applicable.
6	Drills shall be wet operated.	Mine has been discontinued since Jan' 2017, so not applicable.
7	The project authorities shall undertake repairing and tarring of roads used for mineral transportation.	Being complied. Coal and OB transportation has been stopped since Jan' 2017. Presently, Coal Transportation of route of Makardhokra- II OC mine is being used for the transportation of Coal from the adjacent mine i.e. Makardhokra-I OC mine. All coal transportation roads are CC roads.
8	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.	Mine has been discontinued since Jan' 2017, so not applicable.
9	A progressive afforestation plan shall be implemented covering an area of 170.26 ha, which includes reclaimed external OB dump (62.08 ha within the ML and 32.88 ha outside the mine in Umrer OCP), backfilled area (19.95 ha), along ML boundary, along roads and infrastructure 1 ha), embankment (32.50 ha) and along diverted nallah (9 ha) vacant land (12.50 ha) and in township located outside the lease by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. Massive plantation shall be carried out in open spaces in and around the mine and avenue plantation along the main approach	Being complied. Till date, Undisturbed area of 11.50 Ha is brought under plantation. Plantation was also done on External OB dumps covering an area of 28.92 Ha and 22.0 Ha of backfilled area. Remaining area will be reclaimed with plantation as per EMP.

	roads to the mine.	
10	The backfilled quarry area of 19.95 ha shall be reclaimed with plantation and a void of 25.65 ha which is propose to be converted into a water body shall be gently sloped and the upper benches shall be terraced and stabilised with plantation/afforestation by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.	Being Complied. Total Excavated area is 91.45 Ha. Out of 91.45 Ha of excavated land, 22.0 Ha of backfilled area is biologically reclaimed. Presently, OB generated from the Makardhokra-I OC mine is being backfilled in the decoaled area of Makardhokra-II OC mine. Remaining quarry area will be backfilled and reclaimed with plantation as per EMP. 25.65 ha of decoaled void will be left as water body which will be gently sloped and upper benches stabilized with plantation.
11	An action Plan shall be prepared for protection of the plantation after the same has been taken over by the Company from the State Forest Agency after three year of their initial control. The cost for its maintenance shall be appropriately reflected in the cost of EMP.	Complied. Plantation area taken over by the Company is being maintained properly.
12	The company shall obtain approval of CGWA/CGWB Regional Office for use of groundwater if any, for mining operations.	Not Applicable. Mining operations has been stopped. Presently, no ground water is being dewatered/ used.
13	Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment & Forests and tot eh Central Pollution Control Board quarterly within one month of monitoring.	Being complied. Regular monitoring of ground water level from existing wells at 35 locations of Buffer zone is being done four times a year i.e. during pre-monsoon (May), monsoon (August), post-monsoon (November), and winter (January). Quality of groundwater as per IS: 10500: 2012 is being analysed in Buffer zone once in a year. Ground water level and quality monitoring report is being sent to R.O., MoEF & CC, Nagpur along with the six monthly EC compliance report on regular basis. Copy of Ground water level and quality monitoring report is enclosed as Annexure-III.

14	The company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities shall meet water requirement of nearby village (s) in case the village Wells go dry due to dewatering of the mine.	Complied. Till date, based on routine monitoring of groundwater there was no reported negative impact on the surrounding area ground water levels. However if there is any water shortage in future it will be supplemented by necessary arrangement. After reclamation of the mined out area, remaining void area will serves as water recharging structure.
15	Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.	Mine has been discontinued since Jan' 2017, so not applicable.
16	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 agency such as NIOH, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.	Not Applicable. Presently no manpower is being engaged in mining and allied operations.
17	For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.	Being complied. Digital processing of the entire lease area using Remote sensing technique is done every year by CMPDIL. Reports of which are available on WCL website. The same is submitted to Ministry of Environment, Forest and Climate Change/ Regional Office on regular basis. Land Restoration / Reclamation monitoring report of MKD-II mine based on satellite data for the year 2022 is enclosed as Annexure-IV.
18	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.	Being complied. Final mine closure plan will be submitted to MOEF&CC, 5 years in advance of final mine closure. The fund provision is part of the approved project cost. The Escrow Account has been opened and progressive balance as on 31/03/2025 is Rs. 22,56,93,704.24

19	The project authorities shall in consultation with the panchayat of the local villages identify socio-economic and welfare measures under CSR to be carried out over the balance life of the mine.	Being complied. In every year area-wise detailed CSR plan is prepared after due consultation with local beneficiaries. Umrer Area has spent the following under CSR in last 14 years: <table><tr><th>Year</th><th>Rs. in lakhs</th></tr><tr><td>2025-26</td><td>136.36</td></tr><tr><td>2024-25</td><td>71.58</td></tr><tr><td>2023-24</td><td>59.50</td></tr><tr><td>2022-23</td><td>54.79</td></tr><tr><td>2021-22</td><td>46.84</td></tr><tr><td>2020-21</td><td>53.17</td></tr><tr><td>2019-20</td><td>64.80</td></tr><tr><td>2018-19</td><td>12.01</td></tr><tr><td>2017-18</td><td>15.84</td></tr><tr><td>2016-17</td><td>6.09</td></tr><tr><td>2015-16</td><td>8.46</td></tr><tr><td>2014-15</td><td>39.98</td></tr><tr><td>2013-14</td><td>216.88</td></tr><tr><td>2012-13</td><td>152.98</td></tr><tr><td>2011-12</td><td>85.80</td></tr><tr><td>2010-11</td><td>49.59</td></tr></table> *CSR funds for the year 2015-16 and 2016-17 were diverted to Swaccha Bharat Abhiyan. The activities broadly include: • Construction of WBM and CC road at nearby villages • Construction of Well and Storage arrangement and pipe line for providing drinking water • Installation of RO plant at nearby villages and ZP schools. • Construction of Green Haat at village • Construction of Compound wall at ZP Schools. • Skill development training for nearby villagers.	Year	Rs. in lakhs	2025-26	136.36	2024-25	71.58	2023-24	59.50	2022-23	54.79	2021-22	46.84	2020-21	53.17	2019-20	64.80	2018-19	12.01	2017-18	15.84	2016-17	6.09	2015-16	8.46	2014-15	39.98	2013-14	216.88	2012-13	152.98	2011-12	85.80	2010-11	49.59
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2010-11	49.59																																			
B	General Conditions																																			
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of environment	Mine has been discontinued since Jan’ 2017, so not applicable.																																		

	and forests.	
2	No change in the calendar plan including excavation, quantum of mineral coal and Waste shall be made.	Mine has been discontinued since Jan' 2017, so not applicable.
3	Four ambient air quality monitoring station shall be established in the core zone as well as in the buffer zone for monitoring SPM, RSPM, SO ₂ and NO _x and heavy metals such as Hg, As, Ni, Cr, etc. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.	Being complied. Four nos. ambient air quality monitoring stations have been established in the core zone as well as in the buffer zone for observation of RPM, SPM, SO₂ and NO₂, which are as follows. • Near Manager office • SAM office • Colony (Near Pump House) • Near Kanwa Village Monitoring Report is enclosed as Annexure-V
4	Data on ambient air quality (SPM, RSPM, SO ₂ , NO _x and heavy metals such as Hg, As, Ni, Cr etc.) shall be regularly submitted to the Ministry including the regional office at Bhopal and to the state pollution control board and the central pollution control board once in six months.	Being complied. Ambient air quality is being monitored as per the coal industry standards notified vide GSR 742(E) dated 25.9.2000 & reports are submitted to MOEF & CC (WZ) Nagpur & Maharashtra Pollution Control Board. Monitoring Report is enclosed as Annexure-V
5	Fugitive dust emissions (SPM, RSPM, and heavy metals such as Hg, As, Ni, Cr etc.) from all the sources shall be controlled regularly monitored and the data recorded properly. Water spraying arrangement on haul roads wagon loading, dump tracks (loading and unloading) points should be provided and properly maintained.	Not Applicable. Mine has been discontinued since Jan' 2017, so not applicable.
6	Adequate measures shall be taken for control of noise level below 85 dB (A) in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM, etc. shall be provided with the ear plugs/muffs.	Not Applicable Mine has been discontinued since Jan' 2017, so not applicable.
7	Industrial wastewater (workshop and West water from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E)	Not Applicable Mine has been discontinued since Jan' 2017, so not applicable.

	dated 19 th May 1993 and 31 st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.	
8	Environmental Quality monitoring (Air, Water, Soil) shall also include random verification of samples through analysis from independent laboratories recognized under the E(P)A Rules, 1986 and shall be furnished as part of the report.	Being complied. Regular Air, Water and Noise quality monitoring is being carried by CMPDIL. Copy of the same is enclosed as Annexure-V.
9	Vehicular emission shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins optimally loaded.	Not applicable Mine has been discontinued since Jan' 2017, so not applicable.
10	Environmental laboratory shall be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the state pollution control board.	Being complied. NABL certified Environment laboratory already existing at CMPDIL RI- IV Nagpur with adequate number and type of pollution monitoring and analyzes equipment headed by highly qualified engineers.
11	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 take corrective measures if needed.	Mine has been discontinued since Jan' 2017, so not applicable.
12	A separate environmental management cell with suitable qualified personnel shall be setup under the control of a Senior Executive, who will report directly to the Head of the Company.	Complied. The Environmental Management cell at corporate level is headed by GM (Env) and assisted by a multidisciplinary team of qualified and trained engineers under the control of Director (Tech.) At Area level, the cell is headed by Area General Manager, Umrer Area, assisted by Area Nodal Officer (Environment) Umrer Area, Project Officer/Sub Area Manager, Umrer Sub Area, Staff Officer (Civil), Umrer Area. At Project level, it is headed by Sub-Area Manager,

		Umrer Sub Area and assisted by Mine Manager/Safety Officer, Umrer Sub Area, Survey Officer, Umrer Sub Area and Nodal Officer (Environment) of the project.
13	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.	Agreed. The fund earmarked for environmental protection measures was not diverted for other purpose.
14	The Regional Officer of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities shall extend full co-operation to the office (s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	It is being complied regularly.
15	A copy of environment clearance letter shall be marked to concerned panchayat/local NGO, if any, from whom any suggestion/ representation has been received while processing the proposal.	It is already complied.
16	State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.	It is already complied.
17	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 web site of the Ministry of Environment & Forests at http://envfor.nic.in . The compliance status shall also be uploaded by the project authorities in their website so as to bring the same in the public domain. The data shall	It is already complied.

	also be displayed at the entrance of the project premises and mines office and in corporate office.	
III	The Ministry or any other competent authority may stipulate any further condition for environment protection.	Noted
IV	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986	Noted
V	The above conditions will be enforced inter-alia, under the provision of the Water (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

Sub Area Manager
Umrer Sub Area

Colliery Manager
Makardhokra-II OC
Umrer Sub Area

Nodal Officer (Env)
Umrer Sub Area

वेस्टर्न कोलफील्ड्स लिमिटेड

WESTERN COALFIELDS LIMITED

(मिनीरत्न कंपनी) (A Miniratna Company)

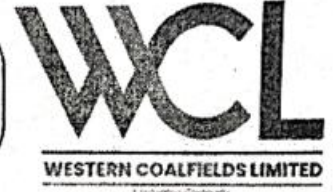
(कोल इंडिया लिमिटेड की अनुषंगी कंपनी)

(A Subsidiary of Coal India Limited)

उपक्षेत्रीय प्रबंधक कार्यालय, उमरेर उप क्षेत्र

पत्ता: वेकोली उमरेड क्षेत्र, पो. उमरेड तह. उमरेड

जिला नागपुर, महा. पिन-४४१२०४.



O/O THE SUB AREA MANAGER, UMRER SUB AREA

Address: WCL Umrer Area, PO: Umrer Dist. Nagpur, MH,

Pin. - 441204 AN ISO 9001-000 MINE

संदर्भ पत्र क्र. वेकोली/उक्षे/उउक्षे/उ.क्षे.प्र./२०२६/

दिनांक: 30.05.2026

प्रति,

The Additional Principal Chief Conservator of Forests

Ministry of Environment, Forest & Climate Change (MoEF& CC)

Integrated Regional Office

Ground Floor, East Wing,

"New Secretariat Building",

Civil Lines, Nagpur - 440001 (M.S.)

विषय: **Six Monthly Environmental Compliance Report of Makardhokra-II OC Project for the period from 01/10/2025 to 31/03/2026**

संदर्भ: **EC no. J-11015/276/20085-IA-II (M) dated 10.02.2009.**

Dear Sir/Madam,

Please find enclosed herewith Six-Monthly Environmental Compliance Report of Makardhokra-II OC Project for the period from 01/10/2025 to 31/03/2026.

It is requested that the same may kindly be taken on record and accepted.

Thanking you.

भवदिय
30/5/26

उपक्षेत्रीय प्रबंधक,

उमरेर क्षेत्र,

वेस्टर्न कोलफील्ड्स लिमिटेड

30/5/26

प्रतिलिपी:

- Area General Manager, W.C.L. Umrer Area
- General Manager (Min)/ HOD (Envt.), WCL
- Area Nodal Officer (Envt), W.C.L. Umrer Area

No.J-11015/276/20085-IA.II(M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
C.G.O.Complex,
New Delhi -110510.

Dated: 10th February 2009

To
Head of Department Env./CE(Civil),
M/s Western Coalfields Ltd.,
Coal Estate, Civil Lines,
NAGPUR - 440001.

Sub: Makardhokra-II Opencast Coal Mine Expansion Project (0.50 MTPA to 1.5 MTPA) of M/s Western Coalfields Ltd. (WCL), located in village Kanhwa, Tehsil Umrer, District Nagpur, Maharashtra- environmental clearance - reg.

Sir,

This has reference to letter No. 43011/47/2007-CPAM dated 13.06.2008 of Ministry of Coal forwarding your application and letters dated 26.09.2008, 31.12.2008 and 23.01.2009 on the above-mentioned subject. The Ministry of Environment & Forests has considered the application. It has been noted that the application is for environmental clearance u/s 7 (ii) of the EIA Notification 2006 for expansion in production in the existing Makardhokra-II Opencast Coalmine Project within the existing lease area of 258.23 ha which is an amalgamation of part of Makardhokra-II Underground Coalmine Project (225.35 ha) and part of existing Umrer OCP of 32.88 ha). Environmental clearance was obtained for Makardhokra-II OCP for 0.5 MTPA rated capacity on 14.03.2006. The entire ML area consists of agricultural land. No forestland is involved. Of the total lease area, area for excavation is 91.95 ha, 94.96 ha is for OB dumps (which includes 32.88 ha of Umrer OCP leasehold), 2.75 ha is for infrastructure, 32.85 ha is for embankment, 17.40 ha is for diversion of nala, and 18.32 ha is area for rationalisation. There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 15 km buffer zone. The area is drained by the River Amb flowing at a distance of 100m from the lease boundary. An embankment is proposed along the river where the quarry surface RL is less than 277.85 m (3 m above HFL of 274.85m). Project involves R&R of land oustees only. Mining is opencast by mechanised method involving shovel-dumper. The rated capacity of the mine is 1.5 million tonnes per annum (MTPA) of coal production. Mineral transportation of coal is by road. Ultimate working depth of the mine is 145m below ground level (bgl). Water table is in the range of 4-7 m bgl in the core zone and 1-10 m bgl in the buffer zone. Average water requirement is 260 m³/d, which is met from Water Supply Scheme. The total OB generation over the life of mine is estimated as 40.637 Mm³ of which 21.309 Mm³ will be dumped in 2 external dump and balance 19.329 Mm³ (47.5 %) would be backfilled. Backfilling has begun. Public Hearing was held on 23.09.2004 for 0.5 MTPA capacity project. Balance life of the mine at 1.50 MTPA rated capacity is 5 years. The project has been approved by M/s WCL on 07.01.2006. The capital cost of the project is Rs. 4462.39 lakhs.

2. The Ministry of Environment & forests hereby accords environmental clearance for the above-mentioned Makardhokra-II Opencast Coal Mine Project of M/s WCL for expansion in production of coal from 0.5 MTPA to 1.5 MTPA rated capacity in a lease area of 258.23 ha under the provisions of the Environmental Impact Assessment Notification, 1994 and subsequent amendments thereto subject to the compliance of the terms and conditions mentioned below:

A. Specific Conditions

- (i) The embankment constructed along the river boundary shall be of suitable dimensions and stabilised with plantation so as to withstand the peak water flow and prevent mine inundation.

- (ii) OB shall be stacked at two earmarked external OB dumpsite(s) only. The ultimate slope of the dump shall not exceed 28°. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional office located at Bhopal on yearly basis.
- (iii) 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.
- (iv) 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.
- (v) Crushers at the CHP 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.
- (vi) Drills shall be wet operated.
- (vii) The project authorities shall undertake repairing and tarring of roads used for mineral transportation.
- (viii) 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.
- (ix) A progressive afforestation plan shall be implemented covering an area of 170.26 ha, which includes reclaimed external OB dump (62.08 ha within the ML and 32.88 ha outside the mine in Umrer OCP), backfilled area (19.95 ha), along ML boundary, along roads and infrastructure 1 ha, embankment (32.50 ha) and along diverted nallah (9 ha) vacant land (12.50 ha) and in township located outside the lease by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. Massive plantation shall be carried out in open spaces in and around the mine and avenue plantation along the main approach roads to the mine.
- (x) The backfilled quarry area of 19.95 ha shall be reclaimed with plantation and a void of 25.65 ha which is propose to be converted into a water body shall be gently sloped and the upper benches shall be terraced and stabilised with plantation/afforestation by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- (xi) An action Plan shall be prepared for protection of the plantation after the same has been taken over by the Company from the State Forest Agency after three year of their initial control. The cost for its maintenance shall be appropriately reflected in the cost of EMP.
- (xii) The company shall obtain approval of CGWA/CGWB Regional Office for use of groundwater if any, for mining operations.
- (xiii) Regular monitoring of groundwater level and quality shall be carried out by establishing a network of exiting wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be

submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.

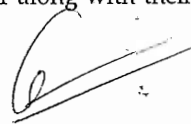
- (xiv) The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- (xv) Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.
- (xvi) 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 agency such as NIOH, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.
- (xvii) For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.
- (xviii) 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.
- (xix) The project authorities shall in consultation with the panchayat of the local villages identify socio-economic and welfare measures under CSR to be carried out over the balance life of the mine.

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 monitoring SPM, RSPM, SO₂ and NO_x and heavy metals such as Hg, As, Ni, Cr, etc. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.
- (iv) Data on ambient air quality (SPM, RSPM, SO₂ and NO_x and heavy metals such as Hg, As, Ni, Cr, etc) 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.
- (v) Fugitive dust emissions (SPM and RSPM and heavy metals such as Hg, As, Ni, Cr, etc) 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.
- (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) Environmental quality monitoring (air, water, soil) shall also include random verification of samples through analysis from independent laboratories recognised under the E(P)A Rules, 1986 and shall be furnished as part of the Report.
- (ix) Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.
- (x) Environmental laboratory shall be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.
- (xi) 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.
- (xii) 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.
- (xiii) 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.
- (xiv) 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.
- (xv) 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.
- (xvi) State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.
- (xvii) 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>. The compliance status shall also be uploaded by the project authorities in their website so as to bring the same in the public domain. The data shall also be displayed at the entrance of the project premises and mines office and in corporate office.
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 Arear 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. Shri M.K. Shukla, CGM, Coal India Limited, SCOPE Minar, Core-I, 4th Floor, Vikas Marg, Laxminagar, New Delhi.
8. District Collector, Nagpur, Government of Maharashtra.
9. EI Division, Ministry of Environment & Forests, New Delhi.
10. Monitoring File 10. Guard File 11. Record File

MAHARASHTRA POLLUTION CONTROL BOARD

Phone : 4010437/4020781
Fax : 4037124/4035273
Email : 24044532/4024068 /4023516
Visit At : enquiry@mpcb.gov.in
http://mpcb.gov.in



Kalpataru Point, 3rd & 4th floor, Sion- Matunga
Scheme Road No. 8, Opp. Cine Planet Cinema, Near
Sion Circle, Sion (E),
Mumbai - 400 022

Consent No: Format 1.0/BO/CAC-CELL/EIC No: NG-12225-15/R/CAC- 12217
Date 19/09/2015

To,
M/s Western Coal Fields Ltd.,
Makardhokda-II Open Cast Mine Project,
Vill. Makardhokda, Post-Shirpur, Tq. Umred, Dist. Nagpur

Subject: Renewal of Consent with increase in capital investment under RED category.

Ref : 1. Earlier Consent granted vide no. BO/JD(APC)/EIC No. NG-8428- 18/
/R/CC/CC-5902 dtd. 11/07/2013
3. Minutes of CAC meeting held on 27.08.2015

Your application: CR1503000235
Dated: 03.02.2015

For: Renewal of Consent with increase in capital investment,
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 5 of the Hazardous Wastes (M, H & T M) Rules 2008 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 is granted for a period from 01.04.2015 to 31.03.2017.
2. The actual capital investment of the industry is Rs. 96.74/- Crs. (As per C.A. Certificate submitted by industry)
3. The Consent is valid for the manufacture of -

Sr. No.	Product / By-Product Name	Maximum Quantity
1.	Coal over mine lease area of 410 Ha	1.5 Million Tones/Year

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

Sr. no.	Description	Permitted quantity of discharge (CMD)	Standards to be achieved	Disposal
1.	Trade effluent	353 (Include mine discharge)	As per Schedule - I	On land for gardening
2.	Domestic effluent	200	As per Schedule - I	On land for gardening

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

Sr. no.	Description of stack / source	Number of Stack	Standards to be achieved
1.	Nil		

6. Conditions under Hazardous Waste (M, H & T M) Rules, 2008 for treatment and disposal of hazardous waste:

Sr. No.	Type Of Waste	Category	Quantity	UOM	Treatment	Disposal
1	Chemical Sludge from Waste Water Treatment	34.4	150	Kg/day	--	CHWTSDF Butibori
2	Used/Spent oil	5.1	50	Lit/day		CPCB/SPCB authorized Re-processor

[Handwritten Signature]



This Board reserves the right to review, amend, suspend, revoke etc. this consent and the same shall be binding on the industry.

8. This consent should not be construed as exemption from obtaining necessary NOC/permission from any other Government agencies.



For and on behalf of the
Maharashtra Pollution Control Board

(Dr. P Anbalagan, IAS)
Member Secretary

Received Consent fee of -

Sr. No.	Amount (Rs.)	DD. No.	Date	Drawn On
1	15,25,100/-	397561	23/01/2015	SBI Bank

Copy to:

1. Regional Officer - Nagpur . He is directed to forfeit BG of Rs. 2.5/- Lakhs from BG of Rs. 5/- Lakhs obtained against O & M of pollution control systems as mentioned in Schedule-III
2. Sub-Regional Officer-Nagpur-II.
They are directed to ensure the compliance of the consent conditions.
3. Chief Accounts Officer, MPCB, Mumbai.
4. CC/CAC desk- for record & website updation purposes.

Maharashtra Pollution Control Board

Schedule-I

Terms & conditions for compliance of Water Pollution Control:

- 1) A] As per your application, you have provided the Effluent Treatment Plant (ETP) with the design capacity not mentioned.
- 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	Standards prescribed by Board (If any)
01	pH	5.5 to 9.0
02	Oil & Grease	20
03	BOD (3 days 27°C)	100
04	Total Dissolved Solids	2100
05	Phenolics (C ₆ H ₅ OH)	1.00
06	Suspended Solids	100
07	COD	250
08	Chloride	600
09	Sulphate	1000

- C) The treated effluent shall be used for spraying mine pits to the maximum extent & excess shall be used on land for gardening

- 2) A.] As per your consent application, you have provided the sewage treatment system with the design capacity Not mentioned.

B.] The applicant shall operate the sewage treatment system to treat the sewage so as to achieve the following standards prescribed under EPA ct 1986 and Rules made there under from time to time, whichever is stringent.

- 1) Suspended Solids. Not to exceed 50 mg/l.
- 2) BOD 3 days 27°C. Not to exceed 30 mg/l.
- 3) COD. Not to exceed 100 mg/l.

C.] The treated sewage shall be disposed on land for gardening/irrigation

- 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 thereof & 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 and 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) Cess Act, 1977 and as amended, by installing water meters, filing water cess returns in Form-I and other provisions as contained in the said act.

Sr. no.	Purpose for water consumed	Water consumption quantity (CMD)
1.	Domestic	212.0
2.	Mine Discharge	150.0
3.	Spraying, Workshop, Dust Suppression	90.0
4.	Sand stowing	--
5.	Other Uses like gardening Etc	--

3) 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.



Maharashtra Pollution Control Board

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 also erected following stack (s) to observe the following fuel pattern-

Sr. No.	Stack Attached To	APC System	Height in Mtrs.	Type of Fuel	Quantity & UoM	S %	SO ₂ Kg/Da
1	NA						

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. (Concern section shall mention specific control equipments)

3. The applicant shall operate and maintain above mentioned air pollution control system, so as to achieve the level of pollutants to the following standards:

Particulate matter	Not to exceed	150 mg/Nm ³ .
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4. 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.

5. 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).

6. Control Equipments

- Coal handling plant provided with dust collector & automatic water sprinkler shall be operated
- Scientific spraying of water on all working area, dump area, stock piles with the help of appropriate dust suppression system.
- Coal shall be properly covered during transportation.
- 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.
- Black topped metal roads provided shall be well maintained to prevent dust formation.
- Overloading of dumpers shall be avoided to prevent spillages.
- Correct type & quantity of explosive shall be used to avoid excess dust formation & vibration in the surrounding area.
- The slope of the over burden shall have slope not more than 28 degree to the horizontal. The overburden shall be properly covered by vegetation for stabilization.
- Coal transportation shall be done by installing conveyors wherever possible & mechanically covered closed trucks shall be used for transportation.

7. Standards for Ambient Air Pollutants:

(i)	Suspended Particulate Matter [SPM]	Not to exceed	500 ug/m ³
(ii)	Respirable Particulate Matter [RSPM] [Size less than 10 micrometer]	Not to exceed	250 ug/m ³
(iii)	Sulphur Dioxide (SO ₂)	Not to exceed	120 ug/m ³
(iv)	Oxides of Nitrogen (NOx)	Not to exceed	120 ug/m ³



8. The applicant shall install minimum three continuous automatic ambient air and micrometeorological monitoring station at location indicated by State Board to be set up and operate at its own cost measure SO₂, NO_x and particulate matter as per the condition of Environmental clearance to be obtained. These CAAQMS shall also have necessary provision of networking to the Air Quality Monitoring network of MPCB.

9. 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 (*40)
4	Near CHPs	75	30
5	Near Shaft	75	20
6	Near Mine exhaust fan	75	>50

*The Opencast Mine needs to be surrounded by a green belt of sufficient width as per the guidelines of Design Institute Ltd. [A subsidiary of Coal India Ltd.] if the residential complexes are very close

10. Other conditions:

- (i) Whenever due to any accident or other unforeseen act or event, 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
- (ii) If Coal Washeries are installed, then follow the conditions of the MoEF, GOI's Notification No Q15017/13/9 CPW, dtd 27.01.1999 strictly.



Schedule-III

Details of Bank Guarantees

BG History

Sr. No.	Consent (C to E/O/R)	Amt of BG Imposed	Amt of BG to be forfeited from BG imposed	Purpose of BG Forfeiture
1.	C to R (to be forfeited)	Rs. 5 Lakhs	Rs. 2.5 Lakhs	As 4 nos. of AAQM reports out of 12 are exceeding the limits.

Existing BG's to be extended

Sr. No.	Consent (C to R)	Amt of BG Imposed	Submission Period	Purpose of BG	Compliance Period	Validity Date
1	C To R (existing to be extended)	5/- Lakhs (Out of Rs. 5/- Lakhs existing BG Rs. 2.5/- Lakhs to be forfeited & remaining Rs. 2.5/- to be extended)	15 days	O & M of Pollution control system	31.03.2017	31.07.2017
2	C To R (Top Up)	5/- Lakhs (Top up to be obtained)	15 days	O & M of Pollution control system	31.03.2017	31.07.2017



Schedule-IV

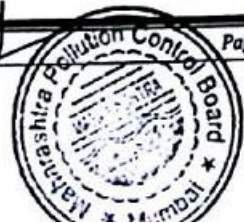
General Conditions:

- 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) Industry should monitor effluent quality, stack emissions and ambient air quality monthly/quarterly.
- 3) 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.
- 4) 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 equipments, the production process connected to it shall be stopped.
- 5) 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.
- 6) 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.
- 7) The industry shall recycle/reprocess/reuse/recover Hazardous Waste as per the provision contain in the HW(MH&TM) Rules 2008, which can be recycled
- 8) /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 Waste (M,H & TM) Rules, 2008 and submit the Annual Returns as per Rule 5(6) & 22(2) of Hazarsous Waste (M,H & TM) Rules, 2008 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/ 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 siting 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 MoEF dated 17.05.2002 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 75dB(A) during day time and 70dB(A) during night time. Day time is reckoned in between 6 am and 10 pm and night time is reckoned between 10 pm and 6 am
- 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 statement on available open plot area, number of trees surviving as on 31st March of the year and number of trees planted by September end, with the Environment Statement.
- 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 equipments 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 quarterly statement in respect of industries' obligation towards consent and pollution control compliance's duly supported with documentary evidences (format can be downloaded from MPCB official site).
- 26) The industry shall submit official e-mail address and any change will be duly informed to the MPCB.
- 27) The industry shall achieve the National Ambient Air Quality standards prescribed vide Government of India, Notification dt. 16.11.2009 as amended.
- 28) The project authorities shall obtain consent for their railway siding operation.
- 29) The project authorities shall submit an action plan for using closed coal conveyor belt system in place of truck transportation, wherever the coal transportation distance is less than 3 Kms initially, within 3 months.
- 30) This consent is valid along with the Environmental Clearance granted to the mine.

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**Land Restoration / Reclamation Monitoring of 08 Opencast Coal Mines
of Western Coalfields Limited producing less than 5 mcm (Coal+ OB)
per annum based on Satellite Data of the Year 2022**



**Submitted to
WESTERN COALFIELDS LIMITED**

March 2023



**Land Restoration / Reclamation Monitoring of 08 Opencast Coal
Mines of Western Coalfields Limited producing less than 5 mcm
(Coal+ OB) per annum based on Satellite Data of the Year 2022**

MARCH-2023



**Remote Sensing Cell
Geomatics Division
CMPDI, Ranchi**

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Executive Summary

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|------------|-------------------------|---|
| 1.0 | Project | Land restoration/ reclamation monitoring of 08 opencast mine in WCL producing less than 5 million cu.m. (Coal+OB) annually based on satellite data of the year 2022 on regular 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 projects. 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 | <ul style="list-style-type: none"> • Out of total 11 opencast projects producing less than 5 Million cu.m (Coal+OB) annually of WCL viz Yekona-I & II, New Majri UG to OC, Pauni-II (Expn) OC, Gokul OC, Singhori OC, Bhanegaon OC, MKD-II OC, New sethia OC, Ghugus OC, Pimpalgaon OC and Datla OC mine taken for land reclamation monitoring during the Year 2019-20: Yekona-I & II, New Majri UG to OC and Pauni-II (Expn) OC were included under category of those OC mines which are producing more than 5 Million cu.m (Coal+OB) together annually and report pertaining to status of land reclamation of these projects is being submitted separately since year 2021 along with other OC mines of similar category.
 • Out of the total mine leasehold area of 3461.72 Hectare of the 08 OC projects Viz. Bhanegaon OC, Singhori OC, MKD-II OC, New Sethia OC, Ghugus OC, Pimpalgaon OC and Datla OC and Gokul OC mine taken up for land reclamation monitoring during year-2022-23; total excavated area is 964.19 Ha (27.85%). Out of this excavated area, 103.38 Ha area (10.72%) has been planted on backfill, 462.47 Ha area (47.96%) is under backfilling and balance 398.34 Ha area (41.32%) is under active mining. It is evident from the analysis that 565.85 Ha (58.69%) area of the above OC projects has already been reclaimed (biologically and technically) and balance 398.34 Ha (41.32%) area is under active mining. Project wise details are given in Table-1 & Bar chart (Fig-1). |

- On comparing the status of land reclamation for 08 no. of opencast projects in WCL carried out in the year 2022-23 with respect to previous cycle study done in the year 2019-20 in these projects of WCL, it is evident from the analysis that area under land reclamation has increased from 511.10 hectares (Yr. 2019) to 565.85 hectares (Yr. 2022) which includes both plantation on backfill (Biological Reclamation) and area under backfilling (Technical Reclamation).
- It has been observed that area under plantation on backfill (Biological Reclamation) has increased from 88.96 Ha (10.70%) in the Yr. 2019 to 103.38 Ha (10.72%) in the year 2022 whereas area under technical reclamation (area under backfilling) has increased from 422.14 Ha (50.77%) in the year 2019 to 462.47 Ha (47.96%) in the Year 2022. This increase of 14.42 Ha in area of plantation on backfill and 40.33 Ha area under backfilling is the result of the sincere efforts made by Western Coalfields Ltd towards total land reclamation in all OC mines.
- Overall, the area under green cover has gone up from 649.91 Ha in the year 2019 to 736.35 Ha in the year 2022 which shows the sincere effort made by WCL towards environmental protection in their OC projects.
- Total area under reclamation in WCL has gone up from 511.10 Hectares (61.47%) in the year 2019 to 565.85 Hectares (58.69%) in the year 2022.

Table:1
Project wise Land Reclamation Status in OC mine in Western Coalfields Limited
 (< 5 Million cu.m (Coal+ OB) together) based on Satellite data of the year 2022

(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, Avenue Plantation Etc.									
1	2	3		4		5		6		7		8		9 (=4+5+8)		10 (=5+6+7)		11(=4+5)	
		2019	2022	2019	2022	2019	2022	2019	2022	2019	2022	2019	2022	2019	2022	2019	2022	2019	2022
1	Bhanegaon	347.46	347.46	2.45	1.18	0.00	0.00	8.75	16.54	16.11	20.74	31.82	34.86	34.27	36.04	24.86	37.28	2.45	1.18
				7.15%	3.27%	0.00%	0.00%					92.85%	96.73%			7.15%	10.73%	7.15%	3.27%
2	Singhori	425.04	425.04	0.00	0.00	0.00	0.00	0.00	0.00	4.59	7.63	26.82	50.56	26.82	50.56	4.59	7.63	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			1.08%	1.80%	0.00%	0.00%
3	Makardhokra-II	258.23	258.23	44.61	57.75	2.90	0.00	58.76	47.14	2.57	2.57	6.91	0.00	54.42	57.75	64.23	49.71	47.51	57.75
				81.97%	100.00%	5.33%	0.00%					12.70%	0.00%			24.87%	19.25%	87.30%	100.00%
4	New Sethia	144.45	144.45	25.99	30.65	23.58	18.92	6.80	7.01	9.53	10.15	40.81	41.65	90.38	91.22	39.91	36.08	49.57	49.57
				28.76%	33.60%	26.09%	20.74%					45.15%	45.66%			27.63%	24.98%	54.85%	54.34%
5	Ghugus	1020.00	1020.00	267.70	258.74	55.38	73.22	135.00	136.64	84.91	125.20	35.77	26.89	358.85	358.85	275.29	335.06	323.08	331.96
				74.60%	72.10%	15.43%	20.40%					9.97%	7.49%			26.99%	32.85%	90.03%	92.51%
6	Pimpalgaon	451.87	451.87	13.33	13.34	0.00	0.00	136.11	149.76	80.32	79.62	46.25	54.23	59.58	67.57	216.43	229.38	13.33	13.34
				22.37%	19.74%	0.00%	0.00%					77.63%	80.26%			47.90%	50.76%	22.37%	19.74%
7	Datla	57.75	57.75	28.21	25.32	7.10	11.24	0.00	0.00	0.00	0.00	13.21	11.95	48.52	48.51	7.10	11.24	35.31	36.56
				58.14%	52.20%	14.63%	23.17%					27.23%	24.63%			12.29%	19.46%	72.77%	75.37%
8	Gokul	756.92	756.92	39.85	75.49	0.00	0.00	0.00	0.00	17.50	29.97	118.78	178.20	158.63	253.69	17.50	29.97	39.85	75.49
				25.12%	29.76%	0.00%	0.00%					74.88%	70.24%			2.31%	3.96%	25.12%	29.76%
	TOTAL	3461.72	3461.72	422.14	462.47	88.96	103.38	345.42	357.09	215.53	275.88	313.46	398.34	831.47	964.19	649.91	736.35	511.10	565.85
				50.77%	47.96%	10.70%	10.72%					37.70%	41.32%	24.02%	27.85%	18.77%	21.27%	61.47%	58.69%

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

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 excavated area except for "T total area under plantation" where % has been calculated in terms of leasehold area.

PROJECT WISE STATUS OF LAND RECLAMATION IN WCL FOR THE YEAR 2022

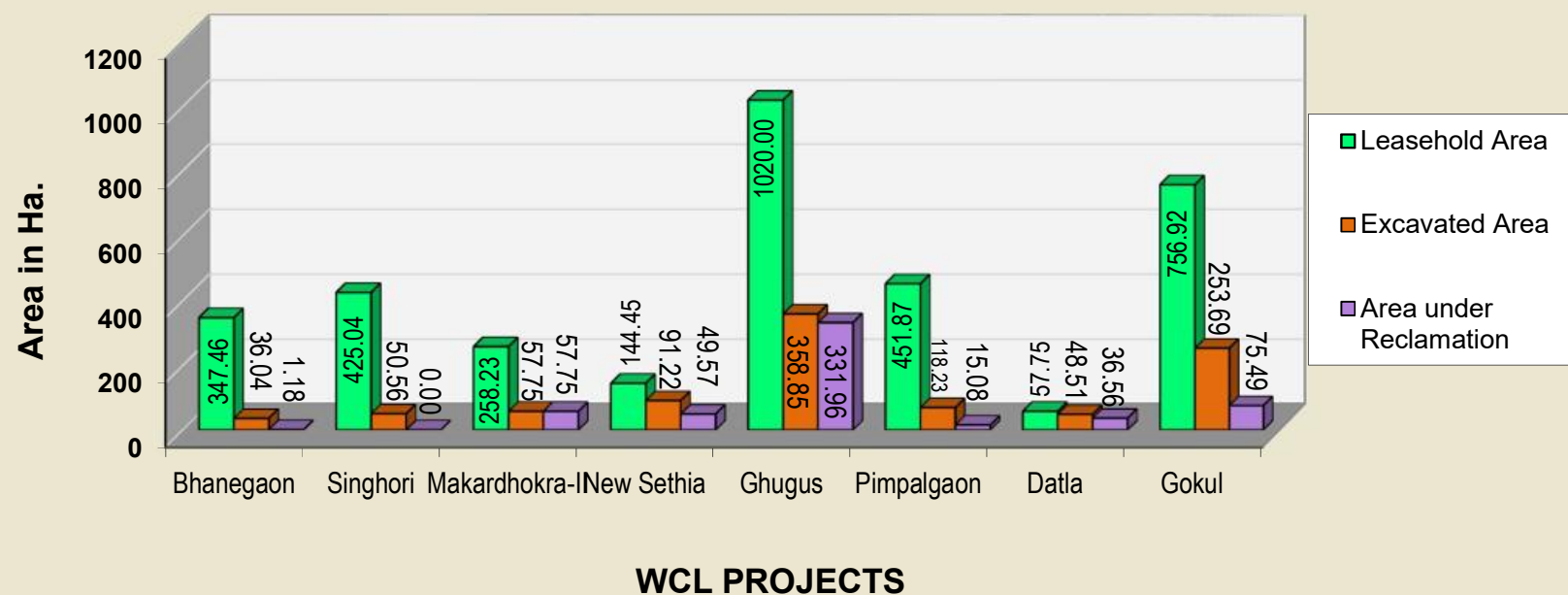


Figure: 1 Land Reclamation status in OC projects producing (less than 5 m.cm (Coal+ OB)) of WCL in the year-2022

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 scarcest 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/2011/4706 dated 12.10.12 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 m³ per annum (coal + OB taken together per annum) regularly on annual basis and less than 5 million m³ 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 vide letter no: CIL/WBP/Env/2017/DP/8477 dated 21.09.2017 from coal india Ltd for the period of 2017-18 to 201-22 for land reclamation monitoring of opencast projects and 19 major coalfields. According to this work order all mines in CIL with output capacity of 5 million cu.m (coal+OB) shall be monitored every year and all mines below this capacity shall be monitored at an interval of three years. The work order was renewed vide letter no. CIL/ ENVT/2022-23/W.O/10899 dated 06.07.2022 for a period of 2 more years from 2022-23 to 2023-24. 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 & Climate Change (MoEF & CC). 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 2022 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 figure-2. Following steps are involved in land reclamation /restoration monitoring:

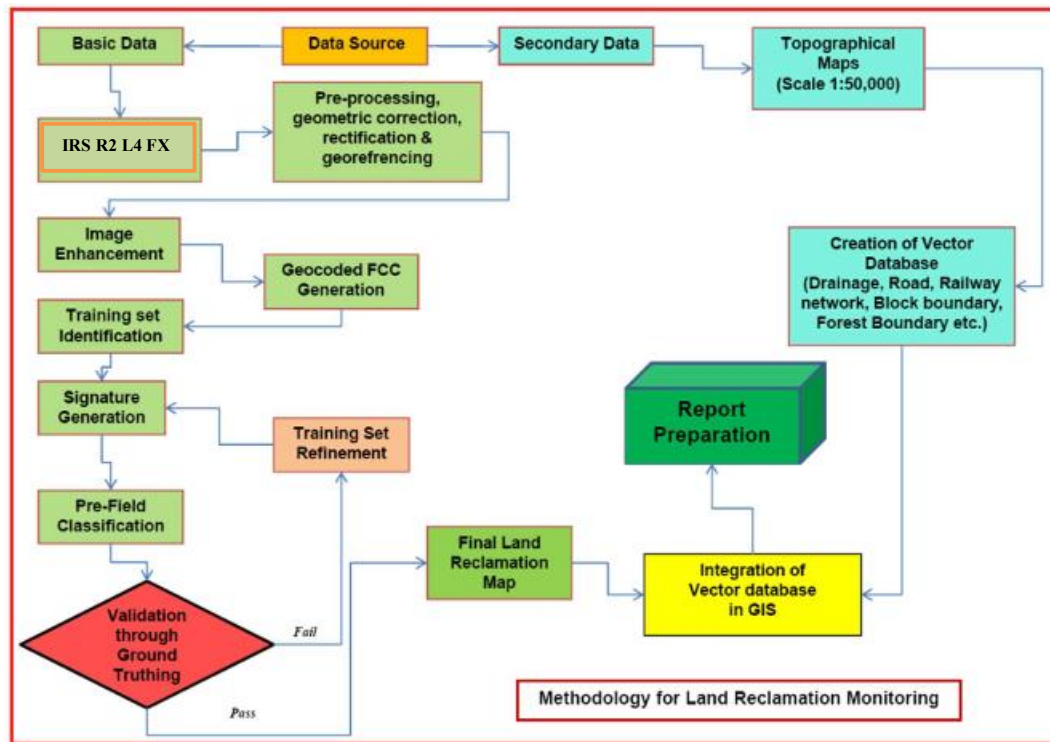


Figure :2 Methodology for Land Reclamation Monitoring

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 area arranged from respective subsidiaries/RIs and topo sheets are procured for creation of vector database.

3.2 Satellite Data Processing: Satellite data are processed using ERDAS IMAGINE version 2014 digital image processing s/w. Methodology involves the following major steps:

- Rectification & Georeferencing:** 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, georeferencing is required for correction of image data using ground control points (GCP) to make it compatible to Sol 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 of respective mines is determined by 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 status database is created on GIS platform to identify the temporal changes identified from satellite data of different cut-of dates like year 2016, 2019 and 2022.

4.0 Land Reclamation Status in Western Coalfields Ltd.

4.1 Following eight 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 2022-23:

- Bhanegaon
- Singhori
- Makardhokra-II
- New Sethia
- Ghugus
- Pimpalgaon
- Datla
- Gokul

4.2 Area statistics of different land use classes present in the mine leasehold of the above projects for the year 2022 are shown in the Table - 2. Land use maps derived from satellite data are shown in Plate 1– 8. Status of land reclamation monitoring for the above mentioned 08 opencast projects were also prepared for the year 2016, 2019. Year wise changes in the different land use classes based on satellite data of the year 2016, 2019 and 2022 are depicted in Bar Charts in Fig. 3 – 10

4.3 Study reveals that out of total mine leasehold area of 3461.72 Ha of 08 OC projects in WCL Viz. Bhanegaon, Singhori, Makardhokra-II, New Sethia, Ghugus, Pimpalgaon, Datla and Gokul OC considered for monitoring during year 2022-23; total excavated area is 964.19 Ha (27.85%), out of which 103.38 Ha (10.72%) area has been revegetated (Biologically reclaimed) and 462.47 Ha (47.96%) area is under backfilling (Technically reclaimed) and balance 398.34 Hectare (41.32%) area is under active mining. It is evident from analysis that 565.85 Hectare (58.69%) area of above OC projects is under total reclamation in WCL. Project wise details are given in Table-1.

4.4 It is evident from the analysis that area under land reclamation has increased from 511.10 Ha (Yr. 2019) to 565.85 Ha (Yr. 2022) which includes both plantation on backfill (Biological Reclamation) and area under backfilling (Technical Reclamation). This

increase of 54.75 Ha area under total reclamation for eight opencast mines of WCL in the period of three years is due to increase in area under Technical reclamation and Biological Reclamation to the tune of 40.33 Ha and 14.42 Ha respectively. Project wise status of Land reclamation for eight OC mines is shown in bar chart (Figure-1).

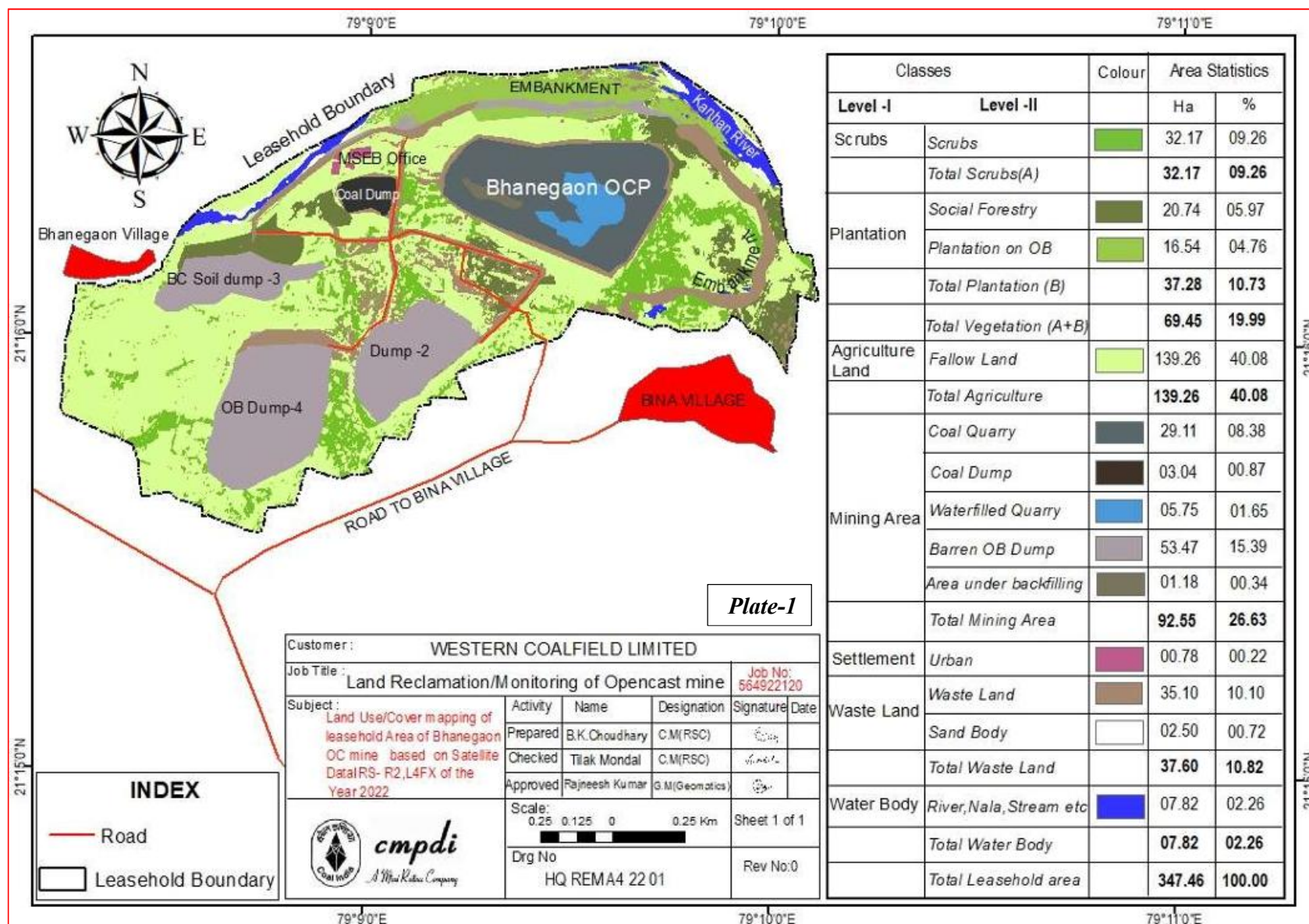
- 4.5** There has been overall increase in area under Technical reclamation (area under backfilling) in all projects of WCL except in Bhanegaon, Ghugus and Datla OC. In Bhanegaon OC, area under technical reclamation has decreased from 2.45 Ha (Yr. 2019) to 1.18 Ha (Yr. 2022). This decrease of 1.27 Ha area under backfilling during year 2022 as compared to the year 2019 is due to rehandling of backfill whereas decrease of 8.96 Ha and 2.89 Ha area under backfilling in Ghugus OC and Datla OC are due to more backfilling area occupied with plantation on backfill area.
- 4.6** After analyzing the satellite data of year 2019 vs. 2022, it is evident that total area under plantation (Green Cover) carried out on backfilled area, OB dumps as well as area under social forestry in all the mines of WCL has increased from 649.91 Ha area (Yr. 2019) to 736.35 Hectare area (Yr. 2022). This increase of 86.44 Hectare area under total plantation (Green Cover) during three years is due to more plantation has been carried out on backfill, OB dump and under social forestry within leasehold area of the mines.
- 4.7** MKD-II OC mine has been closed and backfilling process is in progress, hence active mining is zero whereas area under backfilling (Technical Reclamation) has increased from 44.61 Hectare in the year 2019 to 57.75 Hectare in the year 2022.
- 4.8** In Datla OC mine area under backfilling (Technical Reclamation) has decreased from 28.21 Ha in the year 2019 to 25.32 Ha in the year 2022. This decrease of 2.89 Ha in area under backfilling is due to more plantation carried out in backfill area resulting which area of plantation on backfill (Biological Reclamation) has increased from 7.10 Ha in the year 2019 to 11.24 Ha in the year 2022.
- 4.9** Out of 08 projects of WCL, maximum land reclamation has been carried out in MKD-II OC projects (100%) followed by Ghugus (92.51%), Datla OC (75.37%), New sethia (54.34%) and Gokul (29.76%) respectively.

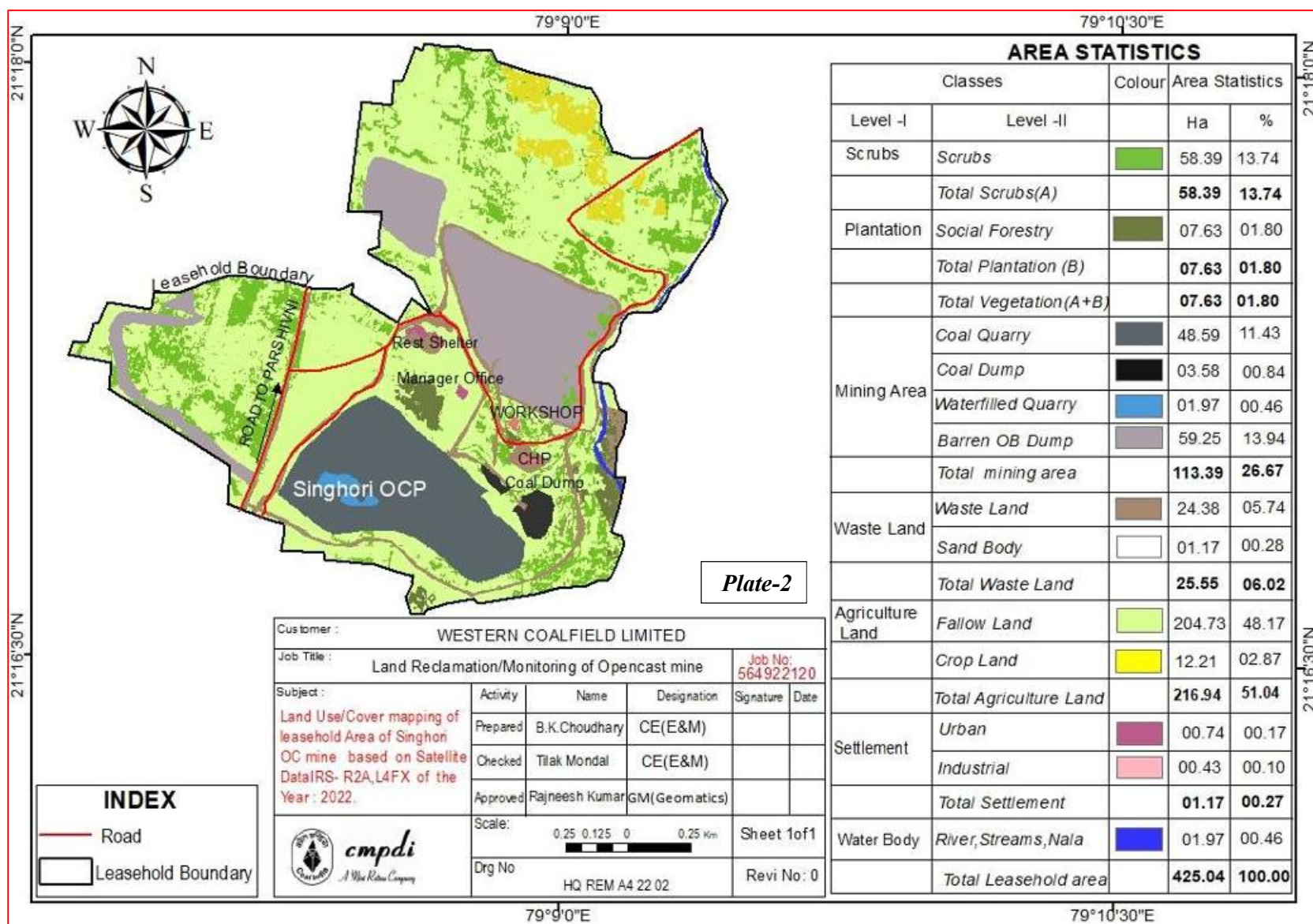
TABLE 2

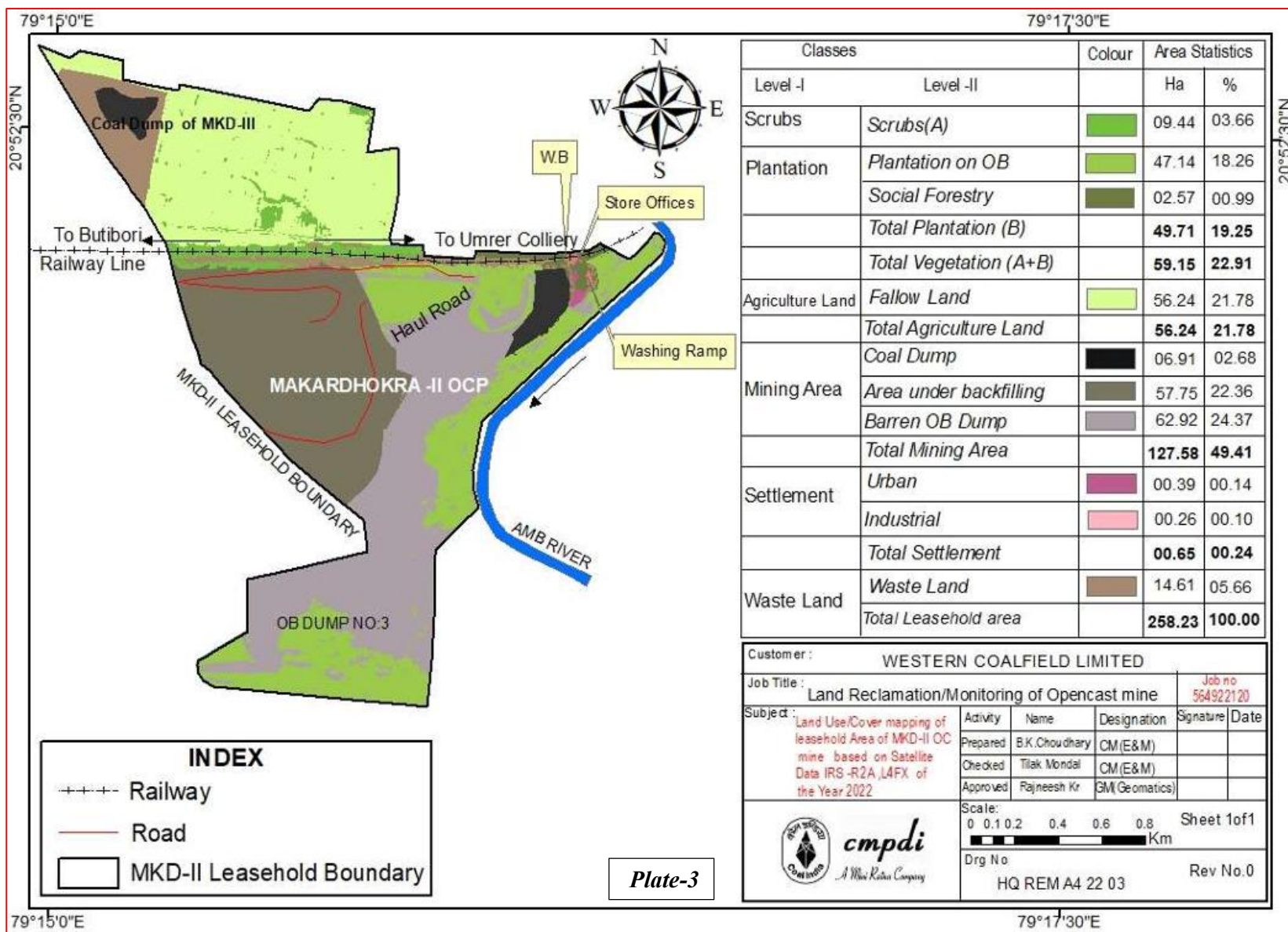
PROJECT-WISE AREA STATISTICS OF LAND USE/COVER CLASSES IN OC MINES OF WCL PRODUCING (<5 M.C.M (COAL + OB)) BASED ON SATELLITE DATA OF THE YEAR 2022

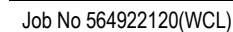
(Area in Hectare)

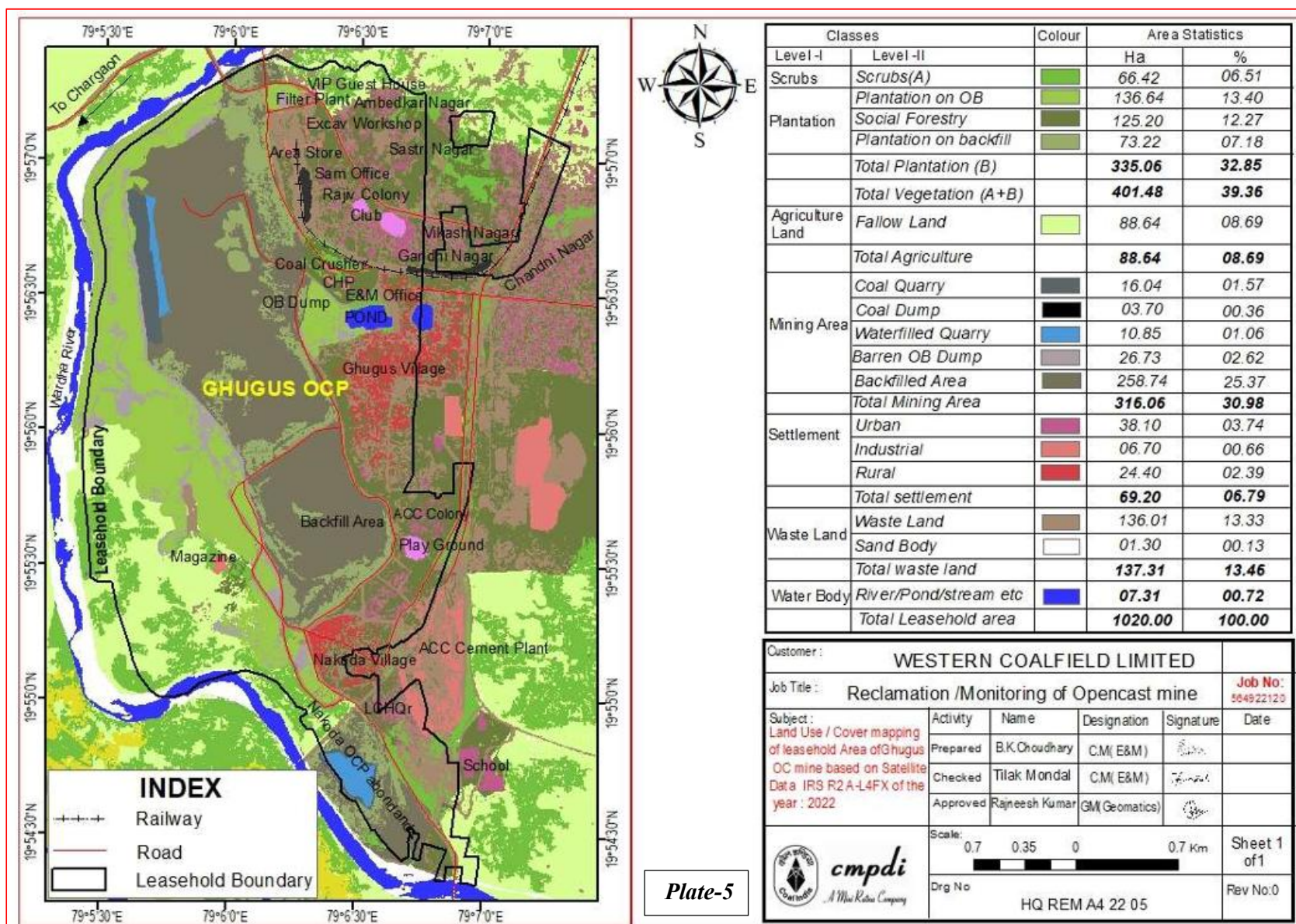
		BHANEAGAON		SINGHORI		MKD-II		NEW SETHIA		GHUGUS		PIMPALGAON		DATLA		GOKUL		TOTAL	
		Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
FORESTS	Dense Forest 	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Open Forest 	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Forest/Tree plantation	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 	32.17	9.26	58.39	13.74	9.44	3.66	9.76	6.71	66.42	6.51	21.74	4.81	0.56	0.98	55.07	7.28	253.55	7.32
PLANTATION	Social Forestry 	20.74	5.97	7.63	1.80	2.57	0.99	10.15	6.98	125.20	12.27	79.62	17.62	0.00	0.00	29.97	3.95	275.88	7.97
	Plantation on OB Dump 	16.54	4.76	0.00	0.00	47.14	18.26	7.01	4.82	136.64	13.40	149.76	33.14	0.00	0.00	0.00	0.00	357.09	10.32
	Plantation on Backfill 	0.00	0.00	0.00	0.00	0.00	0.00	18.92	13.01	73.22	7.18	0.00	0.00	11.24	19.47	0.00	0.00	103.38	2.99
	Total Plantation (Green Cover Generated)	37.28	10.73	7.63	1.80	49.71	19.25	36.08	24.81	335.06	32.85	229.38	50.76	11.24	19.47	29.97	3.95	736.35	21.28
	Plantation on Backfill(Biologically reclaimed)	0.00	0.00	0.00	0.00	0.00	0.00	18.92	13.01	73.22	7.18	0.00	0.00	11.24	19.47	0.00	0.00	103.38	2.99
	Total Vegetation Cover	69.45	19.99	66.02	15.54	59.15	22.91	45.84	31.52	401.48	39.36	251.12	55.57	11.80	20.45	85.04	11.23	989.90	28.60
ACTIVE MINING	Coal Quarry 	29.11	8.38	48.59	11.43	0.00	0.00	10.50	7.22	16.04	1.57	29.09	6.44	2.68	4.65	121.49	16.05	257.50	7.44
	Coal Dump 	3.04	0.87	3.58	0.84	6.91	2.68	1.21	0.83	3.70	0.36	2.44	0.54	0.00	0.00	17.16	2.27	38.04	1.10
	Advance Quarry Site 	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	55.98	7.40	55.98	1.62
	Quarry Filled With Water 	5.75	1.65	1.97	0.46	0.00	0.00	31.15	21.42	10.85	1.06	22.70	5.02	9.27	16.06	0.73	0.10	82.42	2.38
	Total Area under Active Mining	37.90	10.90	54.14	12.73	6.91	2.68	42.86	29.47	30.59	2.99	54.23	12.00	11.95	20.71	195.36	25.82	433.94	12.54
RECLAIMED	Barren OB Dump 	53.47	15.39	59.25	13.94	62.92	24.37	3.74	2.57	26.73	2.62	85.64	18.95	0.00	0.00	148.68	19.64	440.43	12.72
	Barren Backfilled Area 	1.18	0.34	0.00	0.00	57.75	22.36	30.65	21.07	258.74	25.37	13.34	2.95	25.32	43.85	75.49	9.97	462.47	13.36
	Total Area under Technical Reclamation	1.18	0.34	0.00	0.00	57.75	22.36	30.65	21.07	258.74	25.37	13.34	2.95	25.32	43.85	75.49	9.97	462.47	13.20
	Total Area Under Mine Operation	92.55	26.63	113.39	26.67	127.58	49.41	77.25	53.11	316.06	30.98	153.21	33.90	37.27	64.56	419.53	55.43	1336.84	38.46
WASTELAND	Waste Lands 	35.10	10.10	24.38	5.74	14.61	5.66	12.75	8.77	136.01	13.33	41.61	9.21	7.53	13.03	50.16	6.63	322.15	9.31
	Fly Ash Pond / Sand Body 	2.50	0.72	1.17	0.28	0.00	0.00	3.78	2.60	1.30	0.13	0.00	0.00	0.59	1.02	0.00	0.00	9.34	0.27
	Total Wasteland	37.60	10.82	25.55	6.02	14.61	5.66	16.53	11.37	137.31	13.46	41.61	9.21	8.12	14.05	50.16	6.63	331.49	9.58
WATERBODIES	Reservoir, nallah, ponds 	7.82	2.26	1.97	0.46	0.00	0.00	2.66	1.84	7.31	0.72	0.00	0.00	0.56	0.94	4.60	0.61	24.92	0.72
	Total Waterbodies	7.82	2.26	1.97	0.46	0.00	0.00	2.66	1.84	7.31	0.72	0.00	0.00	0.56	0.94	4.60	0.61	24.92	0.72
AGRICULTURE	Crop Lands 	0.00	0.00	12.21	2.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.98	1.05	20.19	0.58
	Fallow Lands 	139.26	40.08	204.73	48.17	56.24	21.78	1.03	0.70	88.64	8.69	0.00	0.00	0.00	0.00	172.16	22.74	662.06	19.13
	Total Agriculture	139.26	40.08	216.94	51.04	56.24	21.78	1.03	0.70	88.64	8.69	0.00	0.00	0.00	0.00	180.14	23.79	682.25	19.71
SETTLEMENTS	Urban Settlement 	0.78	0.22	0.74	0.17	0.39	0.14	1.91	1.30	38.10	3.74	1.99	0.44	0.00	0.00	1.08	0.14	43.99	1.27
	Rural Settlement 	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.40	2.39	1.73	0.38	0.00	0.00	0.36	0.05	26.49	0.77
	Industrial Settlement 	0.00	0.00	0.43	0.10	0.26	0.10	0.23	0.16	6.70	0.66	2.21	0.50	0.00	0.00	16.01	2.12	25.84	0.75
	Total Settlement	0.78	0.22	1.17	0.27	0.65	0.24	2.14	1.46	69.20	6.79	5.93	1.32	0.00	0.00	17.45	2.31	96.32	2.79
	Grand Total	347.46	100.00	425.04	100.00	258.23	100.00	145.45	100.00	1020.00	100.00	451.87	100.00	57.75	100.00	756.92	100.00	3461.72	100.00

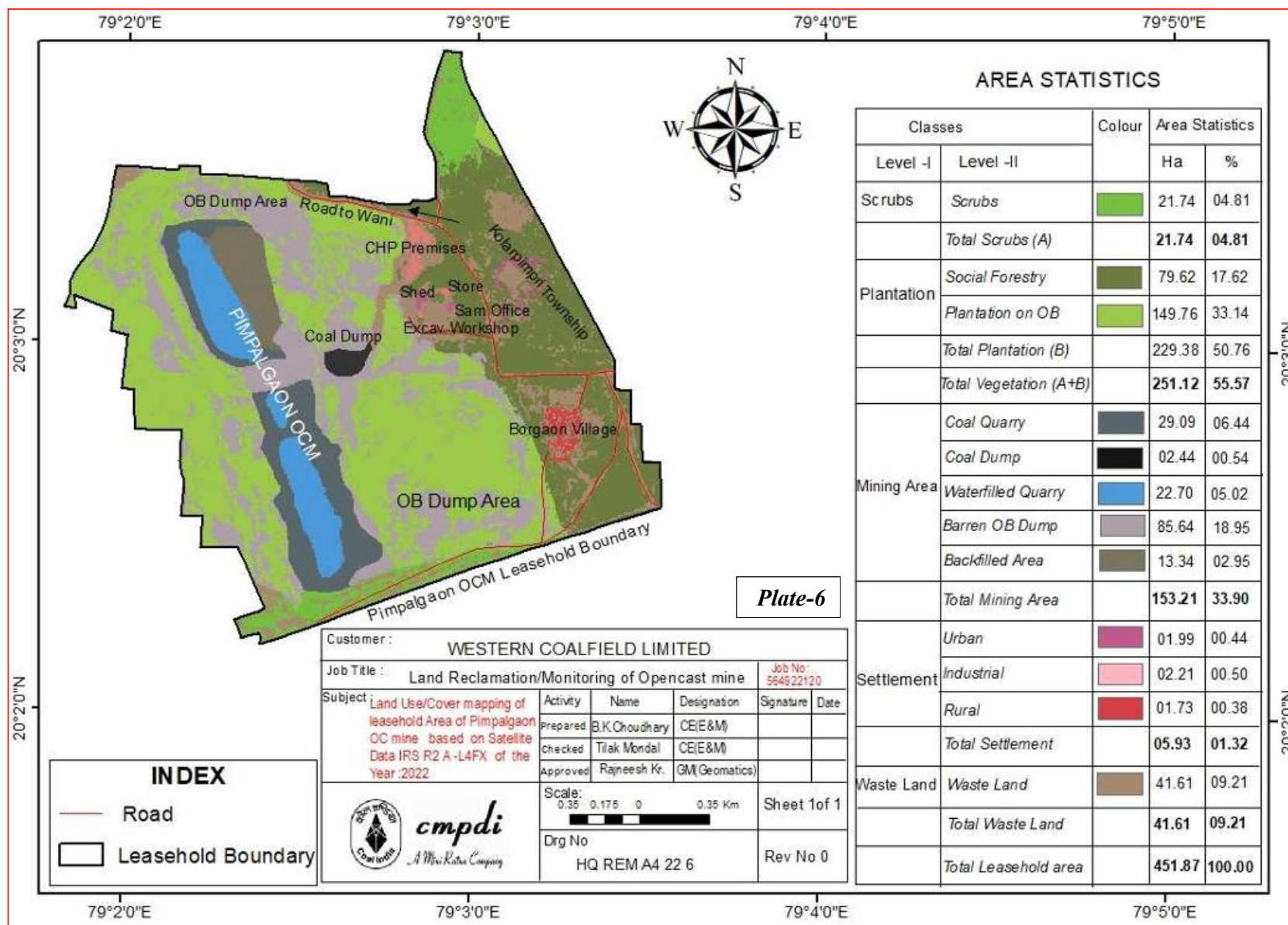


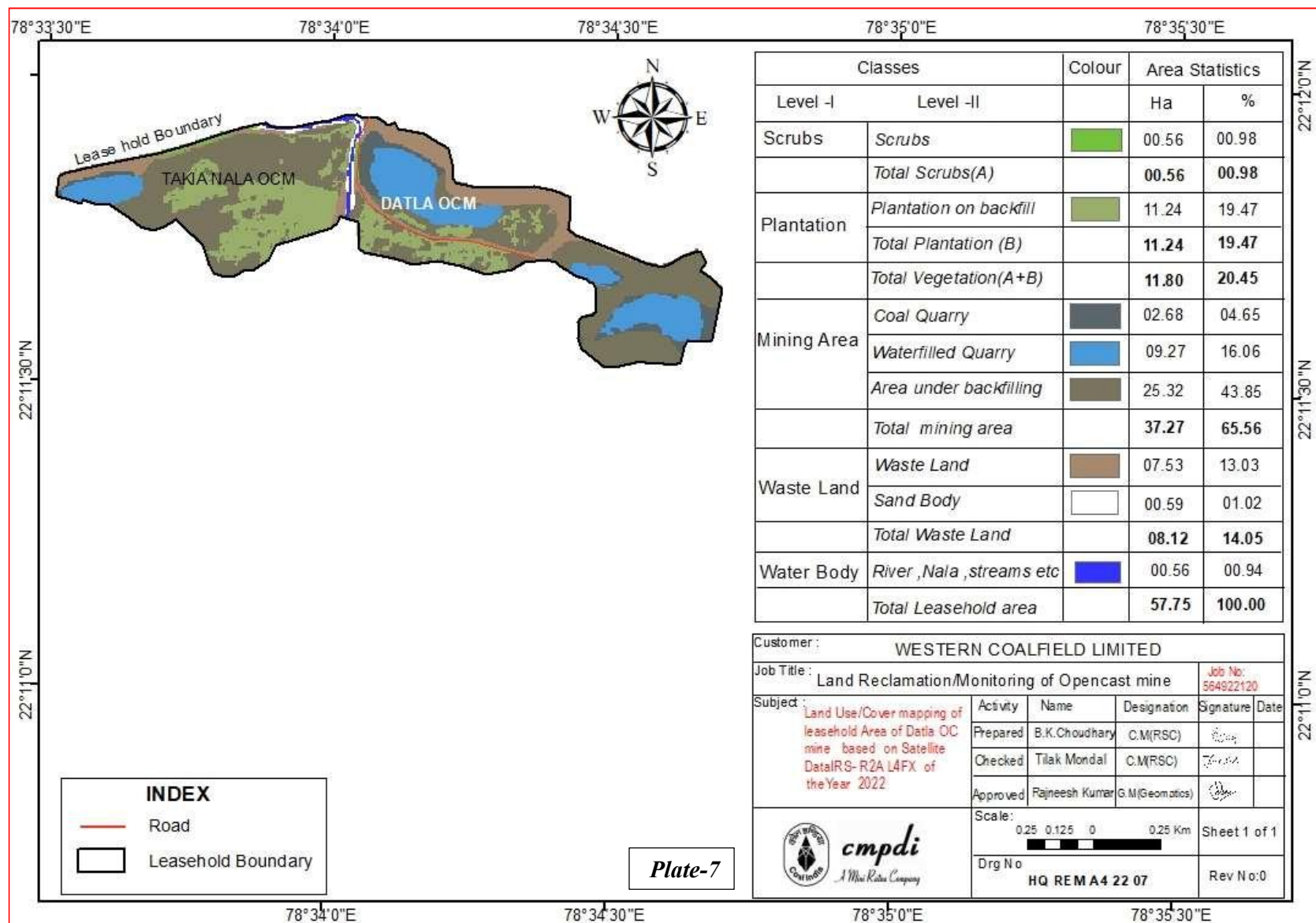


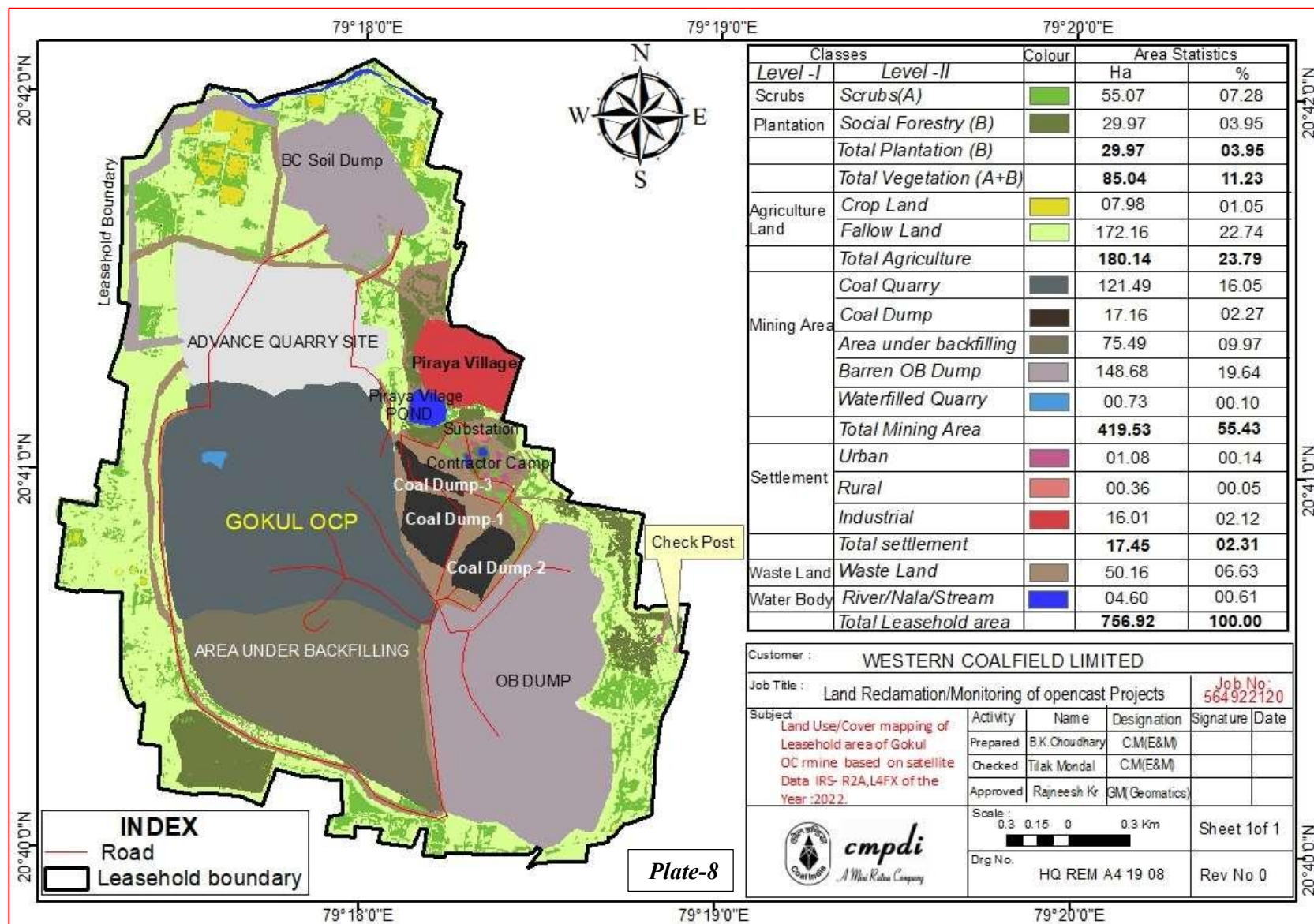












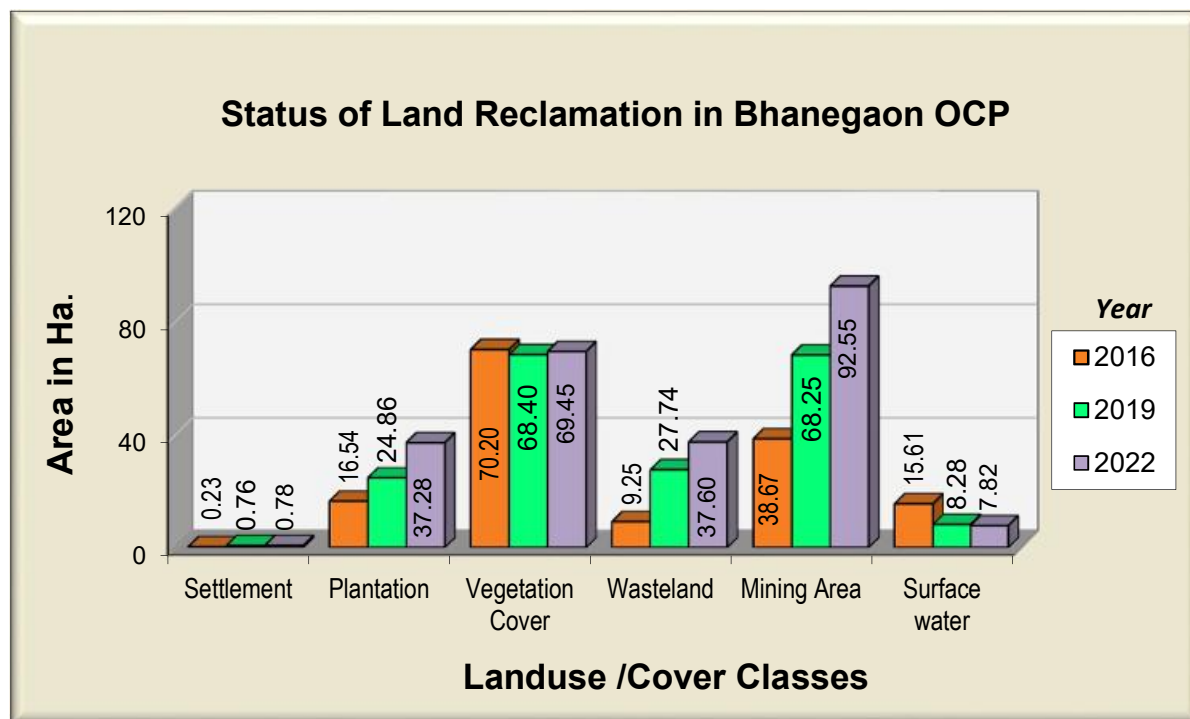


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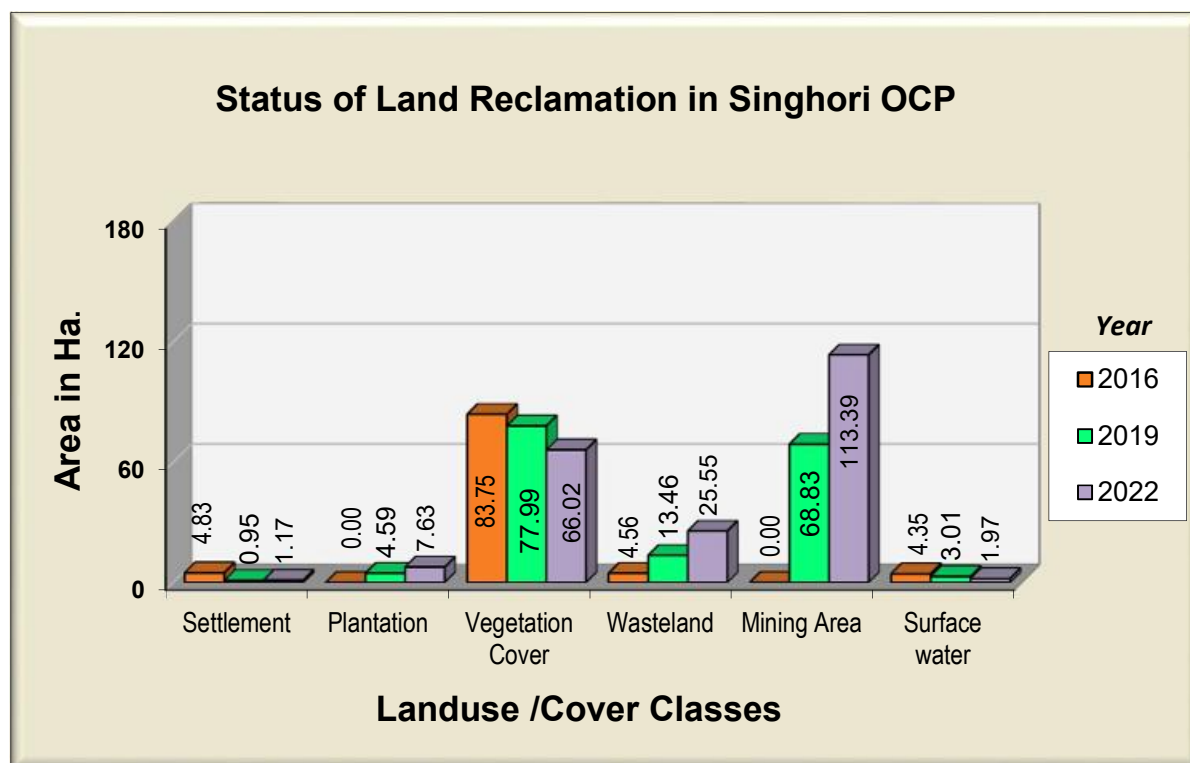


Figure-4

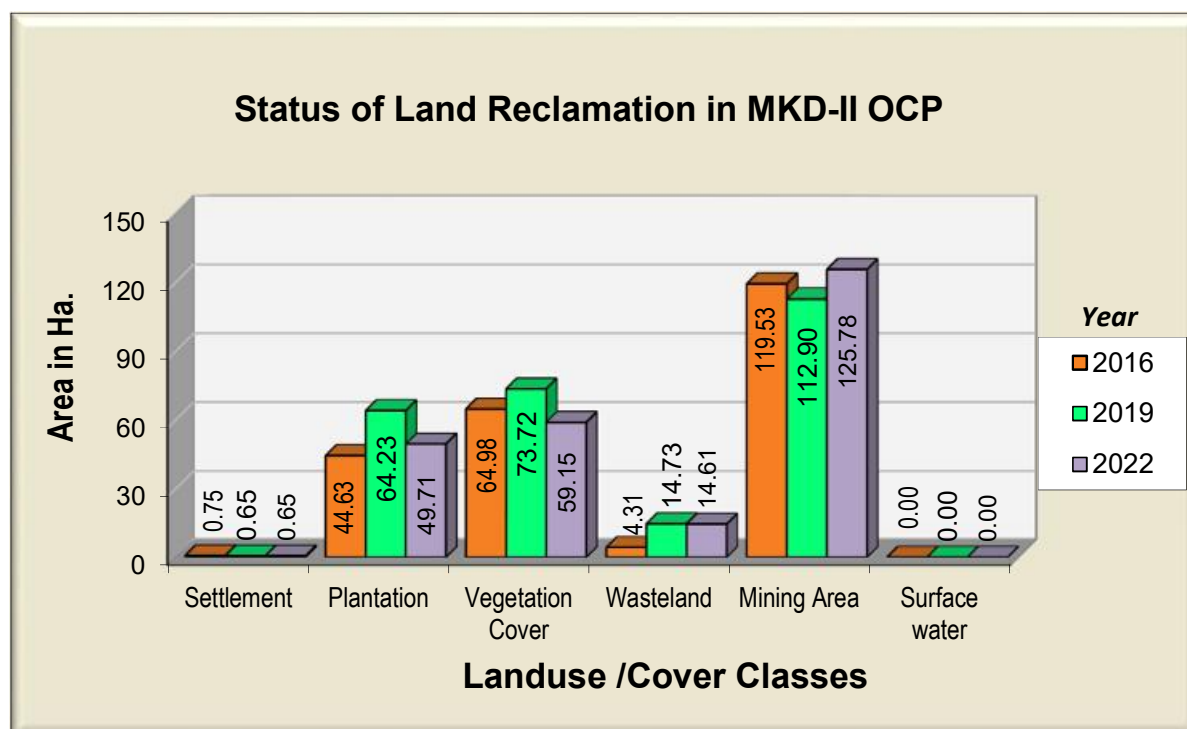


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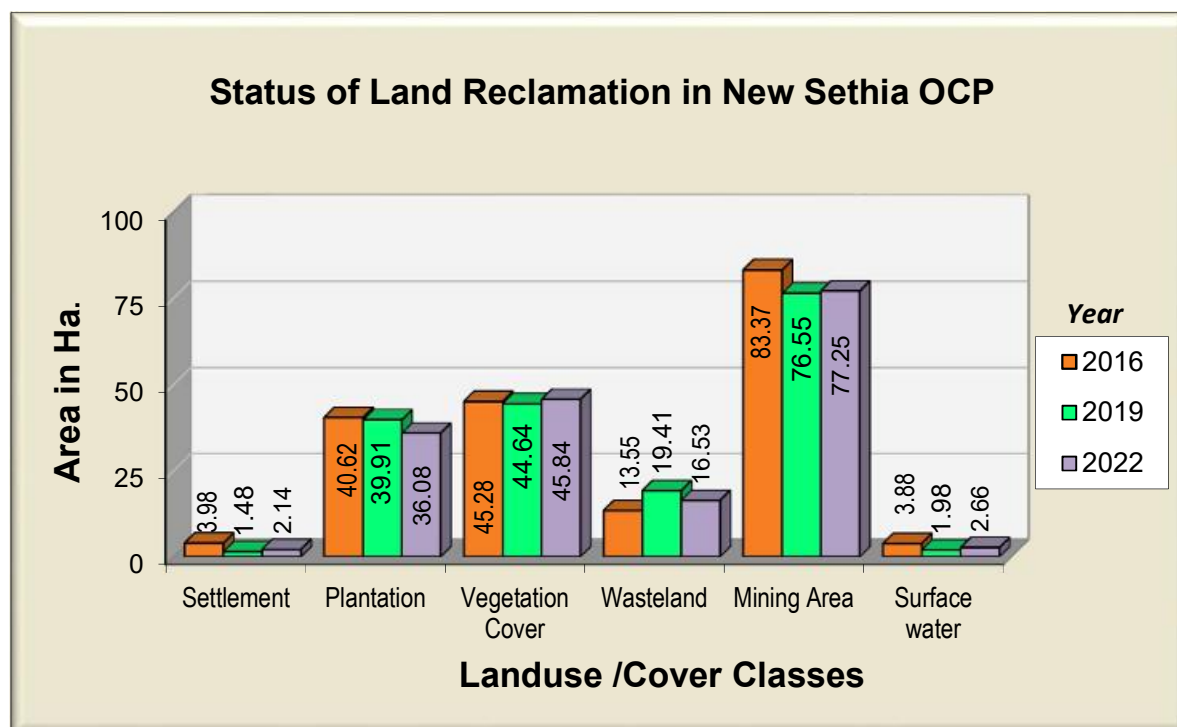


Figure -6

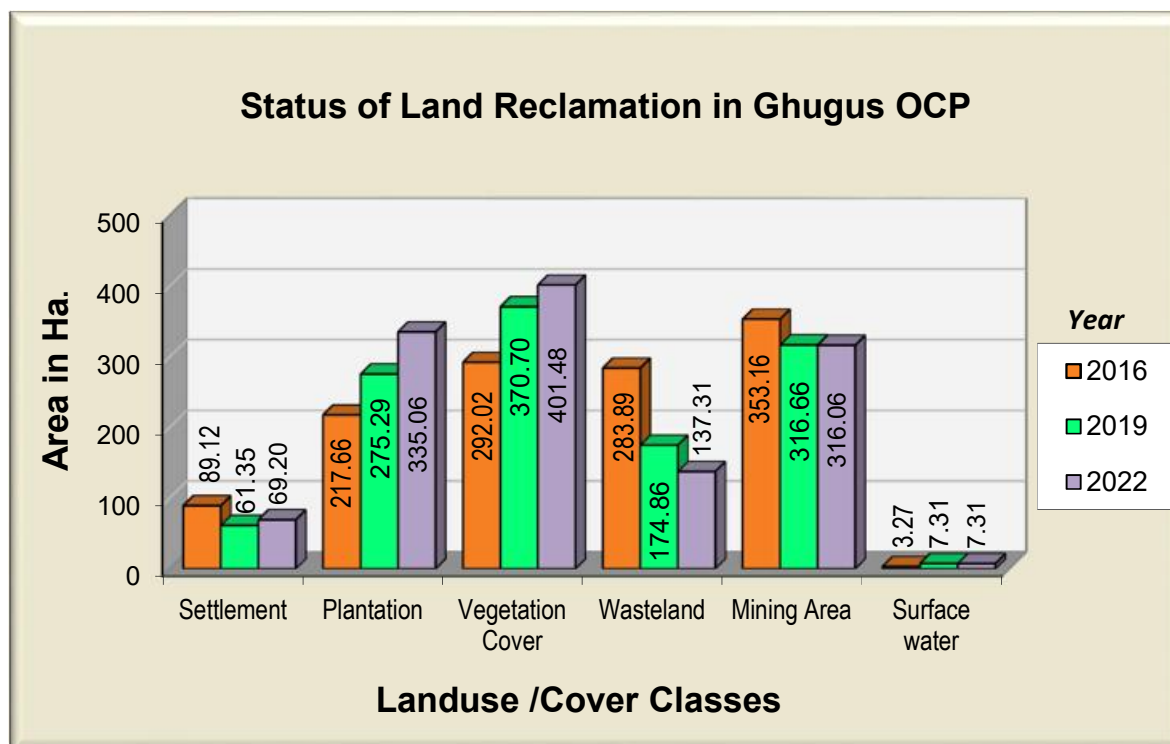


Figure-7

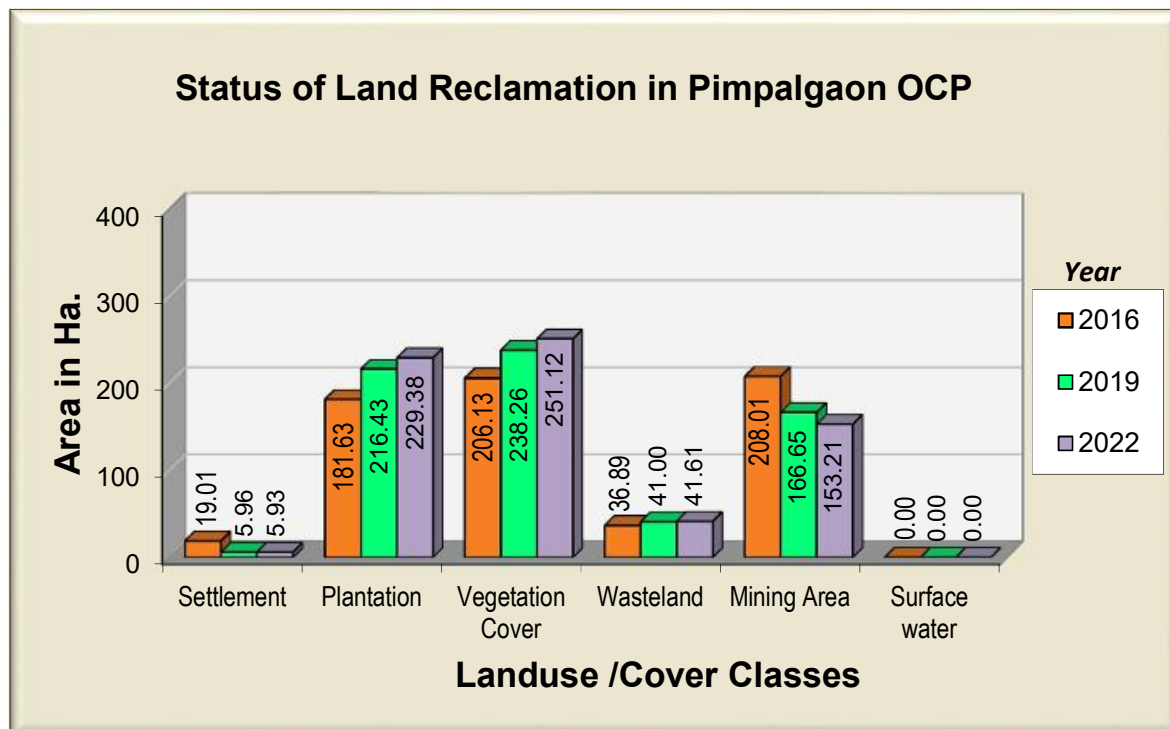


Figure-8

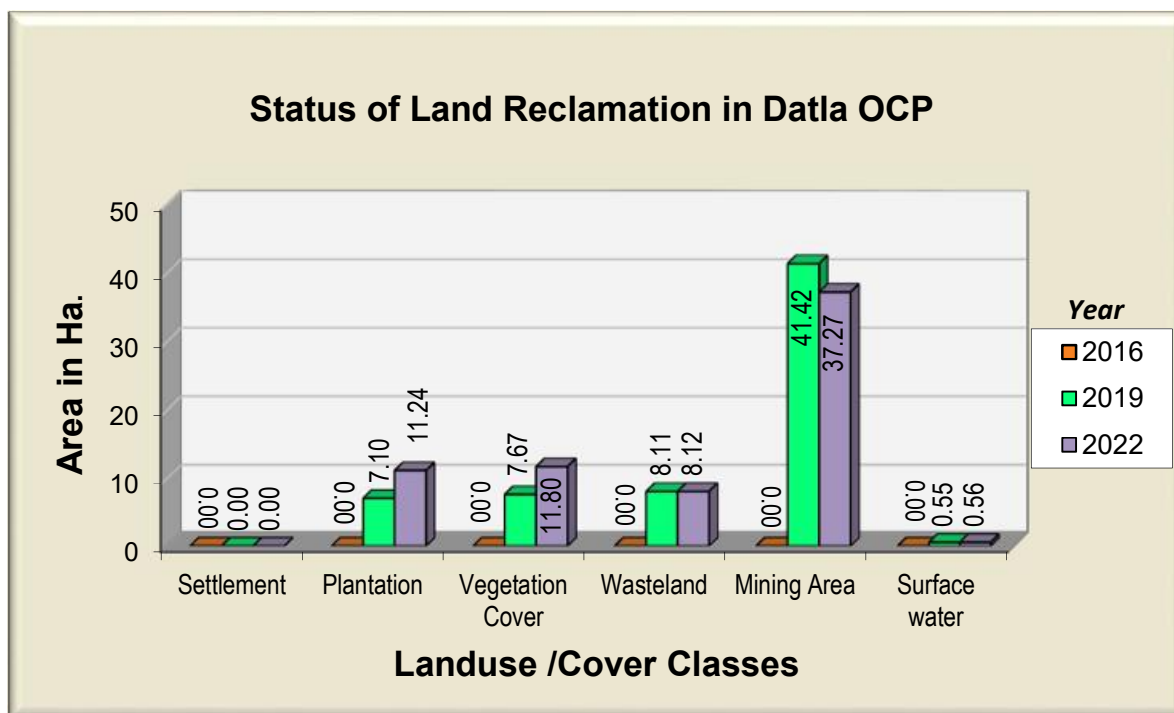


Figure-9

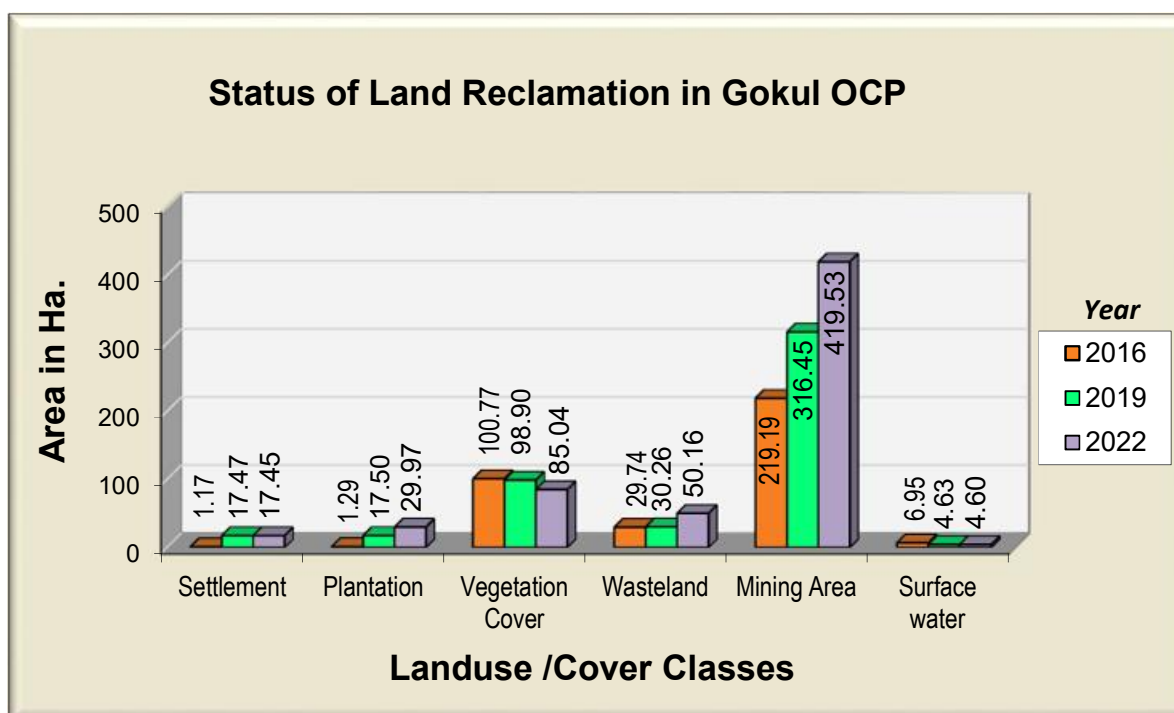


Figure -10



Photo-1: Plantation on embankment in Bhanegaon OCM



Photo-2: Plantation along charcoal transportation Road in Singhori OC



Photo-3: Plantation along coal transportation Road in Singhori OC



Photo-4: Plantation on Barren OB in Makardhokra-II OCM

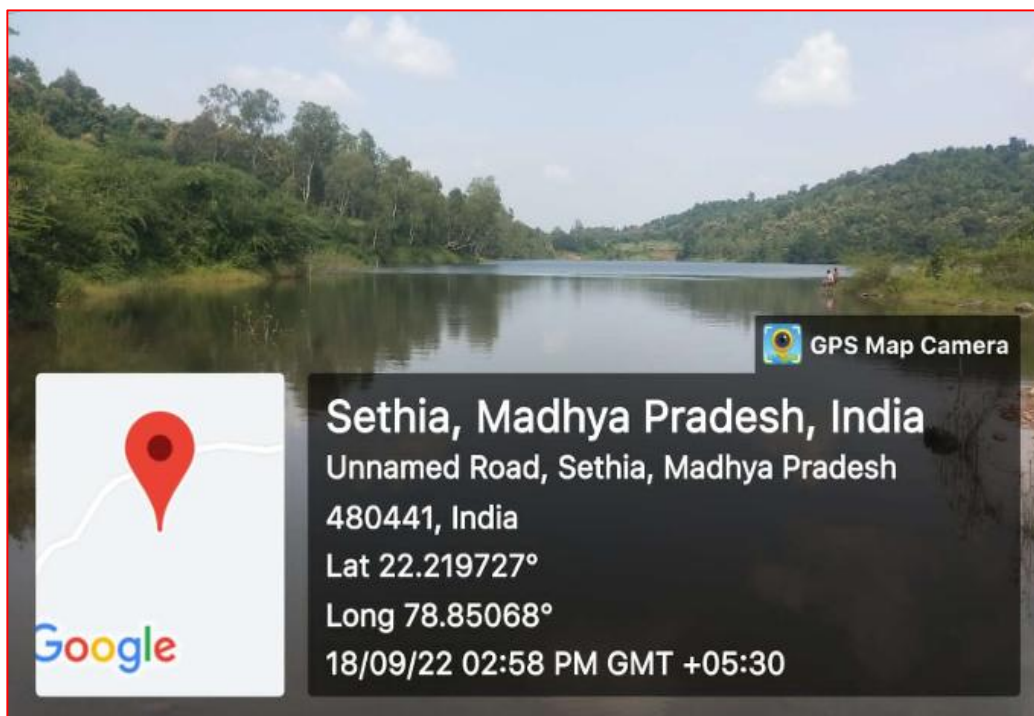


Photo-5: Plantation near mansarovar in New Sethia OCM



Photo-6: Eco park developed on backfill in New Sethia OCM



Photo-7: Plantation on Barren OB dump in Ghugus OCM



Photo-8: Plantation on embankment in Ghugus OCM



Photo-9: Plantation on embankment in Ghugus OCM



Photo-10: Plantation on backfill in Datla OCM

ABBREVIATIONS

Sol	Survey of India
MoEF & CC	Ministry of Environment, Forest & Climate Change
CIL	Coal India Limited
ECL	Eastern Coalfields Limited
BCCL	Bharat Coking Coal Limited
CCL	Central Coalfields Limited
WCL	Western Coalfields Limited
SECL	South Eastern Coalfields Limited
NCL	Northern Coalfields Limited
MCL	Mahanadi Coalfields Limited
NEC	North Eastern Coalfields
CMPDIL	Central Mine Planning & Design Institute Ltd
NRSC	National Remote Sensing Centre
R2/ R2A	ResourceSat Satellites
LISS - 4	Linear Imaging and Self Scanning Sensor
FCC	False Colour Composite
OCP	Opencast Project
UGP	Underground Project
OB	Over Burden
GCP	Ground Control points
GIS	Geographic Information System
WGS-84	World Geodetic System
UTM	Universal Transverse Mercator

GLOSSARY

Sl.	Term	Definition
1.	Land Reclamation	To manage, reclaim and restore mined out/ degraded land as close as possible to its original stage.
2.	Over Burden	The material that lies above the coal seam/ deposit
3.	Monitoring	A process of evaluation to check or keep record for a period of time.
4.	Opencast Coal Mine	Open-pit mining, also known as opencast mining, is a surface mining technique that extracts minerals from an open pit in the ground.
5.	Social Forestry	Social forestry is the management and protection of forests and afforestation of barren and deforested lands with the purpose of helping environmental, social and rural development. Plantation (Social/ Avenue or other) carried out outside mining area.
6.	Biological Reclamation	Plantation on Backfilled areas (Stabilised Internal Dumps)
7.	Technical Reclamation	Area under backfilling (Over burden dumped inside the mine voids) in mining area.
8.	Green Cover Generated	Total Plantation carried out in the lease area of Project. This includes Plantation on Backfill, Plantation on OB and Social Forestry.
9.	Leasehold Area	The area, for which lease is granted for the purpose of undertaking mining and allied operations.
10.	Excavated area	Mined out area which includes active mining, area under backfilling and plantation on backfilled areas
11.	Active Mining	Mining areas which include Coal Quarry, Advance Quarry, Quarry Filled with Water etc.
12.	Environmental Protection	It is the practice of protecting the natural environment by individuals, organizations and governments. Its objectives are to conserve natural resources and the existing natural environment and, where possible, to mitigate damage and reverse trends.
13.	Remedial Measure	Any measure or action required or undertaken to investigate, monitor, clean up, remove, treat, prevent, contain or otherwise remediate the presence or release of any hazardous substance or activity.
14.	Systematic Error	Every measurement differing from the true measurement in the same direction, and even by the same amount in some cases.
15.	Geometric Distortion	It refers to the improper positioning of any image with respect to their true geographic position when viewed in a properly scaled common image display plane.

16.	Land Use/ Cover Class	Land cover is what covers the surface of the earth and land use describes how the land is used.
17.	Accuracy	The closeness of agreement between a measured quantity value and a true quantity value.
18.	Environmental Clearance	Environmental Clearance (EC) for any developmental projects like coal mining projects etc. has been made mandatory by the Ministry of Environment, Forests and Climate Change (MoEF & CC) through its Notification issued on 27.01.1994 under the provisions of Environment (Protection) Act, 1986.
19.	Rectification and Geo-referencing	Geo-referencing is the assigning of absolute location of a data point or data points. Geo-rectification refers to the removal of geometric distortions between sets of data points, most often the removal of terrain, platform, and sensor induced distortions from remote sensing imagery.
20.	Image Enhancement	It is the process of modifying digital images so that the results are more suitable for processing or further image analysis.
21.	Training set selection	It is a portion of a data set used to fit or train a model for prediction or classification of values that are known in the training set, but unknown in other (future) data.
22.	Image Classification	It refers to the task of extracting information classes from a multiband raster image. The resulting raster from image classification can be used to create thematic maps.
23.	Temporal Changes	The 'temporal change' means the change in any entity with a period of time.
24.	Ground Truthing	Collection of primary/ basic information from ground realities for satellite image interpretation and thematic mapping.
25.	Cluster	Group of opencast and/ or underground mines clubbed together for administrative purposes.
26.	Arc GIS	GIS Software used for Map preparation
27.	ERDAS IMAGINE	Satellite Image Data Classification Software



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REPORT ON
MONITORING OF GROUND WATER LEVEL
OF
MAKARDHOKRA -II OC MINE,
UMRER AREA

WESTERN COALFIELDS LTD.



PERIOD- MAY-2025 (PRE-MONSOON) & AUG 2025 (MONSOON)



M/s Anacon Laboratories Pvt. Ltd., Nagpur

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

2025-26

Certificate

Groundwater level monitoring has been conducted with due diligence, and a comprehensive report on the monitoring of groundwater levels in all observation wells has been prepared as per the scope of work outlined in work order no. वेकोलि/मुख्यालय/पर्यावरण/14-L/1122-1148, dated 19.04.2025 for the Aug 2025 (Monsoon) Period.

The report includes the monitoring of groundwater levels and water quality analysis of observation wells pertaining to MAKARDHOKRA -II OC MINE, of UMRER Area, Maharashtra State.

The groundwater level monitoring was meticulously carried out by Anacon Laboratories Pvt. Ltd., and the analysis of the samples was performed by Anacon Laboratories Pvt. Ltd., a NABL Accredited Laboratory. (NABL Certificate no. TC-12998)

Anacon Laboratories Pvt. Ltd. gratefully acknowledges the full cooperation rendered by the concerned WCL officials, which facilitated the timely completion of the project.



Krupali Raut
(Geologist)



Gyanchand Bohra
NABET Accredited EIA Expert
for Hydrogeology & Geology



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

Nagpur
Aug -2025

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I-TABLE	MAKARDHOKRA -II OC MINE,	PERIOD- MAY-2025 (PRE-MONSOON) & AUG 2025 (MONSON)	8
PHOTOGRAPHS	MAKARDHOKRA -II OC MINE,	PHOTOGRAPHS	



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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/1122-1148, dated 19.04.2025 for the Aug 2025 (monsoon) Period.

This Ground Water Level Monitoring report is prepared MAKARDHOKRA -II OC MINE, of UMRERAREA of WCL for 2 seasons i.e., **MAY 2025(PRE-MONSOON) & AUG 2025(MONSOON)**. The mine is located in Nagpur District of Maharashtra.

GENERAL GROUND WATER CONDITION

The important water bearing formations of Nagpur district are discussed below.

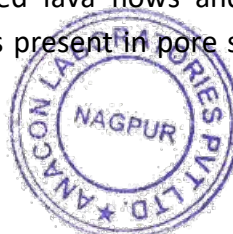
Consolidated Formations Archeans and the Deccan trap basalts are the two consolidated formations, which form the Hard rock aquifers occurring in the district.

a) Archean

The crystalline rocks comprising of gneiss, schist, pegmatite and quartzite are the main formations occurring in north-eastern and south eastern parts of the district. In these rocks, weathered zone which is down to a depth of 25 m.bgl, forms the important shallow aquifer for dugwells. In unweathered crystalline rocks, the occurrence of ground water is mainly controlled by joints and fractures. Higher yields are generally associated with lineaments. Ground water at places occurs in fractured zones at depth in semi-confined to confined conditions.

b) Deccan Traps

Basalt is the main formation of the district and occupies an area of about 4300 sq. km. Ground water occurs under phreatic conditions in the exposed lava flows and in semi-confined to confined state in the subsurface flows. Ground water is present in pore spaces in the vesicular



unit of each flow and in the jointed and fractured portions of massive unit. However, secondary porosity and permeability developed on account of weathering, fracturing and joints play a very important role in the storage and movement of ground water. This has given rise to good aquifers. Weathering not only produces granular materials but also widens the fractures, joint and shear zones.

Semi-Consolidated Formations-

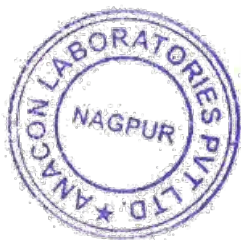
Two type of semi consolidated formations i.e. Lameta and Gondwanas occur in the district. They along with the unconsolidated Alluvial formation form the soft rock aquifers occurring in the district.

a) Lameta beds- Lameta beds, found to the north of the district in a small patch are compact, clayey and poor in permeability. Hence it is not a good water bearing formation

b) Gondwana Sediments- Gondwana formation, occupying a total area of about 470 sq.km, occurs in the northern part of the Nagpur city extending from Kamptee to Saoner, and an isolated patch also occurs near north of Sathnaori. Among the Gondwanas, the Barakar and Kamthi generally consist of medium to coarse-grained friable sandstone. These constitute the important water bearing formations in the district. Barakars are usually associated with coal seams of economic importance.

Unconsolidated Alluvial Formations

Alluvium consisting of sand, silt, clay and kankar forms the potential water bearing formations and occurs in southern part of the district from Butibori to Bela. The alluvium of recent to sub-recent age and are found to have been deposited along the Kanhan and Pench Rivers and their tributaries. They overlie the older formations such as Archeans, Gondwana and Basalt and have thickness more than 25 m. These formations are highly productive aquifers and sustain long duration pumping with very less drawdown and fast recuperation. Ground water occurs in water table and semi-confined conditions in the alluvial formation.



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**MAKARDHOKRA -II OC MINE,
UMRER AREA**

WESTERN COALFIELDS LTD.

PERIOD- MAY 2025 (PRE MONSOON) & AUG 2025 (MONSOON)



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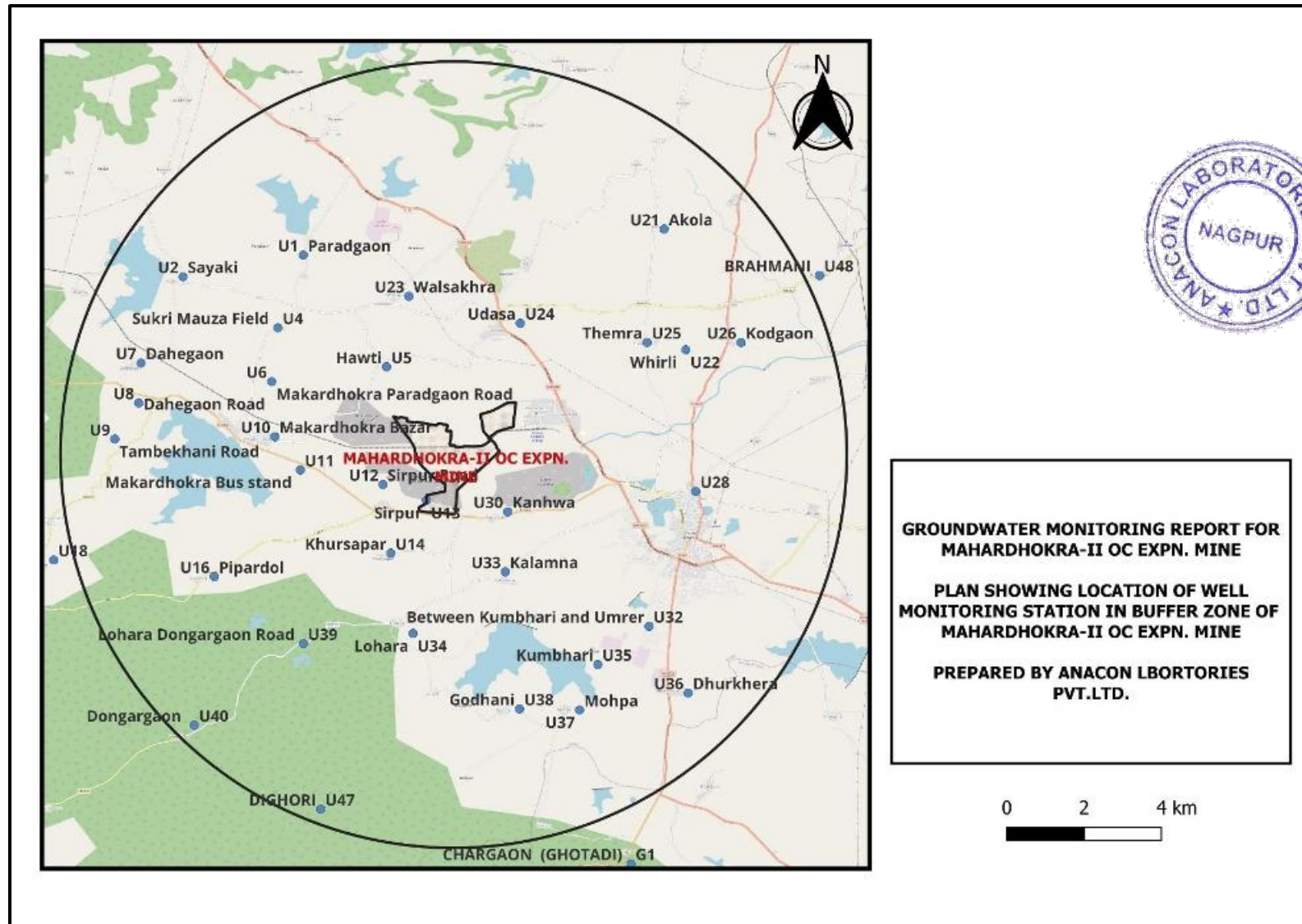


FIGURE-I: GROUND WATER MONITORING STATION (OBSERVATION WELLS IN AND AROUND OF MAKARDHOKRA-II OC EXPN.)



Dgawray

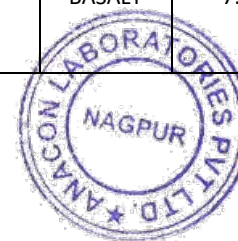
Table-I-A: Groundwater level monitoring data of dugwells in buffer zone of Makardhokra II OC. Expn., Umrer Area, WCI.

Sr No	Well No. U	Name of village	Well location	Lat			Long			R.L.	Well dia (m)	Well depth (m bgl)	MP height (m agl)	Formation	Depth to Water (BGL- Below Ground Level), m		UTILITY
				Deg	Min	Sec	Deg	Min	Sec						May-25	Aug-25	
1	U1	Paradgaon	Adjacent to Nagpur-MKD road (W), about 1 km S of village, near nalla	20	55	9.16	79	13	35.28	256	3.60	8.15	0.30	BASALT	6.53	3.90	DOMESTIC
2	U2	Sayaki	Adjacent to Champa Road Near upper L.P school	20	54	49.31	79	11	45.31	257	4.60	7.80	0.42	BASALT	5.30	1.62	DOMESTIC
3	U4	Sukri Mauza Field	About 1 km from X-roads, 30 m E of MKD road in the field, 600 m N of irrigation canal	20	54	2.54	79	13	12.10	245	4.90	8.30	0.50	BASALT	8.50	0.70	DOMESTIC
4	U5	Hawti	S edge of village, adjacent to water supply borewell & road, in low lying area	20	53	26.83	79	14	51.56	265	2.60	11.10	0.60	BASALT	7.55	2.35	DOMESTIC
5	U6	Makardhokra Paradgaon Road	About 2 km N of village, 120 m E of MKD-Nagpur road in the field of Eknath	20	53	13.34	79	13	6.29	224	4.10	13.40	0.90	BASALT	4.90	1.68	DOMESTIC
6	U7	Dahegaon	E of village, near Hanuman Mandir	20	53	30.32	79	11	6.73	246	3.60	7.40	0.70	BASALT	5.30	1.91	DOMESTIC
7	U8	Dahegaon Road	About 1 km from village road junction, about 70 m S of Umrer-Butibori road in the field	20	52	53.76	79	11	4.68	264	6.00	8.60	GL	BASALT	4.80	2.50	DOMESTIC
8	U9	Tambekhani Road	Midway between two villages, about 50 m west of the road in the field, near to Farm house of Vakil	20	52	20.67	79	10	42.70	263	6.00	9.20	0.40	BASALT	6.00	2.68	DOMESTIC
9	U10	Makardhokra Bazar	C of village, adjacent to village road	20	52	22.79	79	13	9.27	259	4.20	12.50	0.60	BASALT	4.35	3.36	DOMESTIC
10	U11	Makardhokra Bus stand	Adjacent (S) of Umrer-Butibori road, near to village road junction	20	51	52.42	79	13	32.66	269	4.10	13.40	0.90	BASALT	5.90	1.46	DOMESTIC

Sr No	Well No. U	Name of village	Well location	Lat			Long			R.L.	Well dia (m)	Well depth (m bgl)	MP height (m agl)	Formation	Depth to Water (BGL- Below Ground Level), m		UTILITY
				Deg	Min	Sec	Deg	Min	Sec						May-25	Aug-25	
11	U12	Sirpur Road	About 1 km W of village, about 15 m N of Umrer-Butibori road in the field	20	51	39.08	79	14	48.28	276	3.90	15.10	0.60	BASALT	7.39	0	DOMESTIC
12	U13	Sirpur	E of village, about 50 m N of Umrer road, (Water injection well)	20	51	24.55	79	15	28.06	280	3.55	11.50	0.40	BASALT	5.90	2.76	DOMESTIC
13	U14	Khursapar	E of village, in Bhim part (Budh Vihar)	20	50	36.17	79	14	55.49	284	2.30	6.40	0.45	BASALT	3.70	2.31	DOMESTIC
14	U16	Pipardol	Out side the village (East), E of Devli road, Twin wells (first)	20	50	14.73	79	12	13.80	289	2.10	8.20	0.60	BASALT	6.00	1.20	DOMESTIC
15	U21	Akola	C of village, about 70 m E of Barwha road	20	55	32.97	79	19	5.79	240	3.60	7.50	0.70	BASALT	8.60	3.69	DOMESTIC
16	U22	Whirli	C of village, in front of school/GP office	20	53	42.31	79	19	25.54	248	3.90	6.40	0.65	BASALT	8.50	2.97	DOMESTIC
17	U23	Walsakhra	SE corner of village, adjacent to village road in field	20	54	31.40	79	15	12.01	254	3.30	6.90	0.90	BASALT	5.90	*	DOMESTIC
18	U24	Udasa	About 800 m NE of village (outside), about 50 m S of Themra road in field Back side of Shiv Asthal	20	54	6.73	79	16	53.98	267	2.10	9.80	0.75	BASALT	6.10	1.60	DOMESTIC
19	U25	Themra	SW of village, near Hanuman Mandir	20	53	49.08	79	18	50.08	251	2.20	9.10	0.60	BASALT	5.90	2.50	DOMESTIC
20	U26	Kodgaon	C of village, about 100 m E of main road opp. House of Suman Panase	20	53	49.02	79	20	16.13	264	2.80	8.00	0.70	BASALT	2.10	1.90	DOMESTIC
21	U28	Umrer (New Budhwari Peth) Mandir	NE corner of the town, near Hanuman temple	20	51	32.75	79	19	34.67	250	2.90	12.40	0.80	BASALT	5.30	2.37	DOMESTIC
22	U30	Kanhwa	Adjacent (N) to Umrer road, E edge of village Dr. Ambedkar Statue	20	51	14.07	79	16	42.47	251	2.90	13.10	0.50	BASALT	6.26	2.41	DOMESTIC

Sr No	Well No. U	Name of village	Well location	Lat			Long			R.L.	Well dia (m)	Well depth (m bgl)	MP height (m agl)	Formation	Depth to Water (BGL- Below Ground Level), m		UTILITY
				Deg	Min	Sec	Deg	Min	Sec						May-25	Aug-25	
23	U32	Between Kumbhari and Umrer	Adjacent (W) to Umrer-Mohpa road in the field, About 1 km NE of Kumbhari village	20	49	29.26	79	18	51.90	239	7.50	6.50	0.40	BASALT	5.10	1.21	DOMESTIC
24	U33	Kalamna	N side of village, adjacent to village road, near to primary school	20	50	19.14	79	16	40.30	238	2.65	9.60	0.75	BASALT	5.68	1.74	DOMESTIC
25	U34	Lohara	C of village, Forest office compound	20	49	22.73	79	15	15.76	234	6.50	9.00	0.50	BASALT	2.90	1.80	DOMESTIC
26	U35	Kumbhari	About 300 m S of village (outside), near nala P.W.S well	20	48	54.24	79	18	5.06	268	2.80	8.40	0.75	BASALT	7.30	*	DOMESTIC
27	U36	Dhurkhera	Adjacent (E) of Girad road, In school premises	20	48	28.14	79	19	27.76	267	7.10	7.30	0.40	BASALT	4.20	1.60	DOMESTIC
28	U37	Mohpa	NE edge of village, adjacent to village road	20	48	12.63	79	17	48.31	283	2.70	9.30	0.30	BASALT	8.40	1.20	DOMESTIC
29	U38	Godhani	About 300 m N of village (out side), adjacent to nala	20	48	13.63	79	16	53.27	276	4.30	11.50	0.80	BASALT	10.10	4.88	DOMESTIC
30	U39	Lohara Dongargaon Road	Right side of road near nala and Mandir	20	49	13.43	79	13	35.41	271	2.40	7.20	0.40	BASALT	3.20	2.40	DOMESTIC
31	U45	CHAMPA VILLAGE	NEAR BHARAT RADIATORS ADJACENT TO UMRERROAD	20	58	38.60	79	11	52.34	280	4.10	9.50	0.50	BASALT	5.40	3.90	DOMESTIC
32	U48	BRAHMANI	NEAR LAL BAHADUR VIDYALAYA AND JR COLLAGE	20	54	50.46	79	21	27.98	256	6.00	9.60	0.30	BASALT	3.26	1.42	DOMESTIC
33	U49	KHAPRI	NEAR JUNCTION OF THE ROAD OR CHOWK	20	54	27.02	79	8	29.46	285	5.60	9.65	0.60	BASALT	5.90	1.40	DOMESTIC
34	U50	TARNA VILLAGE	NEAR POST OFFICE TARNA 300 METER	20	54	4.19	79	24	7.41	265	3.20	11.20	0.60	BASALT	3.90	1.62	DOMESTIC
35	U51	NAWEGAON	LEFT SIDE OF GOVT HOSPITAL ON THE ROAD NEAR HANUMAN MANDIR	20	49	53.50	79	22	45.18	258	4.00	14.00	0.90	BASALT	7.30	1.87	DOMESTIC

Note:-(*)-U23-Not approachable due to dense vegetation; U35- Not approachable due to rain water.



Signature



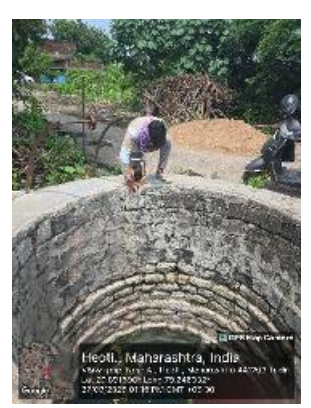
U1-Paradgaon



U2-Sayaki



U4-Sukri Mauza Field



U5-Hawti



**U6-Makardhokra
Paradgaon Road**



U7-Dahegaon



U8-Dahegaon Road



U9-Tambekhane Road



U10-Makardhokra Bazar



U11-Makardhokra Bus stand



U12-Sirpur Road



U13-Sirpur



U14-Khursapur



U16-Pipardol



U21-Akola



U22-Whirli



U23-Walsakhra



U24-Udasa



U25-Themra



U26-Kodgaon



U28- Umrer (New Budhwari Peth) Mandir



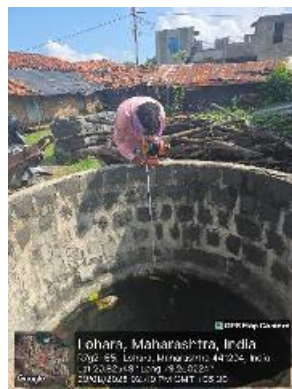
U30-Kanhwa



U32-Between Kumbhari and Umrer



U33-Kalamna



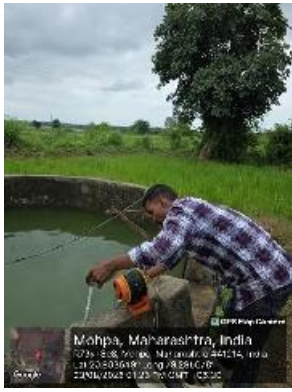
U34-Lohara



U35-Kumbhari



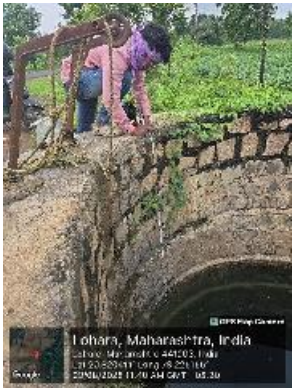
U36-Dhurkhara



U37-Mohpa



U38-Godhani



**U39-Lohara
Dongargaon Road**



U45-CHAMPA VILLAGE



U48-BRAHMANI



U49-KHAPRI



U50-TARNA VILLAGE



U51- NAWEGAON

REPORT ON
MONITORING OF GROUND WATER LEVEL
OF
MAKARDHOKRA -II OC MINE,
UMRER AREA

WESTERN COALFIELDS LTD.



PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB -2023 (WINTER) , MAY-2023 (PRE-MONSOON) AUG-23 (MONSOON) NOV 2023 (POST-MONSOON) ,JAN 2024 (WINTER) ,MAY 2024(PRE MONSOON) & AUG 2024 (MONSOON)



M/s Anacon Laboratories Pvt. Ltd., Nagpur

MoEF&CC (GOI) Recognized Laboratory
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Report No. ANqr /PD/20A/2023/199

2022-23 & 2023-24

Certificate

Groundwater level monitoring has been conducted with due diligence, and a comprehensive report on the monitoring of groundwater levels in all observation wells has been prepared as per the scope of work outlined in work order no. वेकोलि/मुख्यालय/पर्यावरण/14-L/77, dated 08.12.2022

The report includes the monitoring of groundwater levels and water quality analysis of observation wells pertaining to MAKARDHOKRA -II OC MINE, of UMRER Area, Maharashtra State.

The groundwater level monitoring was meticulously carried out by Anacon Laboratories Pvt. Ltd., and the analysis of the samples was performed by Skylab Analytical Laboratory, Bhiwandi, Kalyan a NABL Accredited Laboratory. (NABL Certificate no. TC-5150)

Anacon Laboratories Pvt. Ltd. gratefully acknowledges the full cooperation rendered by the concerned WCL officials, which facilitated the timely completion of the project.



Atharva Nayab
(Geologist)



Gyanchand Bohra
NABET Accredited EIA Expert
for Hydrogeology & Geology

Nagpur
Aug-Sept-2024

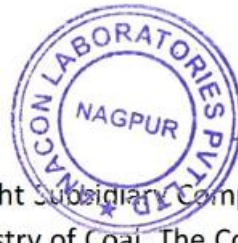


(Dr. D. G. Garway)
Head of Organization
Anacon Laboratories Pvt. Ltd., Nagpur

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Dgawary



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 MAKARDHOKRA -II OC MINE, of UMRERAREA of WCL for 8 seasons i.e., PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB -2023 (WINTER) , MAY-2023 (PRE-MONSOON) AUG-23 (MONSOON) NOV 2023 (POST-MONSOON) ,JAN 2024 (WINTER) ,MAY 2024(PRE MONSOON) & AUG 2024 (MONSOON).The mine is located in Nagpur District of Maharashtra.

GENERAL GROUND WATER CONDITION

The important water bearing formations of Nagpur district are discussed below.

Consolidated Formations Archeans and the Deccan trap basalts are the two consolidated formations, which form the Hard rock aquifers occurring in the district.

a) Archean

The crystalline rocks comprising of gneiss, schist, pegmatite and quartzite are the main formations occurring in north-eastern and south eastern parts of the district. In these rocks, weathered zone which is down to a depth of 25 m.bgl, forms the important shallow aquifer for dugwells. In unweathered crystalline rocks, the occurrence of ground water is mainly controlled by joints and fractures. Higher yields are generally associated with lineaments. Ground water at places occurs in fractured zones at depth in semi-confined to confined conditions.

b) Deccan Traps

Basalt is the main formation of the district and occupies an area of about 4300 sq. km. Ground water occurs under phreatic conditions in the exposed lava flows and in semi-confined to confined state in the subsurface flows. Ground water is present in pore spaces in the vesicular unit of each flow and in the jointed and fractured portions of massive unit. However, secondary porosity and permeability developed on account of weathering, fracturing and joints play a very important role

in the storage and movement of ground water. This has given rise to good aquifers. Weathering not only produces granular materials but also widens the fractures, joint and shear zones.

Semi-Consolidated Formations-

Two type of semi consolidated formations i.e. Lameta and Gondwanas occur in the district. They along with the unconsolidated Alluvial formation form the soft rock aquifers occurring in the district.

a) Lameta beds- Lameta beds, found to the north of the district in a small patch are compact, clayey and poor in permeability. Hence it is not a good water bearing formation

b) Gondwana Sediments- Gondwana formation, occupying a total area of about 470 sq.km, occurs in the northern part of the Nagpur city extending from Kamptee to Saoner, and an isolated patch also occurs near north of Sathnaori. Among the Gondwanas, the Barakar and Kamthi generally consist of medium to coarse-grained friable sandstone. These constitute the important water bearing formations in the district. Barakars are usually associated with coal seams of economic importance.

Unconsolidated Alluvial Formations

Alluvium consisting of sand, silt, clay and kankar forms the potential water bearing formations and occurs in southern part of the district from Butibori to Bela. The alluvium of recent to sub-recent age and are found to have been deposited along the Kanhan and Pench Rivers and their tributaries. They overlie the older formations such as Archeans, Gondwana and Basalt and have thickness more than 25 m. These formations are highly productive aquifers and sustain long duration pumping with very less drawdown and fast recuperation. Ground water occurs in water table and semi-confined conditions in the alluvial formation.



A handwritten signature in blue ink, appearing to read "D. Gaurav".

**MAKARDHOKRA -II OC MINE,
UMRERAREA
WESTERN COALFIELDS LTD.**

**PERIOD- DEC 2022 (POST-MONSOON), JAN-FEB -2023 (WINTER) , MAY-2023 (PRE-MONSOON) AUG-23
(MONSOON) NOV 2023 (POST-MONSOON) ,JAN 2024 (WINTER) ,MAY 2024(PRE MONSOON) & AUG
2024 (MONSOON)**



Signature

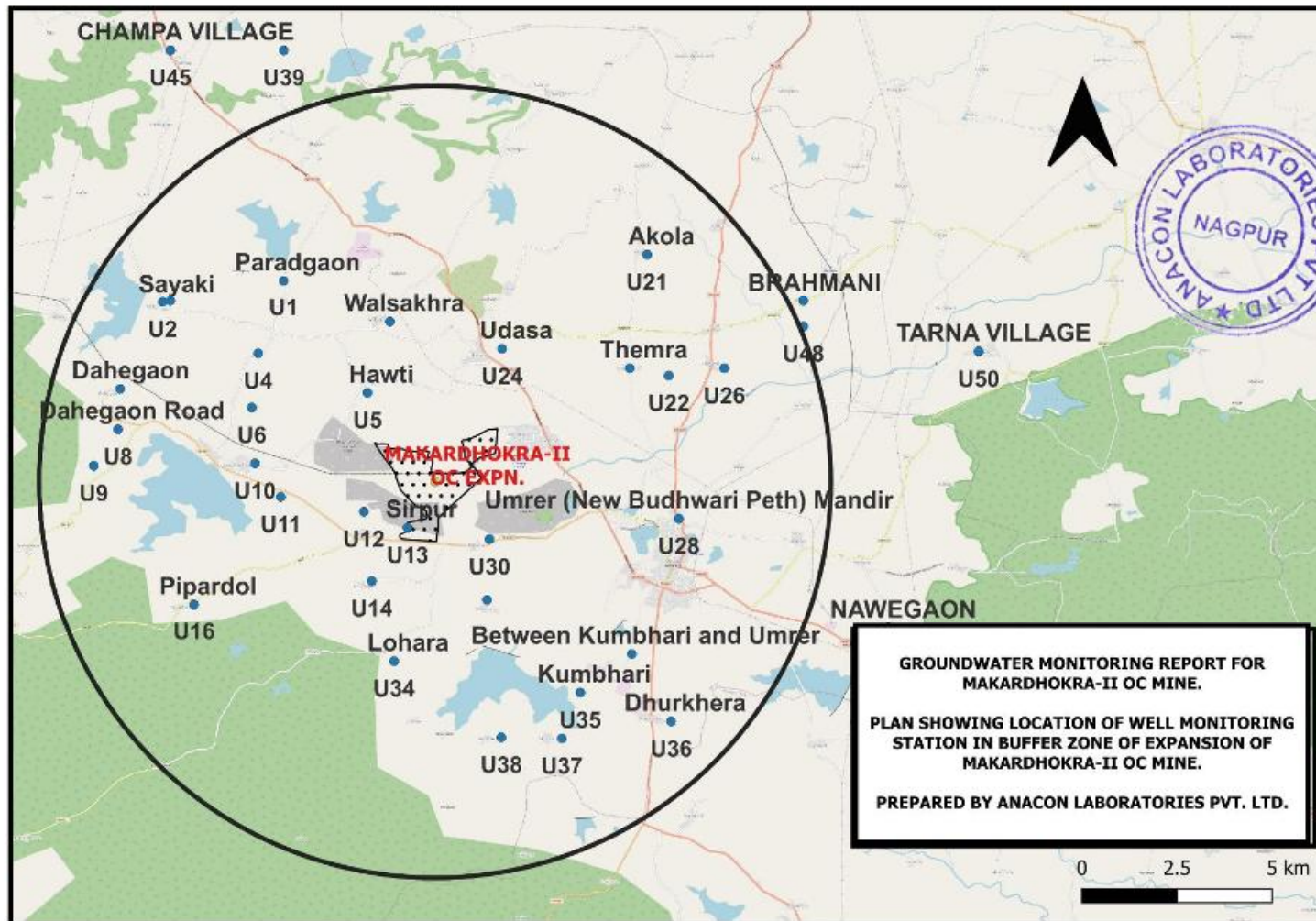


FIGURE-I: GROUND WATER MONITORING STATION (OBSERVATION WELLS IN AND AROUND OF MAKARDHOKRA-II OC EXPN.)



Table-I-A: Groundwater level monitoring data of dugwells in buffer zone of Makardhokra II OC. Expn., Umreth Area, WCI

Sr. No	Well No. U	Name of village	Well location	Lat			Long			R.L.	Well dia (m)	Well depth (m bgl)	MP height (m agl)	Formation	Depth to Water (BGL-Below Ground Level), m								UTILITY
				Deg	Min	Sec	Deg	Min	Sec						DEC -22	JAN-FEB-23	May 23	Aug-23	Nov-23	Jan-24	May -24	Aug-24	
1	U1	Paradgaon	Adjacent to Nagpur-MKD road (W), about 1 km S of village, near nalla	20	55	9.16	79	13	35.28	256	3.60	8.15	0.30	BASALT	3.90	3.15	5.20	2.55	4.00	3.80	5.40	2.70	DOMESTIC
2	U2	Sayaki	Adjacent to Champa Road Near upper L.P school	20	54	49.31	79	11	45.31	257	4.60	7.80	0.42	BASALT	2.50	3.55	3.80	3.05	4.20	4.25	4.30	2.90	DOMESTIC
3	U4	Sukri Mauza Field	About 1 km from X-roads, 30 m E of MKD road in the field, 600 m N of irrigation canal	20	54	2.54	79	13	12.10	245	4.90	8.30	0.50	BASALT	5.60	4.20	4.65	3.40	3.80	4.10	5.30	3.00	DOMESTIC
4	U5	Hawti	S edge of village, adjacent to water supply borewell & road, in low lying area	20	53	26.83	79	14	51.56	265	2.60	11.10	0.60	BASALT	4.80	5.50	7.20	4.40	5.00	5.40	7.60	4.20	DOMESTIC
5	U6	Makardhokra Paradgaon Road	About 2 km N of village, 120 m E of MKD-Nagpur road in the field of Eknath	20	53	13.34	79	13	6.29	224	4.10	13.40	0.90	BASALT	5.50	6.40	7.80	3.60	4.00	5.50	8.00	3.55	DOMESTIC
6	U7	Dahegaon	E of village, near Hanuman Mandir	20	53	30.32	79	11	6.73	246	3.60	7.40	0.70	BASALT	4.00	3.30	3.60	2.80	3.50	3.70	4.10	2.65	DOMESTIC

Sr . No	Well No. U	Name of village	Well location	Lat			Long			R.L.	Well dia (m)	Well depth (m bgl)	MP height (m agl)	Formation		Depth to Water (BGL-Below Ground Level), m							UTILITY
				Deg	Min	Sec	Deg	Min	Sec							DEC -22	JAN-FEB-23	May 23	Aug-23	Nov-23	Jan-24	May -24	Aug-24
7	U8	Dahegaon Road	About 1 km from village road junction, about 70 m S of Umrer-Butibori road in the field	20	52	53.76	79	11	4.68	264	6.00	8.60	GL	BASALT	3.00	5.00	5.40	3.20	3.30	4.80	5.50	3.10	DOMESTIC
8	U9	Tambekhani Road	Midway between two villages, about 50 m west of the road in the field, near to Farm house of Vakil	20	52	20.67	79	10	42.70	263	6.00	9.20	0.40	BASALT	2.10	4.40	4.85	2.90	4.00	4.20	5.50	2.30	DOMESTIC
9	U10	Makardhokra Bazar	C of village, adjacent to village road	20	52	22.79	79	13	9.27	259	4.20	12.50	0.60	BASALT	4.00	6.15	8.30	3.00	3.30	4.40	8.70	2.40	DOMESTIC
10	U11	Makardhokra Bus stand	Adjacent (S) of Umrer-Butibori road, near to village road junction	20	51	52.42	79	13	32.66	269	4.10	13.40	0.90	BASALT	5.00	5.60	7.70	3.90	4.80	5.45	7.90	3.80	DOMESTIC
11	U12	Sirpur Road	About 1 km W of village, about 15 m N of Umrer-Butibori road in the field	20	51	39.08	79	14	48.28	276	3.90	15.10	0.60	BASALT	5.50	3.90	6.95	3.10	5.00	5.1	6.80	2.70	DOMESTIC
12	U13	Sirpur	E of village, about 50 m N of Umrer road, (Water injection well)	20	51	24.55	79	15	28.06	280	3.55	11.50	0.40	BASALT	5.10	4.20	5.80	4.10	4.50	4.80	6.00	3.95	DOMESTIC
13	U14	Khursapar	E of village, in Bhim part (Budh Vihar)	20	50	36.17	79	14	55.49	284	2.30	6.40	0.45	BASALT	4.00	2.90	3.50	2.50	4.00	4.40	3.70	2.00	DOMESTIC

Sr . No	Well No. U	Name of village	Well location	Lat			Long			R.L.	Well dia (m)	Well depth (m bgl)	MP height (m agl)	Formati on		Depth to Water (BGL-Below Ground Level), m							UTIL ITY
				Deg	Min	Sec	Deg	Min	Sec							DEC -22	JAN- FEB- 23	Ma y 23	Aug- 23	No v- 23	Jan- 24	May -24	Aug- 24
14	U16	Pipardol	Out side the village (East), E of Devli road, Twin wells (first)	20	50	14.73	79	12	13.80	289	2.10	8.20	0.60	BASALT	3.3 0	3.25	4.2 5	3.00	2.8 0	3.20	4.80	2.85	DO MES TIC
15	U21	Akola	C of village, about 70 m E of Barwha road	20	55	32.97	79	19	5.79	240	3.60	7.50	0.70	BASALT	4.1 0	4.10	5.1 5	2.70	3.4 0	3.90	6.10	2.60	DO MES TIC
16	U22	Whirli	C of village, in front of school/GP office	20	53	42.31	79	19	25.54	248	3.90	6.40	0.65	BASALT	4.3 0	3.60	5.0 0	2.60	3.2 0	3.50	5.10	2.40	DO MES TIC
17	U23	Walsakhra	SE corner of village, adjacent to village road in field	20	54	31.40	79	15	12.01	254	3.30	6.90	0.90	BASALT	3.2 0	3.80	4.4 0	3.20	4.0 0	4.10	5.00	3.05	DO MES TIC
18	U24	Udasa	About 800 m NE of village (outside), about 50 m S of Themra road in field Back side of Shiv Asthal	20	54	6.73	79	16	53.98	267	2.10	9.80	0.75	BASALT	3.5 0	4.40	5.6 0	3.00	4.4 0	4.60	6.20	1.90	DO MES TIC
19	U25	Themra	SW of village, near Hanuman Mandir	20	53	49.08	79	18	50.08	251	2.20	9.10	0.60	BASALT	2.5 0	3.80	4.4 5	2.90	3.7 0	3.90	5.50	2.80	DO MES TIC
20	U26	Kodgaon	C of village, about 100 m E of main road opp. House of Suman Panase	20	53	49.02	79	20	16.13	264	2.80	8.00	0.70	BASALT	2.1 0	2.85	4.5 8	2.10	3.0 0	3.05	4.50	2.00	DO MES TIC

Sr . No	Well No. U	Name of village	Well location	Lat			Long			R.L.	Well dia (m)	Well depth (m bgl)	MP height (m agl)	Formati on		Depth to Water (BGL-Below Ground Level), m							UTIL ITY
				Deg	Min	Sec	Deg	Min	Sec							DEC -22	JAN- FEB- 23	Ma y 23	Aug- 23	No v- 23	Jan- 24	May -24	Aug- 24
21	U28	Umrer (New Budhwari Peth) Mandir	NE corner of the town, near Hanuman temple	20	51	32.75	79	19	34.67	250	2.90	12.40	0.80	BASALT	4.0 0	5.45	6.4 0	3.05	3.5 0	5.00	6.80	2.90	DO MES TIC
22	U30	Kanhwa	Adjacent (N) to Umrer road, E edge of village Dr. Ambedkar Statue	20	51	14.07	79	16	42.47	251	2.90	13.10	0.50	BASALT	5.1 0	5.80	7.1 0	4.40	5.0 5	5.40	8.20	4.25	DO MES TIC
23	U32	Between Kumbhari and Umrer	Adjacent (W) to Umrer-Mohpa road in the field, About 1 km NE of Kumbhari village	20	49	29.26	79	18	51.90	239	7.50	6.50	0.40	BASALT	3.3 0	5.50	4.6 5	2.80	4.1 0	5.00	5.10	2.60	DO MES TIC
24	U33	Kalamna	N side of village, adjacent to village road, near to primary school	20	50	19.14	79	16	40.30	238	2.65	9.60	0.75	BASALT	3.1 0	4.50	3.8 5	2.60	3.2 5	4.10	4.50	2.50	DO MES TIC
25	U34	Lohara	C of village, Forest office compound	20	49	22.73	79	15	15.76	234	6.50	9.00	0.50	BASALT	5.8 0	5.00	6.8 0	4.00	5.2 0	5.10	7.10	3.70	DO MES TIC
26	U35	Kumbhari	About 300 m S of village (outside), near nala P.W.S well	20	48	54.24	79	18	5.06	268	2.80	8.40	0.75	BASALT	4.0 0	3.60	4.5 0	2.90	4.0 0	4.20	5.80	2.85	DO MES TIC
27	U36	Dhurkhera	Adjacent (E) of Girad road, In school premises	20	48	28.14	79	19	27.76	267	7.10	7.30	0.40	BASALT	2.2 0	2.80	3.8 0	1.60	2.6 0	2.90	4.20	1.30	DO MES TIC

Sr . No	Well No. U	Name of village	Well location	Lat			Long			R.L.	Well dia (m)	Well depth (m bgl)	MP height (m agl)	Formati on		Depth to Water (BGL-Below Ground Level), m								UTIL ITY
				Deg	Min	Sec	Deg	Min	Sec							DEC -22	JAN- FEB- 23	Ma y 23	Aug- 23	No v- 23	Jan- 24	May -24	Aug- 24	
28	U37	Mohpa	NE edge of village, adjacent to village road	20	48	12.63	79	17	48.31	283	2.70	9.30	0.30	BASALT	3.2 0	5.00	5.6 5	1.80	2.9 0	4.00	4.30	1.40	DO MES TIC	
29	U38	Godhani	About 300 m N of village (out side), adjacent to nala	20	48	13.63	79	16	53.27	276	4.30	11.50	0.80	BASALT	3.4 0	5.80	6.7 0	2.20	3.4 0	5.30	6.50	2.00	DO MES TIC	
30	U39	Lohara Dongargao n Road	Right side of road near nala and Mandir	20	49	13.43	79	13	35.41	271	2.40	7.20	0.40	BASALT	3.0 0	2.70	4.1 0	2.75	3.1 0	3.00	4.90	2.60	DO MES TIC	
31	U45	CHAMPA VILLAGE	NEAR BHARAT REDIATORS ADJACENT TO UMRERROAD	20	58	38.60	79	11	52.34	280	4.10	9.50	0.50	BASALT	3.9 0	3.10	5.2 5	3.00	4.0 0	4.30	5.80	2.90	DO MES TIC	
32	U48	BRAHMAN I	NEAR LAL BAHADUR VIDYALAYA AND JR COLLAGE	20	54	50.46	79	21	27.98	256	6.00	9.60	0.30	BASALT	2.7 0	5.10	4.8 5	1.60	2.5 0	4.50	5.20	1.50	DO MES TIC	
33	U49	KHAPRI	NEAR JUNCTION OF THE ROAD OR CHOWK	20	54	27.02	79	8	29.46	285	5.60	9.65	0.60	BASALT	3.0 0	5.25	6.1 5	3.50	4.1 0	4.70	6.20	3.10	DO MES TIC	
34	U50	TARNA VILLAGE	NEAR POST OFFICE TARNA 300 METER	20	54	4.19	79	24	7.41	265	3.20	11.20	0.60	BASALT	4.5 0	5.10	7.2 0	3.80	4.9 0	5.05	6.90	3.65	DO MES TIC	
35	U51	NAWEGAO N	LEFT SIDE OF GOVT HOSPITAL ON THE ROAD NEAR HANUMAN MANDIR	20	49	53.50	79	22	45.18	258	4.00	14.00	0.90	BASALT	3.8 0	6.50	7.5 5	4.10	5.3 0	6.00	5.80	3.90	DO MES TIC	

Sr . No	Well No. U	Name of village	Well location				Lat			Long			R.L.	Well dia (m)	Well depth (m bgl)	MP height (m agl)	Formati on		Depth to Water (BGL-Below Ground Level), m								UTIL ITY
							Deg	Min	Sec	Deg	Min	Sec							DEC -22	JAN- FEB- 23	Ma y 23	Aug- 23	No v- 23	Jan- 24	May -24	Aug- 24	
							Note :- m.bmp - metre below measuring point, m agl -metre above ground level, mbgl - metre below ground level ,PO-Pump on,B-Barakar,T-Talchir,M-Metamorphics, NA- Not Accessible, PO- Pump On																				

ULR:TC51502400000848F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-848)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-848)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Paradgaon - (Umred Area) Well No.: U1,
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	343.25	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	179.87	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	110.4	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.76	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	23.32	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.42	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.57	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	45.69	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	751	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	372	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.43	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	0.31	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC51502400000849F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-849)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-849)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

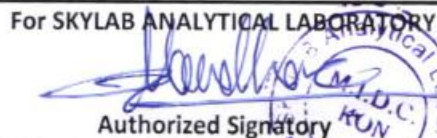
LOCATION : Syaki - (Umred Area) Well No.: U2,
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	355.25	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	213.33	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	117.6	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.91	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	20.41	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.06	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.72	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	57.08	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	822	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	378	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.10	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.43	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	0.11	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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202, CFC-3, Asmeeta Texpa, Addl. Kalyan-Bhiwandi Industrial Area, MIDC, Village Kon, Tal. Bhiwandi, Dist., Thane, Maharashtra, INDIA. Pincode-421311.

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SALAC24230916332

ULR:TC515024000000850F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
 Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
 (M.S), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-850)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-850)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Sukri Mauza Field - (Umred Area) Well No.: U4,
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	349.25	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	179.87	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	22.3	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.84	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	22.35	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.12	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.49	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	44.45	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	873	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	456	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.10	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.14	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	0.11	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	0.19	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Total dissolved solids, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000851F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-851)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-851)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Hawti - (Umred Area) Well No.: U5,
SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	391	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	80.60	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	79.30	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.32	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	29.42	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.58	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.49	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	24.69	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	787	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL(DL- 0.1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	364	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	BDL(DL- 0.1)	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC51502400000853F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:

M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-853)

REPORT DATE : 20/05/2024

CUSTOMER REF : Verbal

REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-853)

SAMPLING PLAN & METHOD NO.: IS 3025 Part 1

SAMPLING DATE : 15/05/2024

SAMPLE RECEIPT DATE : 16/05/2024

ANALYSIS START DATE : 16/05/2024

ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Makardhokra Paradgaon Road - (Umred Area) Well No.: U6

SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory

SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	396	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	109.74	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	94	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.21	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	23.40	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.09	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.63	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	17.95	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	798	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	340	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.26	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.10	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.30	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	0.07	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	0.10	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Metal-Aluminium, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC51502400000854F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-854)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-854)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Dahegaon - (Umred Area) Well No.: U7
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	75	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	40.15	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	112.12	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.74	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	19.40	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.52	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.79	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	29.44	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	921	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	378	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.36	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.10	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.45	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	0.10	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	0.15	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Calcium, Total dissolved solids, Metal-Aluminium, Metal-Manganese ,Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC51502400000855F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-855)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-855)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Dahegaon Road - (Umred Area) Well No.: U8
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	100	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	213.33	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	94.21	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.61	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	35.62	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	5.21	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.14	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	25.36	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	946	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	364.2	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.23	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL- 0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.48	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	0.13	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	0.68	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Calcium, Total dissolved solids, Metal-Magnesium, Metal-Aluminium, Metal-Manganese, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC51502400000856F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-856)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-856)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Tambekhane Road - (Umred Area) Well No.: U9
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	68.75	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	163.14	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	87.2	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.53	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	27.12	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.09	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.56	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	26.40	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	894	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	330	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.16	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000857F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-857)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-857)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Makardhokra Bazar - (Umred Area) Well No.: U10
SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	106.25	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	184.05	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	114.20	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.43	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	13.20	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.30	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.78	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	28.97	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	886	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	350	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.36	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.10	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.28	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	0.07	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Calcium, Total dissolved solids, Metal-Aluminium, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000858F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-858)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-858)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Makardhokra Bus Stand - (Umred Area) Well No.: U11
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	343	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	104.40	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	110.72	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.47	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	9.64	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.49	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.21	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	29.73	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	824	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	334	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.25	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.28	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	0.06	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Metal-Aluminium & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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202, CFC-3, Asmeeta Texpa, Addl. Kalyan-Bhiwandi Industrial Area, MIDC, Village Kon, Tal. Bhiwandi, Dist., Thane, Maharashtra, INDIA. Pincode-421311.

Mob. : 9867577309-312 / 8422929165. Email : mails@skylabenviro.com, Website : www.skylabenviro.com

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SALAC24230916341

ULR:TC515024000000859F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-859)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-859)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Sirpur Road - (Umred Area) Well No.: U12
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	50	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	24.26	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	81.6	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.51	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	24.68	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	BDL(DL- 2)	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.14	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	21.37	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	880	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL(DL- 0.1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	334	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.17	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000860F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-860)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-860)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Sirpur - (Umred Area) Well No.: U13
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	258	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	36.39	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	97.6	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.43	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	24.3	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.05	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.52	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	17.57	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	849	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	342	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL- 0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.83	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	0.10	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000861F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:

M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-861)

REPORT DATE : 20/05/2024

CUSTOMER REF : Verbal

REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-861)

SAMPLING PLAN & METHOD NO.: IS 3025 Part 1

SAMPLING DATE : 15/05/2024

SAMPLE RECEIPT DATE : 16/05/2024

ANALYSIS START DATE : 16/05/2024

ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Khursapar- (Umred Area) Well No.: U14

SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory

SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	372	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	142.22	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	94.80	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.23	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	24.26	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.34	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.93	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	30.01	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	828	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	330	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.13	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC51502400000862F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-862)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-862)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Pipardol - (Umred Area) Well No.: U16
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	56.25	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	33.88	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	96.8	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.54	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	24.3	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.70	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.73	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	26.59	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	820	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	342	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.37	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.14	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	0.06	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000864F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
 Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
 (M.S), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-864)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-864)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Akola - (Umred Area) Well No.: U21
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	294	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	154.77	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	85.62	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.61	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	21.18	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	5.10	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.83	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	30.58	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	856	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	310	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	BDL(DL- 0.1)	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000865F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-865)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-865)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Whirli - (Umred Area) Well No.: U22
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	249	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	32.62	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	91.2	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.55	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	28.18	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.12	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.21	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	19.28	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	819	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	344	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.30	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.37	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000866F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-866)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-866)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Walsakhra - (Umred Area) Well No.: U23
SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	354	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	30.53	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	97.6	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.51	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	27.21	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.42	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.32	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	23.36	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	824	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.3	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	356	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.10	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	BDL(DL- 0.1)	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	0.06	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000867F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-867)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-867)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

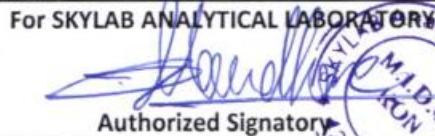
LOCATION : Udas - (Umred Area) Well No.: U24
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	309	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	17.12	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	97	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.45	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	23.98	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.17	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.11	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	32.10	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	874	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	356	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.19	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC51502400000868F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:

M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-868)

REPORT DATE : 20/05/2024

CUSTOMER REF : Verbal

REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-868)

SAMPLING PLAN & METHOD NO.: IS 3025 Part 1

SAMPLING DATE : 15/05/2024

SAMPLE RECEIPT DATE : 16/05/2024

ANALYSIS START DATE : 16/05/2024

ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Themra - (Umred Area) Well No.: U25

SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory

SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	309	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	17.12	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	97	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.45	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	23.98	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.17	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.11	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	32.10	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	874	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	356	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL- 0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.19	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000869F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-869)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-869)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Kodgaon - (Umred Area) Well No.: U26
SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	320	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	32.62	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	284.94	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.78	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	36.17	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.19	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.43	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	15.76	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	852	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	360	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.36	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL- 0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.13	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Metal-Magnesium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000870F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-870)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-870)

SAMPLING PLAN & METHOD NO.: IS 3025 Part 1

SAMPLING DATE : 15/05/2024

SAMPLE RECEIPT DATE : 16/05/2024

ANALYSIS START DATE : 16/05/2024

ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Umrer (New Budhwari Peth Mandir)- (Umred Area) Well
No.: U28

SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory

SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	324	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	25.93	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	85.92	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.43	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	37.10	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	BDL(DL- 2)	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.16	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	19.75	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	842	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	362.5	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	BDL(DL- 0.1)	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Metal-Magnesium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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202, CFC-3, Asmeeta Texpa, Addl. Kalyan-Bhiwandi Industrial Area, MIDC, Village Kon, Tal. Bhiwandi, Dist., Thane, Maharashtra, INDIA. Pincode-421311.

Mob. : 9867577309-312 / 8422929165. Email : mails@skylabenviro.com, Website : www.skylabenviro.com

SKYLAB is always subject to improvement. For better customer satisfaction, we welcome your feedback on : feedback@skylabenviro.com

SALAC24230916501

ULR:TC515024000000871F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
 Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
 (M.S.), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-871)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-871)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Kanhwa - (Umred Area) Well No.: U30
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	248	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	22.58	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	97.6	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.54	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	24.3	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.10	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.74	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	21.18	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	889	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	344	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	BDL(DL- 0.01)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.22	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	0.06	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Metal-Magnesium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000872F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-872)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-872)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Between Kumbhari & Umred - (Umred Area) Well No.: U32
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	276	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	19.66	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	87.20	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.17	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	32.24	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.84	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.25	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	17.00	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	880	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	247	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.14	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.10	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.12	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	0.06	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Metal-Magnesium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC51502400000873F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:

M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-873)

REPORT DATE : 20/05/2024

CUSTOMER REF : Verbal

REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-873)

SAMPLING PLAN & METHOD NO.: IS 3025 Part 1

SAMPLING DATE : 15/05/2024

SAMPLE RECEIPT DATE : 16/05/2024

ANALYSIS START DATE : 16/05/2024

ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Kalamna - (Umred Area) Well No.: U33

SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory

SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	384	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	30.53	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	110.20	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.67	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	19.92	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.44	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.88	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	14.05	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	857	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	364	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.11	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	BDL(DL- 0.1)	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000874F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-874)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-874)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Lohara - (Umred Area) Well No.: U34
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	247	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	108.76	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	83.444	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.45	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	32.12	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	5.58	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.96	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	40.56	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	890	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	324.4	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.22	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.10	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.34	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Metal-Magnesium, Total dissolved solids, Metal-Aluminium, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000875F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-875)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-875)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

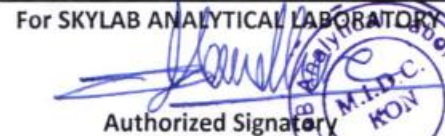
LOCATION : Kumbhari - (Umred Area) Well No.: U35
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	289	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	25.93	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	103.2	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.34	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	27.12	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.89	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.08	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	19.56	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	894	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	370	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.14	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.10	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Metal-Aluminium & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000876F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-876)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-876)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Durkheda - (Umred Area) Well No.: U36
SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	240	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	31.79	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	91.62	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.38	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	20.94	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.20	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.44	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	15.95	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	898	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	315	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.16	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.11	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Metal-Aluminium & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC51502400000877F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-877)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-877)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Mohpa - (Umred Area) Well No.: U37
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	340	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	33.88	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	86.54	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.61	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	21.19	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.65	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.18	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	19.18	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	890	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	330	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.13	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.17	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Metal-Aluminium & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000878F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
 Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
 (M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-878)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-878)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Godhani - (Umred Area) Well No.: U38
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	279	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	92.02	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	103.12	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.61	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	18.92	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	5.08	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.88	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	38.66	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	884	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	390	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.11	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.10	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	BDL(DL- 0.1)	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Metal-Aluminium, Boron as B & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000879F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-879)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-879)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Lohara Dongargaon Road - (Umred Area) Well No.: U39
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	380	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	117	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	94	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.78	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	23.42	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.36	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.76	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	20.89	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	828	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	226	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.09	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	BDL(DL- 0.1)	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Metal-Aluminium, & Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000881F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-881)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-881)
SAMPLING PLAN & METHOD NO.: IS 3025 Part 1
SAMPLING DATE : 15/05/2024
SAMPLE RECEIPT DATE : 16/05/2024
ANALYSIS START DATE : 16/05/2024
ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

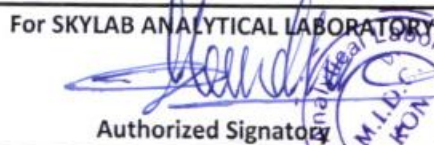
LOCATION : Champa Village - (Umred Area) Well No.: U45
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	218	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	38.90	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	107.20	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.51	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	20.42	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.05	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.71	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	13.86	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	890	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL(DL- 1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	340	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.12	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL- 0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	BDL(DL- 0.1)	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Hardness(total), Aluminium are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000884F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-884)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-884)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Brahmani - (Umred Area) Well No.: U48
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	390	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	150.59	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	98.4	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.61	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	18.24	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.56	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.12	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	41.89	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	870	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL(DL- 1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	317	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.23	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.40	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Hardness(total), Aluminium are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000885F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-885)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-885)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Khapri - (Umred Area) Well No.: U49
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	240	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	32.20	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	78.4	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.34	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	28.67	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.14	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.31	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	26.97	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	872	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL(DL- 1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	314	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.10	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.10	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Hardness(total), Aluminium are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

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ULR:TC515024000000886F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-886)
REPORT DATE : 20/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-886)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :15/05/2024
SAMPLE RECEIPT DATE :16/05/2024
ANALYSIS START DATE :16/05/2024
ANALYSIS COMPLETE DATE :20/05/2024

GROUND WATER ANALYSIS

LOCATION : Tarna Village - (Umred Area) Well No.: U50
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivastava-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	364	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	36.39	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	102.4	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.48	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	15.06	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.81	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.11	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	24.98	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	894	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL(DL- 1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	318	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.14	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.16	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	BDL(DL- 0.05)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Hardness(total), Aluminium are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

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ULR:TC515024000000887F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:

M/s Western Coalfields Limited (WCL) (Umred Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ
(M.S.), 440001.

REPORT NO : SAL/MSP19/FMD/05/GW(24-25-887)

REPORT DATE : 20/05/2024

CUSTOMER REF : Verbal

REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-887)

SAMPLING PLAN & METHOD NO.: IS 3025 Part 1

SAMPLING DATE : 15/05/2024

SAMPLE RECEIPT DATE : 16/05/2024

ANALYSIS START DATE : 16/05/2024

ANALYSIS COMPLETE DATE : 20/05/2024

GROUND WATER ANALYSIS

LOCATION : Nawegaon - (Umred Area) Well No.: U51

SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr. Kartik Shrivastava-Anacon Laboratory

SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	379	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	43.50	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	94.4	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	BDL(DL- 0.1)	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	0.62	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	19.44	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.08	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.22	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO ₄	mg/L	31.15	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	874	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL(DL- 1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	316	200	600	IS 3025 (Part 21)
15	Metal-Arsenic	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
16	Metal-Aluminium	mg/L	0.10	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.1)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.05)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL- 0.003)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	BDL(DL- 0.1)	1.0	No Relaxation	IS 3025 (Part 2)
21	Metal-Lead	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
22	Metal-Manganese	mg/L	0.06	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.02)	0.02	No Relaxation	IS 3025 (Part 2)
24	Metal-Selenium	mg/L	BDL(DL- 0.01)	0.01	No Relaxation	IS 3025 (Part 2)
25	Chromium	mg/L	BDL(DL- 0.05)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.05)	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium, Total dissolved solids, Hardness(total), Aluminium are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ENVIRONMENTAL MONITORING REPORT

MAKARDHOKRA-II OC

UMRER AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



APRIL 2025



Environment Laboratory

CMPDI

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

AN ISO 9001:2015 COMPANY



Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/APRIL-25/14	DATE OF ISSUE	25-05-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4, PM-10: IS-5182 Part 23, PM2.5: IS 5182 Part 24, NO2: IS 5182 Part-06, SO2:IS 5182 Part-2		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-04-25 TO 15-05-25

NEAR MANAGER OFFICE UMOA1						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
02-04-2025	03-04-2025	322	207	54	18	14
18-04-2025	19-04-2025	298	188	50	15	13
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120

SAM OFFICE UMOA2						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
03-04-2025	04-04-2025	302	195	55	17	12
19-04-2025	20-04-2025	290	182	49	14	10
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120

KANWA VILLAGE UUA3						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04-04-2025	05-04-2025	89	29	9	BDL	Clear sky / Calm
05-04-2025	06-04-2025	91	31	11	BDL	Clear sky / Calm
10-04-2025	11-04-2025	90	30	10	BDL	Clear sky / Calm
11-04-2025	12-04-2025	87	28	8	BDL	Clear sky / Calm
18-04-2025	19-04-2025	93	34	14	11	Clear sky / Light breeze
19-04-2025	20-04-2025	86	26	7	BDL	Clear sky / Light breeze
25-04-2025	26-04-2025	91	29	11	BDL	Clear sky / Light breeze
26-04-2025	27-04-2025	93	32	12	10	Clear sky / Light breeze
NAAQS, 2009		100	60	80	80	

NEAR PUMP HOUSE COLONY UUA4						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04-04-2025	05-04-2025	86	27	8	BDL	Clear sky / Calm
05-04-2025	06-04-2025	90	32	11	BDL	Clear sky / Calm
10-04-2025	11-04-2025	92	33	13	BDL	Clear sky / Calm
11-04-2025	12-04-2025	93	31	10	BDL	Clear sky / Calm
18-04-2025	19-04-2025	90	29	9	BDL	Clear sky / Light breeze
19-04-2025	20-04-2025	89	30	10	BDL	Clear sky / Light breeze
25-04-2025	26-04-2025	91	31	12	10	Clear sky / Light breeze
26-04-2025	27-04-2025	94	33	13	11	Clear sky / Light breeze
NAAQS, 2009		100	60	80	80	



Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
		DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
APRIL'25	09-04-2025	64.2	60.2
APRIL'25	24-04-2025	65.5	59.6
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70



Yogesh Pidurkar
Reviewed by



Amol Kamble
Authorised by

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2. Laboratory activities are performed at the Laboratory permanent facility that is ground floor, Environment Lab, CMPDI RI-IV, Nagpur.
3. This report refers to the values related to the items tested.

***** End of report *****



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ENVIRONMENTAL MONITORING REPORT

MAKARDHOKRA-II OC

UMRER AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



MAY 2025



Environment Laboratory

CMPDI

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

AN ISO 9001:2015 COMPANY



Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/MAY-25/14	DATE OF ISSUE	25.06.2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-05-25 TO 15-06-25

NEAR MANAGER OFFICE UMOA1						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	
02.05.2025	03.05.2025	5	5	2	6	10
24.05.2025	25.05.2025	273	170	43	14	11
24.05.2025	25.05.2025	284	181	47	16	12
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120

SAM OFFICE UMOA2						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	
03.05.2025	04.05.2025	5	5	2	6	10
25.05.2025	26.05.2025	269	158	40	15	13
25.05.2025	26.05.2025	288	176	50	18	15
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120

KANWA VILLAGE UMOA3						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04.05.2025	05.05.2025	5	2	6	10	BDL
05.05.2025	06.05.2025	83	30	9	BDL	Clear sky / Light breeze
10.05.2025	11.05.2025	80	28	8	BDL	Clear sky / Light breeze
11.05.2025	12.05.2025	85	31	9	BDL	Clear sky / Light breeze
11.05.2025	12.05.2025	87	32	9	BDL	Clear sky / Light breeze
16.05.2025	17.05.2025	77	25	6	BDL	Clear sky / Light breeze
17.05.2025	18.05.2025	79	27	7	BDL	Rain, Partially cloudy sky / Light breeze
22.05.2025	23.05.2025	81	29	9	BDL	Partially cloudy sky / Light breeze
23.05.2025	24.05.2025	82	28	8	BDL	Partially cloudy sky / Light breeze
27.05.2025	28.05.2025	86	31	9	BDL	Partially cloudy sky / Light breeze
28.05.2025	29.05.2025	78	26	7	BDL	Rain, Partially cloudy sky / Light breeze
NAAQS, 2009		100	60	80	80	

NEAR PUMP HOUSE COLONY UMOA4						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04.05.2025	05.05.2025	5	2	6	10	BDL
05.05.2025	06.05.2025	85	32	10	BDL	Clear sky / Light breeze
10.05.2025	11.05.2025	83	31	12	BDL	Clear sky / Light breeze
11.05.2025	12.05.2025	82	29	9	BDL	Clear sky / Light breeze
11.05.2025	12.05.2025	80	33	8	BDL	Clear sky / Light breeze
16.05.2025	17.05.2025	78	28	8	BDL	Clear sky / Light breeze
17.05.2025	18.05.2025	79	29	7	BDL	Rain, Partially cloudy sky / Light breeze
22.05.2025	23.05.2025	77	26	7	BDL	Partially cloudy sky / Light breeze
23.05.2025	24.05.2025	81	30	8	BDL	Partially cloudy sky / Light breeze
27.05.2025	28.05.2025	84	32	9	BDL	Partially cloudy sky / Light breeze
28.05.2025	29.05.2025	83	31	10	BDL	Rain, Partially cloudy sky / Light breeze
NAAQS, 2009		100	60	80	80	



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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
		DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
MAY'25	14.05.2025	65.1	59.9
MAY'25	27.05.2025	66.5	60.2
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70


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ENVIRONMENTAL MONITORING REPORT

MAKARDHOKRA-II OC

UMRER AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



JUNE 2025

Environment Laboratory

CMPDI

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

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/JUNE-25/14	DATE OF ISSUE	7/25/2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO ₂ : IS 5182 (Part-06), SO ₂ : IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-06-25 TO 15-07-25

NEAR MANAGER OFFICE UMOA1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
6/2/2025	6/3/2025	269	152	46	13	12	Cloudy sky / Calm
6/24/2025	6/25/2025	275	163	50	14	13	Cloudy sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

SAM OFFICE UMOA2							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
6/3/2025	6/4/2025	258	148	42	12	11	Cloudy sky / Calm
6/25/2025	6/26/2025	247	140	38	11	10	Cloudy sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

KANWA VILLAGE UMOA3							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)	
		PM ₁₀	PM _{2.5}	NO ₂	SO ₂		
FROM	TO	5	2	6	10		
6/4/2025	6/5/2025	77	28	8	BDL		Rain, Partially cloudy sky / Light breeze
6/5/2025	6/6/2025	79	30	9	BDL		Rain, Partially cloudy sky / Light breeze
6/11/2025	6/12/2025	75	27	7	BDL		Partially cloudy sky / Light breeze
6/12/2025	6/13/2025	80	31	10	BDL		Partially cloudy sky / Light breeze
6/18/2025	6/19/2025	83	33	11	10		Partially cloudy sky / Light breeze
6/19/2025	6/20/2025	76	26	6	BDL		Rain, Partially cloudy sky / Light breeze
6/25/2025	6/26/2025	82	32	10	BDL		Rainy, cloudy sky / Light breeze
6/26/2025	6/27/2025	78	29	9	BDL		Rainy, cloudy sky / Light breeze
NAAQS, 2009		100	60	80	80		

NEAR PUMP HOUSE COLONY UMOA4							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)	
		PM ₁₀	PM _{2.5}	NO ₂	SO ₂		
FROM	TO	5	2	6	10		
6/4/2025	6/5/2025	80	33	11	BDL		Rain, Partially cloudy sky / Light breeze
6/5/2025	6/6/2025	82	34	13	10		Rain, Partially cloudy sky / Light breeze
6/11/2025	6/12/2025	76	28	8	BDL		Partially cloudy sky / Light breeze
6/12/2025	6/13/2025	81	30	9	BDL		Partially cloudy sky / Light breeze
6/18/2025	6/19/2025	79	29	7	BDL		Partially cloudy sky / Light breeze
6/19/2025	6/20/2025	83	34	12	11		Rain, Partially cloudy sky / Light breeze
6/25/2025	6/26/2025	77	29	7	BDL		Rainy, cloudy sky / Light breeze
6/26/2025	6/27/2025	84	35	14	12		Rainy, cloudy sky / Light breeze
NAAQS, 2009		100	60	80	80		


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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
		DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
JUNE'25	6/13/2025	61.9	58.4
JUNE'25	6/27/2025	68.5	62.0
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70


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ENVIRONMENTAL MONITORING REPORT

MAKARDHOKRA-II OC

UMRER AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



JULY 2025



Environment Laboratory

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/JULY-25/14	DATE OF ISSUE	25-08-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-07-25 TO 15-08-25

NEAR MANAGER OFFICE		UMOA1				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
05-07-2025	06-07-2025	298	182	58	18	14
20-07-2025	21-07-2025	266	160	54	15	12
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120
		ENVIRONMENT CONDITIONS (Sky/Wind)				
		Clear sky / Light breeze				
		Cloudy sky / Calm				

SAM OFFICE		UMOA2				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
06-07-2025	07-07-2025	285	175	56	16	13
21-07-2025	22-07-2025	259	158	46	13	11
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120
		ENVIRONMENT CONDITIONS (Sky/Wind)				
		Clear sky / Light breeze				
		Cloudy sky / Calm				

KANWA VILLAGE		UUAO3				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
03-07-2025	04-07-2025	75	27	7	BDL	Rainy sky / Light breeze
04-07-2025	05-07-2025	80	32	10	BDL	Cloudy sky / Light breeze
09-07-2025	10-07-2025	76	28	8	BDL	Rainy sky, over cast / Light breeze
10-07-2025	11-07-2025	79	29	9	BDL	Rainy sky, over cast / Light breeze
14-07-2025	15-07-2025	82	33	11	BDL	Partially cloudy sky / Light breeze
17-07-2025	18-07-2025	78	28	8	BDL	Rain, Partially cloudy sky / Light breeze
22-07-2025	23-07-2025	76	26	7	BDL	Rain, Partially cloudy sky / Light breeze
23-07-2025	24-07-2025	81	30	9	BDL	Partially cloudy sky / Light breeze
28-07-2025	29-07-2025	83	35	12	BDL	Rainy sky, over cast / Light breeze
29-07-2025	30-07-2025	85	37	14	11	Rainy sky, over cast / Light breeze
NAAQS, 2009		100	60	80	80	

NEAR PUMP HOUSE COLONY		UUAO4				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
03-07-2025	04-07-2025	77	28	8	BDL	Rainy sky / Light breeze
04-07-2025	05-07-2025	79	29	8	BDL	Cloudy sky / Light breeze
09-07-2025	10-07-2025	75	24	6	BDL	Rainy sky, over cast / Light breeze
10-07-2025	11-07-2025	78	27	7	BDL	Rainy sky, over cast / Light breeze
14-07-2025	15-07-2025	81	31	9	BDL	Partially cloudy sky / Light breeze
17-07-2025	18-07-2025	83	34	12	10	Rain, Partially cloudy sky / Light breeze
22-07-2025	23-07-2025	80	30	10	BDL	Rain, Partially cloudy sky / Light breeze
23-07-2025	24-07-2025	76	27	8	BDL	Partially cloudy sky / Light breeze
28-07-2025	29-07-2025	82	32	10	BDL	Rainy sky, over cast / Light breeze
29-07-2025	30-07-2025	74	25	6	BDL	Rainy sky, over cast / Light breeze
NAAQS, 2009		100	60	80	80	



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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
		DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
JULY'25	10-07-2025	65.4	60.4
JULY'25	22-07-2025	63.4	58.6
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70



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ENVIRONMENTAL MONITORING REPORT

MAKARDHOKRA-I OC

UMRER AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



JULY 2025

Environment Laboratory

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/AUG-25/14	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-08-25 TO 15-09-25

NEAR MANAGER OFFICE UMOA1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
07-08-2025	08-08-2025	274	164	47	15	13	Cloudy sky / Calm
22-08-2025	23-08-2025	287	178	54	16	14	Clear sky / Light breeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

SAM OFFICE				UMOA2			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
08-08-2025	09-08-2025	266	157	44	14	12	Cloudy sky / Calm
22-08-2025	23-08-2025	290	185	57	19	15	Clear sky / Light breeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

KANWA VILLAGE		UUA03				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
05-08-2025	06-08-2025	83	31	10	BDL	Partially cloudy sky / Light breeze
06-08-2025	07-08-2025	75	26	6	BDL	Partially cloudy sky / Light breeze
12-08-2025	13-08-2025	78	28	7	BDL	Rain, Partially cloudy sky / Light breeze
13-08-2025	14-08-2025	82	31	9	BDL	Rain, Partially cloudy sky / Light breeze
21-08-2025	22-08-2025	85	32	11	BDL	Rainy sky, over cast / Light breeze
22-08-2025	23-08-2025	76	27	6	BDL	Rainy sky, over cast / Light breeze
27-08-2025	28-08-2025	84	34	10	BDL	Rainy sky, Cloudy / Light breeze
28-08-2025	29-08-2025	86	35	12	BDL	Rainy sky, Cloudy / Light breeze
NAAQS, 2009		100	60	80	80	

NEAR PUMP HOUSE COLONY			UUA04			
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	
05-08-2025	06-08-2025	79	29	7	BDL	Partially cloudy sky / Light breeze
06-08-2025	07-08-2025	86	34	11	BDL	Partially cloudy sky / Light breeze
12-08-2025	13-08-2025	76	28	8	BDL	Rain, Partially cloudy sky / Light breeze
13-08-2025	14-08-2025	80	30	9	BDL	Rain, Partially cloudy sky / Light breeze
21-08-2025	22-08-2025	84	33	11	BDL	Rainy sky, over cast / Light breeze
22-08-2025	23-08-2025	81	31	10	BDL	Rainy sky, over cast / Light breeze
27-08-2025	28-08-2025	77	28	9	BDL	Rainy sky, Cloudy / Light breeze
28-08-2025	29-08-2025	82	32	10	BDL	Rainy sky, Cloudy / Light breeze
NAAQS, 2009		100	60	80	80	


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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1			
MONTH	DATE OF SAMPLE	NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
	COLLECTION	DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
AUG'25	13-08-2025	66.7	61.6
AUG'25	26-08-2025	63.4	58.6
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70



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ENVIRONMENTAL MONITORING REPORT

MAKARDHOKRA-II OC

UMRER AREA

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SEPTEMBER 2025

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/SEPT-25/14	DATE OF ISSUE	25-10-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-09-25 TO 15-10-25

NEAR MANAGER OFFICE		UMOA1				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
06-09-2025	07-09-2025	252	148	45	14	12
19-09-2025	20-09-2025	263	152	50	15	13
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120

SAM OFFICE		UMOA2				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
06-09-2025	07-09-2025	248	142	40	13	11
19-09-2025	20-09-2025	275	163	53	16	14
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120

KANWA VILLAGE		UUAO3			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)			
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
03-09-2025	04-09-2025	70	29	9	BDL
04-09-2025	05-09-2025	72	30	10	BDL
09-09-2025	10-09-2025	68	27	8	BDL
10-09-2025	11-09-2025	65	26	7	BDL
16-09-2025	17-09-2025	73	32	10	BDL
17-09-2025	18-09-2025	64	24	6	BDL
22-09-2025	23-09-2025	76	34	11	BDL
23-09-2025	24-09-2025	78	35	12	BDL
26-09-2025	27-09-2025	63	23	6	BDL
27-09-2025	28-09-2025	75	33	10	BDL
NAAQS, 2009		100	60	80	80

NEAR PUMP HOUSE COLONY		UUAO4			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)			
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
03-09-2025	04-09-2025	69	29	8	BDL
04-09-2025	05-09-2025	65	25	6	BDL
09-09-2025	10-09-2025	75	33	11	BDL
10-09-2025	11-09-2025	73	31	10	BDL
16-09-2025	17-09-2025	68	28	8	BDL
17-09-2025	18-09-2025	77	30	9	BDL
22-09-2025	23-09-2025	74	32	10	BDL
23-09-2025	24-09-2025	66	26	7	BDL
26-09-2025	27-09-2025	63	24	6	BDL
27-09-2025	28-09-2025	67	27	7	BDL
NAAQS, 2009		100	60	80	80



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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1			
MONTH	DATE OF SAMPLE	NOISE LEVEL IN dB(A)	
	COLLECTION	DAY TIME	
	DETECTION LIMIT	20	
SEPT'25	14-09-2025	62.1	58.5
SEPT'25	21-09-2025	62.7	57.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70


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ENVIRONMENTAL MONITORING REPORT

MAKARDHOKRA-II OC

UMRER AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



OCTOBER 2025

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Environment Laboratory

CMPDI

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

AN ISO 9001:2015 COMPANY



Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/OCT-25/14	DATE OF ISSUE	25.11.2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-10-25 TO 15-11-25

NEAR MANAGER OFFICE		UMOA1				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
05.10.2025	06.10.2025	288	166	46	16	13
19.10.2025	20.10.2025	294	172	52	18	14
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH OCTember 2000		600	300	-	120	120
		ENVIRONMENT CONDITIONS (Sky/Wind)				
		Cloudy sky / Light breeze				
		Clear sky / Light breeze				

SAM OFFICE		UMOA2				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
05.10.2025	06.10.2025	308	187	54	20	15
19.10.2025	20.10.2025	322	196	58	24	17
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH OCTember 2000		600	300	-	120	120
		ENVIRONMENT CONDITIONS (Sky/Wind)				
		Cloudy sky / Light breeze				
		Clear sky / Light breeze				

KANWA VILLAGE		UJUA3				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
05.10.2025	06.10.2025	68	23	6	BDL	Clear sky / Calm
06.10.2025	07.10.2025	71	25	7	BDL	Clear sky / Calm
11.10.2025	12.10.2025	75	28	7	BDL	Clear sky / Calm
12.10.2025	13.10.2025	80	30	9	BDL	Clear sky / Calm
19.10.2025	20.10.2025	79	29	9	BDL	Clear sky / Calm
20.10.2025	21.10.2025	83	33	12	10	Clear sky / Calm
26.10.2025	27.10.2025	85	35	13	11	Clear sky / Calm
27.10.2025	28.10.2025	81	31	10	BDL	Clear sky / Calm
NAAQS, 2009		100	60	80	80	
		ENVIRONMENT CONDITIONS (Sky/Wind)				

NEAR PUMP HOUSE COLONY		UJUA4				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
05.10.2025	06.10.2025	72	26	6	BDL	Clear sky / Calm
06.10.2025	07.10.2025	74	28	7	BDL	Clear sky / Calm
11.10.2025	12.10.2025	82	32	12	10	Clear sky / Calm
12.10.2025	13.10.2025	84	34	13	10	Clear sky / Calm
19.10.2025	20.10.2025	78	27	7	BDL	Clear sky / Calm
20.10.2025	21.10.2025	75	24	6	BDL	Clear sky / Calm
26.10.2025	27.10.2025	80	31	11	BDL	Clear sky / Calm
27.10.2025	28.10.2025	83	32	12	BDL	Clear sky / Calm
NAAQS, 2009		100	60	80	80	
		ENVIRONMENT CONDITIONS (Sky/Wind)				



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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
		DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
OCT'25	11.10.2025	62.0	58.5
OCT'25	27.10.2025	60.2	56.8
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70


Yogesh Pidurkar
Reviewed by


Amol Kamble
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ENVIRONMENTAL MONITORING REPORT

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NOVEMBER 2025

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/NOV-25/14	DATE OF ISSUE	24-12-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-11-25 TO 15-12-25

NEAR MANAGER OFFICE		UMOA1				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
09-11-2025	10-11-2025	277	169	48	15	13
22-11-2025	23-11-2025	256	148	44	14	11
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH November 2000		600	300	-	120	120

SAM OFFICE		UMOA2				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
09-11-2025	10-11-2025	288	175	50	18	14
22-11-2025	23-11-2025	267	155	46	16	12
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH November 2000		600	300	-	120	120

KANWA VILLAGE		UUA03				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
05-11-2025	06-11-2025	70	26	8	BDL	Clear sky / Calm
06-11-2025	07-11-2025	72	29	9	BDL	Clear sky / Calm
14-11-2025	15-11-2025	65	23	6	BDL	Clear sky / Calm
15-11-2025	16-11-2025	69	25	7	BDL	Clear sky / Calm
22-11-2025	23-11-2025	77	30	10	BDL	Clear sky / Calm
23-11-2025	24-11-2025	80	32	11	BDL	Clear sky / Calm
28-11-2025	29-11-2025	82	35	13	11	Clear sky / Calm
29-11-2025	30-11-2025	85	37	14	12	Clear sky / Calm
NAAQS, 2009		100	60	80	80	

NEAR PUMP HOUSE COLONY		UUA04				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
05-11-2025	06-11-2025	65	23	6	BDL	Clear sky / Calm
06-11-2025	07-11-2025	69	25	7	BDL	Clear sky / Calm
14-11-2025	15-11-2025	75	28	8	BDL	Clear sky / Calm
15-11-2025	16-11-2025	80	30	10	BDL	Clear sky / Calm
22-11-2025	23-11-2025	77	28	7	BDL	Clear sky / Calm
23-11-2025	24-11-2025	82	30	9	BDL	Clear sky / Calm
28-11-2025	29-11-2025	85	33	12	10	Clear sky / Calm
29-11-2025	30-11-2025	87	36	13	11	Clear sky / Calm
NAAQS, 2009		100	60	80	80	


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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1		NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
MONTH	DATE OF SAMPLE COLLECTION	DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
NOV'25	11-11-2025	62.4	57.9
NOV'25	27-11-2025	60.5	56.2
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70



Yogesh Pidurkar
Reviewed by



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ENVIRONMENTAL MONITORING REPORT

MAKARDHOKRA-II OC

UMRER AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



DECEMBER 2025

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Environment Laboratory

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REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/DEC-25/14	DATE OF ISSUE	25-01-2026
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-12-25 TO 15-01-26

NEAR MANAGER OFFICE				UMOA1			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
07-12-2025	08-12-2025	299	180	55	25	15	Cloudy sky / Calm
22-12-2025	23-12-2025	276	168	49	17	13	Cloudy sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		600	300	-	120	120	

SAM OFFICE				UMOA2			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
07-12-2025	08-12-2025	285	172	52	22	14	Cloudy sky / Calm
22-12-2025	23-12-2025	259	153	41	15	11	Cloudy sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECEMBER 2000		600	300	-	120	120	

KANWA VILLAGE			UUAO3			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)
		PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	2	6	10	
07-12-2025	08-12-2025	83	34	21	13	Clear/ Calm
08-12-2025	09-12-2025	77	29	15	BDL	Clear/ Calm
13-12-2025	14-12-2025	75	27	16	BDL	Clear/ Calm
14-12-2025	15-12-2025	69	26	17	BDL	Clear/ Calm
19-12-2025	20-12-2025	80	32	19	12	Clear/ Light breeze
20-12-2025	21-12-2025	74	29	15	BDL	Clear/ Light breeze
26-12-2025	27-12-2025	71	28	14	BDL	Clear/ Light breeze
27-12-2025	28-12-2025	81	31	16	11	Clear/ Light breeze
NAAQS, 2009		100	60	80	80	

NEAR PUMP HOUSE COLONY			UUAO4			
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	
07-12-2025	08-12-2025	80	31	17	11	Clear/ Calm
08-12-2025	09-12-2025	83	34	18	12	Clear/ Calm
13-12-2025	14-12-2025	84	36	20	13	Clear/ Calm
14-12-2025	15-12-2025	78	27	15	BDL	Clear/ Calm
19-12-2025	20-12-2025	72	25	14	BDL	Clear/ Light breeze
20-12-2025	21-12-2025	75	26	16	BDL	Clear/ Light breeze
26-12-2025	27-12-2025	76	29	14	BDL	Clear/ Light breeze
27-12-2025	28-12-2025	68	27	13	BDL	Clear/ Light breeze
NAAQS, 2009		100	60	80	80	



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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1		NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
MONTH	DATE OF SAMPLE COLLECTION	DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
DEC'25	12-12-2025	60.8	56.2
DEC'25	26-12-2025	62.0	57.3
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70



Yogesh Pidurkar
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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/JAN-26/14	DATE OF ISSUE	25-02-2026
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:	16-01-26 TO 15-02-26	

NEAR MANAGER OFFICE UMOA1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
07-01-2026	08-01-2026	324	196	58	28	19	Clear/ Calm
28-01-2026	29-01-2026	305	187	51	20	17	Clear/ Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		600	300	-	120	120	

SAM OFFICE				UMOA2			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
07-01-2026	08-01-2026	293	182	50	19	16	Clear/ Calm
28-01-2026	29-01-2026	287	176	48	17	15	Clear/ Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECEMBER 2000		600	300	-	120	120	

KANWA VILLAGE			UUAO3			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				ENVIRONMENT CONDITIONS (Sky/Wind)
		PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	2	6	10	
04-01-2026	05-01-2026	79	29	14	BDL	Clear/ Light breeze
05-01-2026	06-01-2026	84	36	16	11	Clear/ Light breeze
10-01-2026	11-01-2026	76	27	15	BDL	Clear/ Light breeze
11-01-2026	12-01-2026	82	31	14	BDL	Clear/ Light breeze
15-01-2026	16-01-2026	83	33	16	BDL	Clear/ Light breeze
17-01-2026	18-01-2026	77	28	12	BDL	Clear/ Light breeze
21-01-2026	22-01-2026	81	30	13	BDL	Clear/ Light breeze
22-01-2026	23-01-2026	85	36	14	12	Clear/ Light breeze
29-01-2026	30-01-2026	86	37	18	13	Clear/ Light breeze
30-01-2026	31-01-2026	78	28	13	BDL	Clear/ Light breeze
NAAQS, 2009		100	60	80	80	

NEAR PUMP HOUSE COLONY				UUA04		
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	
04-01-2026	05-01-2026	84	35	18	10	Clear/ Light breeze
05-01-2026	06-01-2026	80	30	14	BDL	Clear/ Light breeze
10-01-2026	11-01-2026	76	25	10	BDL	Clear/ Light breeze
11-01-2026	12-01-2026	78	27	11	BDL	Clear/ Light breeze
15-01-2026	16-01-2026	85	34	19	11	Clear/ Light breeze
17-01-2026	18-01-2026	83	31	17	BDL	Clear/ Light breeze
21-01-2026	22-01-2026	79	28	13	BDL	Clear/ Light breeze
22-01-2026	23-01-2026	80	31	14	BDL	Clear/ Light breeze
29-01-2026	30-01-2026	81	32	15	BDL	Clear/ Light breeze
30-01-2026	31-01-2026	75	26	12	BDL	Clear/ Light breeze
NAAQS, 2009		100	60	80	80	



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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1		NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
MONTH	DATE OF SAMPLE COLLECTION	DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
JAN'26	11-01-2026	63.3	58.5
JAN'26	22-01-2026	61.4	56.7
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70



Yogesh Pidurkar
Reviewed by



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ENVIRONMENTAL MONITORING REPORT

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FEBRUARY 2026

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/FEB-26/14	DATE OF ISSUE	25-03-2026
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:	16-02-26 TO 15-03-26	

NEAR MANAGER OFFICE UMOA1						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
FROM	TO	5	5	2	6	10
08-02-2026	09-02-2026	301	186	52	24	16
21-02-2026	22-02-2026	290	177	46	18	14
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		600	300	-	120	120

SAM OFFICE UMOA2						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
FROM	TO	5	5	2	6	10
08-02-2026	09-02-2026	288	170	45	17	13
21-02-2026	22-02-2026	310	193	54	26	18
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		600	300	-	120	120

KANWA VILLAGE UMOA3						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
		PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	2	6	10	
04-02-2026	05-02-2026	82	32	13	BDL	Clear/ Light breeze
05-02-2026	06-02-2026	80	30	12	BDL	Clear/ Light breeze
11-02-2026	12-02-2026	77	29	10	BDL	Clear/ Light breeze
12-02-2026	13-02-2026	76	27	9	BDL	Clear/ Light breeze
18-02-2026	19-02-2026	81	31	10	BDL	Clear/ Light breeze
19-02-2026	20-02-2026	78	27	9	BDL	Clear/ Light breeze
26-02-2026	27-02-2026	75	26	9	BDL	Clear/ Light breeze
27-02-2026	28-02-2026	74	25	8	BDL	Clear/ Light breeze
NAAQS, 2009		100	60	80	80	

NEAR PUMP HOUSE COLONY UMOA4						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
		PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	2	6	10	
04-02-2026	05-02-2026	83	33	14	BDL	Clear/ Light breeze
05-02-2026	06-02-2026	81	29	12	BDL	Clear/ Light breeze
11-02-2026	12-02-2026	78	28	10	BDL	Clear/ Light breeze
12-02-2026	13-02-2026	76	26	10	BDL	Clear/ Light breeze
18-02-2026	19-02-2026	80	31	11	BDL	Clear/ Light breeze
19-02-2026	20-02-2026	77	28	10	BDL	Clear/ Light breeze
26-02-2026	27-02-2026	75	24	9	BDL	Clear/ Light breeze
27-02-2026	28-02-2026	76	27	9	BDL	Clear/ Light breeze
NAAQS, 2009		100	60	80	80	


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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1		NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
MONTH	DATE OF SAMPLE COLLECTION	DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
FEB'26	04-02-2026	57.8	57.2
FEB'26	19-02-2026	56.0	55.5
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70



Yogesh Pidurkar
Reviewed by



Amol Kamble
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ENVIRONMENTAL MONITORING REPORT

MAKARDHOKRA-II OC

UMRER AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



MARCH 2026

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Environment Laboratory

CMPDI

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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TEST REPORT NO.	RIN/TR/MAR-26/14	DATE OF ISSUE	25-04-2026
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:	16-03-26 TO 15-04-26	

NEAR MANAGER OFFICE		UMOA1				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
07-03-2026	08-03-2026	310	204	54	22	17
21-03-2026	22-03-2026	322	218	58	26	19
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		600	300	-	120	120
		ENVIRONMENT CONDITIONS (Sky/Wind)				
		Clear/ Calm				
		Rainy / Calm				

SAM OFFICE		UMOA2				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂
07-03-2026	08-03-2026	287	183	48	18	15
21-03-2026	22-03-2026	298	198	52	20	16
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		600	300	-	120	120
		ENVIRONMENT CONDITIONS (Sky/Wind)				
		Clear/ Calm				
		Rainy / Calm				

KANWA VILLAGE		UUOA3				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04-03-2026	05-03-2026	74	24	8	BDL	Clear/ Light breeze
05-03-2026	06-03-2026	77	26	9	BDL	Clear/ Light breeze
10-03-2026	11-03-2026	79	28	9	BDL	Clear/ Light breeze
11-03-2026	12-03-2026	82	31	11	BDL	Clear/ Light breeze
17-03-2026	18-03-2026	80	30	10	BDL	Clear/ Light breeze
18-03-2026	19-03-2026	84	32	12	BDL	Clear/ Light breeze
21-03-2026	22-03-2026	83	31	13	BDL	Clear/ Light breeze
22-03-2026	23-03-2026	85	35	14	10	Clear/ Light breeze
26-03-2026	27-03-2026	81	32	12	BDL	Clear/ Light breeze
27-03-2026	28-03-2026	86	36	14	11	Clear/ Light breeze
NAAQS, 2009		100	60	80	80	

NEAR PUMP HOUSE COLONY		UUOA4				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)				
FROM	TO	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04-03-2026	05-03-2026	72	22	9	BDL	Clear/ Light breeze
05-03-2026	06-03-2026	75	25	10	BDL	Clear/ Light breeze
10-03-2026	11-03-2026	78	27	10	BDL	Clear/ Light breeze
11-03-2026	12-03-2026	81	31	11	BDL	Clear/ Light breeze
17-03-2026	18-03-2026	83	32	12	BDL	Clear/ Light breeze
18-03-2026	19-03-2026	80	31	13	BDL	Clear/ Light breeze
21-03-2026	22-03-2026	82	30	11	BDL	Clear/ Light breeze
22-03-2026	23-03-2026	84	33	12	BDL	Clear/ Light breeze
26-03-2026	27-03-2026	85	34	15	12	Clear/ Light breeze
27-03-2026	28-03-2026	83	32	14	11	Clear/ Light breeze
NAAQS, 2009		100	60	80	80	



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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	
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NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROTOCOL FOR AMBIENT NOISE MEASUREMENT
SAMPLING METHOD	LSOP 6

NEAR PIT OFFICE: UMON1		NOISE LEVEL IN dB(A)	NOISE LEVEL IN dB(A)
MONTH	DATE OF SAMPLE COLLECTION	DAY TIME	DAY TIME
	DETECTION LIMIT	20	20
MAR'26	04-03-2026	58.3	57.7
MAR'26	27-03-2026	57.2	56.6
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70



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