Western Coalfields Limited
(मिनिरत्न कंपनी)(A MiniratnaCompany)
(कोल इंडिया लिमिटेड की अनुषंगी कंपनी)
(A subsidiary of Coal India Limited)
ISO:9001:2015 & ISO : 14001:2015 & OHSAS : 18001:2007 Certified Company
उपक्षेत्रीय प्रबंधक का कार्यालय
उकनी- जूनाड उपक्षेत्र : वणी नार्थ क्षेत्र
मु. पो. उकनी, तह. वणी, जी. यवतमाल (महाराष्ट्र) पिन :445304
OFFICE OF THE SUB AREA MANAGER
UKNI DEEP – JUNAD SUB AREA: WANI NORTH AREA
AT.PO.,UKNI DEEP,TAH.WANI,DISTT.YAVATMAL,(M.S.) PIN 445 304

संदर्भ क्र. वेकोली/वनाक्षे/उ.क्षे.प्र./उकनी-जूनाड/नागरिकी/2025-26/ 26 दिनांक: 27/05/2025

To
Addl. Principal Chief Conservator of Forests,
Ministry of Environment, Forests & Climate change,
Regional Office, (WCZ),
Ground floor, east wing,
New Secretariat building, Civil lines,
Nagpur – 440001(M.S.)

Sub- Submission of **Six Monthly Compliance Report** of conditions stipulated in Environmental Clearance for M/s. WCL, **Ukni deep Opencast Mine (3.50 MTPA)** for the period **October 2024 to March 2025**

Dear Sir,

With reference to the above subject matter, please find enclosed herewith **Six Monthly Compliance Report** of conditions stipulated in Environmental Clearance for M/s. **WCL, Ukni deep Opencast Mine (3.50 MTPA)** for the period **October 2024 to March 2025.**
This is for your kind information please.

Thanking you,

Yours sincerely,

19/05/25

Sub Area Manager
Ukni deep – Junad Sub Area

Copy to:-

1. A.G.M., Wani North Area
2. G.M. (ENV), Coal estate –Nagpur
3. Regional Officer, MPCB, 1st floor, Udyog Bhawan, Rly. Station road, Chandrapur-442401
4. S.O.E (Civil), Ukni deep – Junad Sub Area

Six Monthly Compliance Report of conditions Stipulated in Environmental Clearance

Ukni deep Open Cast Mine

(Letter No. J-11015/237/2010-IA,II(M) dtd. 15.01.2014 - Expansion of coal production from 2.20 MTPA to 3.50 MTPA& expansion of Mine lease-hold Area from 940 Ha. To 1285.12 Ha.)

Wani North Area

October 2024 to March 2025

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8	Environment Audit Statement 2023-24

BY SPEED POST

No. J-11015/237/2010-IA II(M)
Government of India
Ministry of Environment & Forests

WCL/GM(Env)/CQ/Nagpur
पत्र / Ref. 211... दिनांक / Date 22/1/14

Paryavaran Bhawan,
CGO Complex, Lodhi Road
New Delhi - 110003
Dated: 15 January, 2014

To,

The Chief General Manager
M/s Western Coalfields Ltd.,
Coal Estate, Civil Lines,
Nagpur - 440001
Maharashtra

Sub.: Ukni Deep OCP (Expansion of prod. from 2.20 MTPA to 3.50 MTPA and Expn. from ML area from 940 ha to 1285.12 ha) of M/s Western Coalfields Ltd., dist. Yavatmal, Maharashtra - Environment Clearance – reg.

Sir,

This has reference to letter No. 43011/23/2010 dated 23.06.2010 of Ministry of Coal forwarding the application for Terms of Reference (TOR) and this Ministry's letter dated 28.10.2010 granting TOR to the above mentioned Project and Reference is also invited to the letter no. WCL/ENV/HQ/11-13/557 dated 13.12.2011 and subsequent letters dated 24.02.2012; e-mails dated 02.06.2012; 14.06.2012; 13.08.2012; 27.08.2012; 21.12.2012; and letters dated 23.07.2013 and 27.08.2013 submitting therewith the final EIA/EMP for Environmental Clearance for the above mentioned subject.

2. The Ministry of Environment & Forests has considered the application. The proposal was considered in the EAC meetings held on 19th -20th March 2012, 14th -15th May 2012 and recommended on 4th-5th February, 2013. The compliance report from the Regional Office of the MoEF for the project proposal was further considered in the EAC meeting held on 03-04 October, 2013 and on 12-13 December, 2013 wherein it was recommended for granting Environmental Clearance. It is noted that the application is for **environmental clearance for Ukni Deep OCP (Expansion of prod. from 2.20 MTPA to 3.50 MTPA and Expn. from ML area from 940 ha to 1285.12 ha) of M/s Western Coalfields Ltd., dist. Yavatmal, Maharashtra.** The proponent informed that:

i. This is an Opencast mine with the capacity of 3.50 MTPA (Peak) and form 940 ha to 1285.12 ha
ii. It was informed that the earlier EC for 1.10 MTPA with an ML area of 940 ha was obtained on 10.8.1990 and expansion to 2.20 MTPA in the same ML area of 940 ha was obtained on 20.5.2005. This is an expansion project with the expansion of 63%.
iii. The main linkage is MAHAGENCO.
iv. It was informed that the proposal is for expansion in production capacity from 2.20 MTPA to 3.50 MTPA and expansion in ML area from 940 ha to 1285.12 ha

Contd...2/-

v. The Project Report of Ukni Deep OC Project was approved in 224th Meeting of the Board of Directors of WCL held on 29th April, 2010.

vi The Progressive Mine Closure Plan is an integral part of the approved project Report.

vii The Final Mine Closure Plan as per MOC guidelines with a provision of @ Rs. 6.00 lakh per ha will be prepared 5 years before the actual closure of the mine.

viii. There are seasonal nullhas flowing adjacent to the proposed mine.

ix. Out of the total Geological Reserves of 35.32 Mt, the mineable reserve is 24.37 Mt. The Percent Extraction would be 73%.

x. There is one Composite Seam with the thickness of Seams to be worked on Top Section 7.75 m and the Bottom seam 9.25 m. The Stripping Ratio is 1:8.00. The Average Gradient is 1 in 3 to 1 in 6. The Maximum thickness of Seams would be ranging from 8.50 m to 9.50 m

xi. The Method of Mining would be by Opencast with Shovel – Dumper Combination

xii. The Life of Mine is 16 years

xiii. The Land Usage of the project would be Pre-mining: Out of the total - 1285.12 ha; the land already in possession – 929.59 ha; Land to be acquired -355.53 ha; Agricultural Land - 350.53 ha; Govt. Land - 5.00 ha. The Post Mining (1285.12 ha) land usage would be: Plantation 779.00 ha; Void/Water Body – 103.00 ha. Public Use – 96.00 ha and Undisturbed - 257.12 ha

xiv. It was informed that plantation over an area of 101 ha has been developed on the existing OB dump. The quarry would be operated in two quarries- Q-I and Q-II. The total balance mineable reserves of 24.37 MT include 9.65 MT from Q-I and 14.72 MT from Q-II. Mining would be opencast by shovel-dumper combination. Ultimate working depth is 114-206m.

xv. Grade of coal is E.

xvi The total water requirement is 970 m3/d which includes 460 m3/d is for mine operations and 510 m3/d is for domestic use.

xvii. Water table is in the range of 19-19.2m (pre-monsoon) and 17.05 -17.15m bgl (post-monsoon). River Wardha flowing at a distance of 3km forms the main drainage of the area. Capital cost of the project is Rs 311.6091 crores.

xviii. Balance life of the mine is 16 years. The project involves R&R of 264 PAFs.

xix. Details of OB: There will be four external OB Dumps over an area of 446.00 ha with the height of 90.00 m and with the Quantity of 117.52 Mm3. The year of backfilling would be from 9th Year. There will be one interna. dump over an area of 180.00 ha with the height upto ground level and with the quantity of 105.14 Mm3

xx. The Details of Final Mine Void would be over an area of 253.00 ha with the depth of 206.00 m

xxi. Details of Transportation of Coal would be : In Pit by Dumpers; from Surface to Siding by Tippers, Siding to Loading by Pay Loaders

xxii. The Capital Cost of the project would be Rs. 379.9694 Crores (Additional Rs. 1347.91 per tonne. Sale Price Rs. 975.50 per tonne

xxiii. The CSR Cost would be RS. 5.00 per tonne; The R&R Cost : Rs. 15.87 Crores

xxiv. The no. of PAFs will be finalized after detailed Socio-economic Survey

xxv The Environmental Management Cost: Capital Expenditure – Rs.81.19 Lakhs. Additional Provision – Rs. 30.00 Lakhs. Revenue Expenditure – Rs. 246.29 Lakhs. Additional Revenue Provision- @ Rs. 3.70 per tonne

xxvi. **Forestry issues:** There is no forest area is involved

xxvii There is no National Park, eco-sensitive Zone within 10 km radius.

xxviii. There is no Court Cases pending.

xxix. **Public Hearing issues:** The Public Hearing was held on 10.08.2011. The issues raised during Public Hearing include Pollution control measures, Construction of roads, Health,

Dhn EC

Electricity & drinking water facilities; Plantation; Social Development works; Employment etc

xxx The Project Proponent assures to take necessary remedial measure.

xxxi The TOR was given for the proposal on 28.10.2010. The per cent of expansion proposed is to the tune of 63%.

xxxii The EAC in its meeting held on 19-20 March, 2012 had recommended the project for granting EC. However, the proponent was asked to submit the compliance report form the Regional Office of the MoEF for further deliberation

xxxiii. The Certificate of compliance of earlier EC from MoEF, Regional office, Bhopal has been received vide their letter no. 1-45/2005(ENV)/1588 dated 01.10.2013. The EAC deliberated on the compliance report in its meeting held on 3rd - 4th October, 2013 and on 12-13 December, 2013. The compliance report indicated that several conditions are either partly complied or not complied. However, the proponent submitted that it has undertaken several steps and prepared Action Plan in order to comply with the stipulated conditions. The Committee has asked the Proponent to submit the Action Plan duly vetted by the RO, MoEF for further consideration. The EAC deliberated on the revised compliance report and noted, inter alia, the following.

a. The mine water after it is pumped out and treated in sedimentation tank on surface is used within the mine premises for watering the mine area, roads, green belt development etc. The average pumping is 11500 kld. from that 430 kld is used within the mine premises and remaining 11070 kld is led into local nullah.

b Water meter in Surface Sedimentation tank will be installed by December, 2013 for recording of actual storage for recording of actual & its utilization

c. Regarding the fugitive dust monitoring it is submitted that the SPM & PM -10 are regularly monitored at two locations every fortnight at Weighbridge & CHP. The observations are within the limit

d. Centralized Environmental Laboratory has been established by CMPDIL, RI- IV (Regional Institute of CMPDIL a subsidiary of CIL and ISO certified Consultant for giving total support to all the coal producing subsidiary of CIL) at Nagpur. The Laboratory is housed in WCL Building for which rent is paid by CMPDIL. The pollution monitoring and analyzing equipments have been reimbursed to CMPDIL. The schedule of monitoring every fortnight is communicated to State Pollution Control Board

3. The proposal was considered in the EAC meetings held on 19th -20th March 2012, 14th - 15th May 2012 and recommended in 4th-5th February, 2013. The compliance report from the Regional Office of the MoEF for the project proposal was further considered in the EAC meeting held on 03-04 October, 2013 and on 12-13 December, 2013 wherein it was recommended for granting Environmental Clearance. The Ministry of Environment & Forests hereby accords Environmental Clearance for the above-mentioned **Ukni Deep OCP (Expansion of prod. from 2.20 MTPA to 3.50 MTPA and Expn. from ML area from 940 ha to 1285.12 ha) of M/s Western Coalfields Ltd., dist. Yavatmal, Maharashtra** under the provisions of the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto subject to the compliance of the terms and conditions mentioned below as mentioned below:

A. Specific Conditions:

i The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.

ii All the conditions made by DGMS should be adhered to.

iii The mine water after it is pumped out and treated in sedimentation tank on surface could be used within the mine premises for watering the mine area, roads, green belt development etc.

iv. Mine discharge after proper settling should be made available for agricultural purpose through a properly developed distribution network. The project authorities should meet the water requirement of nearby villages in case the village wells go dry due to dewatering of the mine

v. Water meter in Surface Sedimentation tank will be installed by December, 2013

vi. Toe wall as well as garland drain be constructed as per DGMS guidelines

vii The external OB dumps are to be constructed in benches keeping the individual bench slopes at natural angle of repose conforming to the DGMS Permission.

viii. Garland drains all along the periphery of external OB dumps be constructed before onset of every monsoon and all silt and sediments along with water may be allowed to accumulate in the said garland drains which be cleaned again before onset of next monsoon.

ix The biological reclamation of external OB dumps should be taken up once the dumps get inactive.

x. There should be no external OB dump at the end of mining. OB should be backfilled in the existing void in post mining stage. Grass should be planted on temporary OB dump The temporary OB dump should be rehandled and backfilled up to ground level. The land should be used as Agriculture Land

xi. The embankment constructed along the river boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side and stabilised with plantation so as to withstand the peak water flow and prevent mine inundation.

xii. The production shall be within the same Mining Lease area.

xiii The OB shall be completely re-handled at the end of the mining

xiv. The void area will be converted into water body The rest of the area will be back filled upto the ground level and covered with about a meter thick top soil and put to use.

xv. Garland drains be provided.

xv.. Appropriate embankment shall be provided along the side of the rivernullah flowing near or adjacent to the mine

xvi . The land after mining shall be brought back for agriculture purpose.

xviii Mine water should be treated for discharge into the lagoon. The quality of lagoon water shall be regularly monitored and mitigation measures taken.

xix. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation

xx The transportation of Coal in the Pit would be by Dumpers, from surface to Siding by Tippers, from siding to loading would be by Pay Loaders.

xxi. There shall be no overflow of OB into the river and into the agricultural fields and massive plantation of native species shall be taken up in the area between the river and the project

xxii 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 ex mine 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.

xxiii. 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

xxiv 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.

xxv Crushers at the CHP of adequate capacity for the expansion project shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc

xxvi. Drills shall be wet operated.

xxvii. The project authorities shall undertake regular repairing and tarring of roads used for mineral transportation. A 3-tier green belt comprising of a mix of native species shall be developed all along the major approach roads,

xxviii. Controlled blasting shall be practiced with use of delay detonators and only during daytime. The proponent would need to repair the cracks in the houses if it occurred on account of blasting. The mitigative measures for control of ground vibrations and to arrest the flying rocks and boulders shall be implemented.

xxix. A Progressive afforestation plan shall be implemented covering an area of 779 ha at the end of mining, which includes reclaimed external OB dump 446 ha, Backfilled area 180 ha, Infrastructure 4 ha, Township area 3 ha and Green belt 145 ha by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. Massive plantation shall be carried out in open spaces in and around the mine and a 3-tier avenue plantation along the main approach roads to the mine.

xxx. An estimated 221.66 Mm³ of OB will be generated during the entire life of the mine. Out of which 117.52 Mm3 of OB will be dumped in four external OB Dumps in an earmarked area covering 446 ha of land. 104.14 Mm³ of OB will be dumped in internal dump covering an area of 180 ha. The maximum height of external OB dump for hard OB will not exceed 90 m and that for soft OB shall not exceed 60 m. The maximum slope of the dump shall not exceed 28 degrees. Monitoring and management of reclaimed dump sites shall continue till the vegetation becomes self- sustaining and compliance status shall be submitted to MOEF and its Regional Office on yearly basis.

xxxi. The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.

xxxii Compensatory Ecological &Restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land be carried out.

xxxiii. The mining should be phased out in sustainable manner. No extra over burden dumps are permitted.

xxxiv No groundwater shall be used for mining operations.

xxxv Out of the total 1285.12 ha, external OB dump area 446 ha, excavation area of 188 ha, infrastructure area 55 ha water body 152 ha, Township 34 ha, Greenbelt 145 ha shall be reclaimed with plantation and a void of 153 ha at a depth of 40 m which is proposed to be converted into a water body shall be gently sloped and the upper benches shall be terraced and stabilised with plantation/afforestation 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

xxxvi 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 to the Central Pollution Control Board quarterly within one month of monitoring.

xxxvii. The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring indicates a decline in water table. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine

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

xxxix. Besides carrying out regular periodic health check-up of them 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 specialised agency/institution within the District/State and the results reported to this Ministry and to ROMS.

xl Land oustees shall be compensated as per the norms laid out R&R Policy of CIL or the National R&R Policy or R&R Policy of the State Government whichever is higher

xli. 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 concerned Regional office.

xlii. A detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests within 6 months of grant of Environmental Clearance.

xliii. The project authorities shall in consultation with the Panchayats of the local villages and administration identify socio-economic and welfare measures under CSR to be carried out over the balance life of the mine

xliv. The commitment made by the Proponents to the issue raised during Public Hearing shall be implemented by the Proponent.

xlv. Corporate Environment Responsibility

a The Company shall have a well laid down Environment Policy approved by the Board of Directors.

b. The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.

c. The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.

d To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

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 of production for quantum of mineral coal shall be made

iii Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM $_{10}$, $PM_{2.5}$, SO_2 and NOx monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and

environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.

iv. Data on ambient air quality (PM_{10}, $PM_{2.5}$, SO_2 and NO_x) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its concerned Regional Office and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EPA rules, 1986 shall be furnished as part of compliance report

v. Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.

vi. Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 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.

vii. Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded

viii Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EPA Rules, 1986

ix 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

x. Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.

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

xii The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its concerned Regional Office

xiii. The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the Ministry of Environment & Forests at http://envfor.nic.in.

xiv A copy of the environmental clearance letter shall be marked to concern Panchayat/Zila Parishad, Municipal Corporation or Urban local body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website.

xv A copy of the environmental clearance letter shall be shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Sector and Collector's Office/Tehsildar's Office for 30 days.

xvi. The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance conditions shall also be uploaded by the project

authorities on their website and updated at least once every six months so as to make the same in public domain. The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM_{10}, $PM_{2.5}$, SO_2 and NO, (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website.

xvii. The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Office s of CPCB and the SPCB

xviii The Regional Office of this Ministry located in the Region shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.

xix. The Environmental statement for each financial year ending 31 March in For –V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MoEF by e-mail

4. The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report as also during their presentation to the EAC.

5. The proponent shall establish an Environmental Audit Cell, which should be responsible and accountable to ensure compliance of all conditions stipulated in the EC.

6 The proponent is required to obtain all necessary clearances/approvals that may be required before the start of the project.The Ministry or any other competent authority may stipulate any further condition for environmental protection

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

8. 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.

9 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. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations

(Dr. Manoranjan Hota)
Director

Copy to:

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. Secretary, Department of Environment, Government of Maharashtra, 15th Floor, New Admn. Bldg., Madam Cama Road, MUMBAI 400032.

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3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, E-2/240 Arera Colony, Bhopal 462016.
4. Member Secretary, Maharashtra State Pollution Control Board, Kalpataru Point, 3rd & 4th Floors, Sion, Matunga Scheme Road No. 8, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai – 400022
5. Member Secretary, 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 J Kasturba Gandhi Marg, New Delhi
7. Dr. R.K. Garg, Advisor, Coal India Limited, SCOPE Minar, Core-1, 4th Floor, Vikas Marg, Laxminagar, New Delhi.
8. District Collector, Yavatmal, Government of Maharashtra
9. Monitoring File 10. Guard File 11. Record File 12. Notice Board.

(Dr. Manoranjan Hota)
Director

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MAHARASHTRA POLLUTION CONTROL BOARD

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

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

RED/L.S.I (R35)
No:- Format1.0/CAC/UAN No.MPCB-CONSENT-0000159831/CR/2305000853

Date: 12/05/2023

To,
M/s Western Coalfields Limited,
Ukni Opencast Mine,Wani North Area,
At Post-Ukni,Tal Wani,Dist-Yavatmal.

Your Service is Our Duty

Sub: Renewal of consent under RED category.

Ref:
1. Earlier Consent granted by Board vide No. Format1.0/CAC/UAN No.106999/ CR/2211000601 dated 09.11.2022 valid up to 31.03.2023.
2. Minutes of Consent Appraisal Committee Meeting held on 24.04.2023.

Your application No.MPCB-CONSENT-0000159831 Dated 19.01.2023

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

1. **The consent to renewal is granted for a period up to 31/03/2024**
2. **The capital investment of the project is Rs.327.0652 Crs. (As per Balance Sheet submitted by industry)**
3. **Consent is valid for the manufacture of:**

Sr No	Product	Maximum Quantity	UOM
Products			
1	Coal	2.2	MTPA

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

Sr No	Description	Permitted (in CMD)	Standards to	Disposal Path
1.	Trade effluent	5372	As per Schedule-I	Recycle to the maximum extent for Dust Suppression & Fire Fighting and remaining on land for plantation/Irrigation/Gardening.
2.	Domestic effluent	27.2	As per Schedule-I	On land for plantation/ Irrigation/ Gardening

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

Sr No.	Stack No.	Description of stack / source	Number of Stack	Standards to be achieved
1	0	0	0	As per Schedule -II

6. **Non-Hazardous Wastes:**

Sr No	Type of Waste	Quantity	UoM	Treatment	Disposal
1	Overburden	1175200	m3/month	Landfill	Backfilling and Reclamation of Land

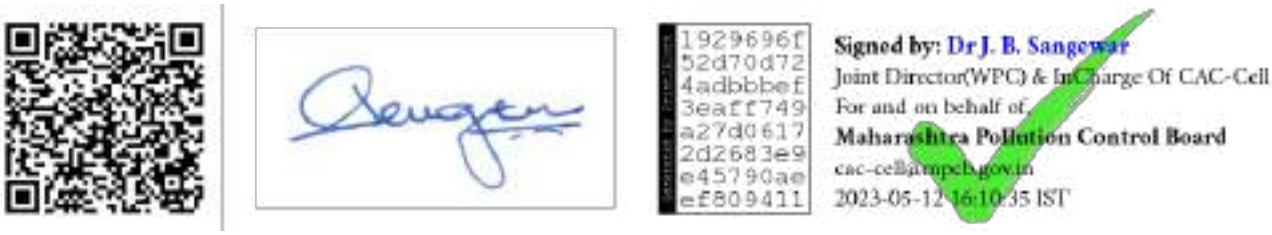
7. **Conditions under Hazardous & Other Wastes (M & T M) Rules 2016 for treatment and disposal of hazardous waste:**

Sr No	Category No./ Type	Quantity	UoM	Treatment	Disposal
1	5.1 Used or spent oil	60.00	KL/A	Recycle	Send to authorised Recycler/Reprocessor
2	5.2 Wastes or residues containing oil	9	MT/A	Incineration	CHWTSDF
3	35.3 Chemical sludge from waste water treatment	60	MT/A	Landfill	CHWTSDF

8. The Board reserves the right to review, amend, suspend, revoke etc. this consent and the same shall be binding on the industry.
9. This consent should not be construed as exemption from obtaining necessary NOC/permission from any other Government authorities
10. The applicant shall comply with the conditions of the Environmental Clearance granted by MoEFCC,GoI vide letter No.J-11015/237/210-IA.II(M) dtd. 15.01.2014.
11. PP shall convert existing water sprinkling arrangement into chemical fogging arrangement (MgCl2) within three months period.
12. PP shall carry out over burden dump management as per CPCB guidelines.
13. PP shall carry out plantation as per EC condition before ensuing monsoon.
14. PP shall install the CAAQMS within 3 months and submit the BG of Rs.5.0 Lakh towards compliance of same.
15. PP shall submit the BG of Rs.25.0 Lakh towards O & M of Pollution control system and towards compliance of consent and EC conditions
16. PP shall install the Tyre wash system within 3 months and submit the BG of Rs.5.0 Lakh towards compliance of same.
17. PP shall submit the BG as per BG regime of mines.

18. The applicant shall make an application for renewal of consent 60 days prior to date of expiry of the consent.

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



Received Consent fee of -

Sr.No	Amount(Rs.)	Transaction/DR.No.	Date	Transaction Type
1	3068261.00	MPCB-DR-17012	30/01/2023	RTGS

Balance amount of Rs. 1534130 will be considered at the time of next renewal of consent.

Copy to:

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

SCHEDULE-I

Terms & conditions for compliance of Water Pollution Control:

1. A] ETP having Capacity 150 CMD provided comprises of Collection tank- Oil Skimmer-Sedimentation tank-Hopper bottom tank-Clear water sump and SDB. Sedimentation tank having capacity 600 CMD provided for treatment of Mine water discharge.

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

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

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

2. A] As per your application, you have provided Septic Tank followed by Soak pit for the treatment of 27.2 CMD of sewage.

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

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

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

3. The Board reserves its rights to review plans, specifications or other data relating to plant setup for the treatment of waterworks for the purification there of & the system for the disposal of sewage or trade effluent or in connection with the grant of any consent conditions. The Applicant shall obtain prior consent of the Board to take steps to establish the unit or establish any treatment and disposal system or an extension or addition thereto.
4. The industry shall ensure replacement of pollution control system or its parts after expiry of its expected life as defined by manufacturer so as to ensure the compliance of standards and safety of the operation thereof.

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

Sr. No.	Purpose for water consumed	Water consumption quantity (CMD)
1.	Industrial Cooling, spraying in mine pits or boiler feed	380.00
2.	Domestic purpose	100.00
3.	Processing whereby water gets polluted & pollutants are easily biodegradable	0.00
4.	Processing whereby water gets polluted & pollutants are not easily biodegradable and are toxic	0.00
5.	Gardening	100

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

SCHEDULE-II

Terms & conditions for compliance of Air Pollution Control:

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

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

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

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

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

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

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

6. Standards for Ambient Air Pollutants:

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

Dust Generating Sources:

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

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

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

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

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

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

8. Other conditions:

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

SCHEDULE-III

Details of Bank Guarantees:

Sr. No.	***Consent (C2E/ C2O /C2R)***	***Amt of BG Imposed***	***Submission Period***	***Purpose of BG***	***Compliance Period***	***Validity Date***
1	C2R	Rs. 2.0 Lakh	15 days	Regular monitoring of ground water level and quality should be carried out by establishing the network of existing wells and constructing new piezometers during mining operations	6 Monthly	31.03.2025
2	C2R	Rs.5.0 Lakh	15 days	Catch drain and Siltation ponds of appropriate size should be constructed to arrest silt and sediment flow from soil, OB and mineral dumps. Water so collected should be utilized for watering of the mining area, roads green belt developers etc.	Regular Activity	31.03.2025
3	C2R	Rs.5.0 Lakh	15 days	Coal transportation shall be done by covered/ closed trucks. Overloading of shall be avoided to prevent spillages.	Regular Activity	31.03.2025
4	C2R	Rs.5.0 Lakh	15 days	Convert existing water sprinkling arrangement into chemical fogging arrangement (M_gCl2)	2 Months	31.03.2025
5	C2R	Rs.5.0 Lakh	15 days	Adoption and installation of tyre wash system to mining transportation at entry and exit point of mining area.	3 Months	31.03.2025

Sr. No.	Consent (C2E/ C2O /C2R)	Amt of BG Imposed	Submission Period	Purpose of BG	Compliance Period	Validity Date
6	C2R	Rs.5.0 Lakh	15 days	Adoption of Bioswales technology on the road sides. Bioswales is a land scape element of construction design, primarily a run off conveyance system by the sides of road, to remove dust ,silt and debris	3 Months	31.03.2025
7	C2R	Rs.5.0 Lakh	15 days	PP shall install CAAQMS within 3months period	3 Months	31.03.2025
8	C2R	Rs.5.0 Lakh	15 days	Over burden (OB) should be stacked at earmarked dumpsites only and should not be kept active for long period. Proper terracing of OB should be carried out so that the overall slope will come down to 28°. Over Burden shall be disposed by way of backfilling.	Regular Activity	31.03.2025
9	C2R	Rs.25.0 Lakh	15 days	Operation and Maintenance of pollution control system so as to maintain consented standards prescribed in consent and towards compliance of consent conditions and Environment Clearance conditions.	Regular Activity	31.03.2025

The above Bank Guarantee(s) shall be submitted by the applicant in favour of Regional Officer at the respective Regional Office within 15 days from the date of issue of Consent.

BG Forfeiture History

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

BG Return details

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

SCHEDULE-IV

General Conditions:

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

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

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

This certificate is digitally & electronically signed.

Monitoring the implementation of Environmental Safeguards
Ministry of Environment, Forests& Climate change
West Central Zone, Nagpur
Monitoring Report
Part – I

DATA SHEET

1.	Project type: River / valley / Mining /: Industry/ Thermal / Nuclear / other (specify)		Mining
2.	Name of the project	:	Ukni deep OC Mine
3.	Clearance letter (s)/ OM no. and date	:	J-11015/237/2010-IA,II(M) dtd. 15.01.2014
4.	Location		
	a) District (s)	:	Yavatmal
	b) State (s)	:	Maharashtra
	c) Latitude / Longitude	:	Log. 79.-2'-30" to 79^0-04'-30"(E). Lat. 20^0-10'-00" to 20^0-02'-30"(N).
5.	Address for correspondence		
	a) address of Concerned Project Chief: Engineer (with pin code & telephone / telex / fax numbers)		**Sub Area Manager**, Ukni deep-Junad Sub Area, PO. Ukni deep, Tah. Wani, Dist. Yeotmal, Maharashtra – 445 304. Tel.No. 07293-241717/ Fax.No.07239-241357.
	b) address of Executive Project Engineer/: Manager (with pin code/fax number)		**Mine Manager**, Ukni deep-Junad Sub Area, PO. Ukni deep, Tah. Wani, Dist. Yeotmal, Maharashtra – 445 304. Tel.No. 07293-241718/ Fax.No.07239-241357
6.	Salient features		
	a) of the project	:	Copy enclosed.
	b) of the environmental management plans	:	Copy enclosed.
7.	Breakup of the project area		
	a) Submergence area: forest & non-forest	:	<u>As per EMP</u> –

Type of Land	Required as per EMP(ha)	Actual acquired (ha) as on **30.09.2024**
Forest Land	---	---
Agriculture	1272.22	1268.49
Govt. Land	12.90	
Total	**1285.12**	**1268.49**

	b) Others	:	-
8.	Breakup of the project affected population with enumeration of those losing houses/dwelling units only agricultural land only, both dwelling units & agricultural land & landless labourers/ artisan		Only Land Loser – 317
	a) SC, ST/Adivasis	:	07 Nos
	b) Others	:	310 Nos.

Contd.2

9. Financial details:

a) Project cost as originally planned and subsequent revised estimates and the year of price reference.	:	Rs. 327.06 Cr (Total Capital Investment as per updated PR dated May 2018)
b) Allocation made for environmental management plans with item wise and year wise break-up.	:	Capital Head: Rs. 265 Lakhs. (as per updated PR dated May 2018)
c) Benefit cost ratio/Internal rate of Return and the year of assessment.	:	N.A.
d) Whether (c) includes the cost of environmental management as shown in the above	:	Yes
f) Actual expenditure incurred on the environmental management plans so far.	:	**Capital - Rs. 99.00 Lakhs.** **Revenue - Rs. 1183.23 Lakhs.**

EXPENDITURE:-

Capital:–

Account Head	FY 2024-25	Progressive as on 31.03.2025 (Fig. In lakhs)
Air Pollution Control - Dust Suppression work-	Nil	85.27
Water Pollution Control :- Effluent Treatment Plant for workshop and Sedimentation Tank for mine pumped out water.	Nil	13.73
Other	----	-----
Total-	Nil	99.00

Revenue:-

Account Head	FY 2024-25	Progressive as on 31.03.2025 (Fig. In lakhs)
Air Pollution Control Works-	35.52	277.45
Water pollution Control Works	5.49	120.01
Afforestation.	27.86	223.21
Monitoring (MPCB analysis charges & consent fees) a) ETP samples charges. b) Consent to Operate & Establish c) Public hearing charges.	Nil	131.47
Legal expenses /Statutory expenses	267.85	424
Other	Nil	7.09
Total-	336.72	1183.23

contd.3

10.	Forest land requirement		
	a) The status of approval for diversion of forest land for non-forestry use.	:	N.A.
	b) The status of clearing felling.	:	N.A.
	c) The status of compensatory afforestation, if any.	:	N.A.
	d) Comments on the viability & sustainability of compensatory afforestation programme in the light of actual field experience so far.	:	N.A.
11.	The status of clear felling in non-forest areas (such as submergence area of reservoir, approach roads), if any with quantitative information.	:	N.A.
12.	Status of construction		
	a) Date of commencement (Actual and/ or planned)	:	**08-04-1993**
	b) Date of completion (Actual and/of planned)	:	Planned for future expansion.
13.	Reasons for the delay if the project is yet to start.	:	N.A.

19/5/25

Sr. Manager (Min)
Ukni deep OCM

19/5/25

S.O.E.(Civil)/NO(Env)
Ukni -Junad Sub Area

19/5/25

Sub Area Manager
Ukni -Junad Sub Area

****

SALIENT FEATURES OF THE PROJECT

1.	Date of Sanction	:	24.11.2018
2	Sanction of Capital (Rs. In Crore)	:	Rs. 327.06 Cr (Total Capital Investment as per updated PR dated May 2018)
3.	Duration of construction in years	:	9
4	Extractable coal reserves (in MT)	:	24.37 (as per EC)
5	Target Capacity As Per PR (in MT/Yr)	:	3.50 (As per EC)
6	Life in years as per PR	:	8
7	Coal seam	:	Mayo Seam
8	Average thickness	:	8.00 (Top) & 9.30 (Bottom)
8	Gradient of the seam	:	1 in 3 to 1 in 6
9	Stripping ratio	:	1:11.06 (Ukni deep Deep) 1:3.7 (Ukni deep PR)
10	Quality of Grade of coal	:	G 11
	GCV	:	4125 k.cal/kg
11	Quarry Depth (P.R)	:	Initial-114 MTRS. Final-206 MTRS.
11A	Present quarry depth	:	172 Mtrs.
12	Quarry. Area (P.R)	:	On surface=332.5 Ha On floor= 213.5 Ha
13	Average strike length of quarry	:	2.950 km
13A	Present strike length	:	3.2 Km
14	Width of Quarry(PR)	:	On surface=560.00 mtrs. On floor = 425.00 mtrs.
15A	Present width of quarry	:	On surface=1144 mtrs. On floors= 665 mtrs.
16	Over Burden (in mm3) (PR)	:	173.03 Mm3.
17	Overall stripping Ratio (As per P.R)	:	11.06
18	Present stripping Ratio	:	1: 9.477
19	Man power as per P.R.	:	716
20	Present Man power	:	729
21	OMS (PR)	:	10.581
22	Present OMS	:	6
23	Present Average daily employment	:	600

WESTERN COALFIELD LIMITED
UKNI DEEP OPENCAST MINE: WANI NORTH AREA

SIX MONTHLY ENVIRONMENTAL COMPLIANCE REPORT
FOR THE PERIOD OF October 2024 to March 2025

PART-I

Name of the Project-	**Ukni deep Opencast Project.**
Address for correspondence	Near Ukni deep Village ,At Post- Ukni deep ,Tah-Wani, Dist.Yavatmal (M.S.)
MOEF Clearance Letter No & Date	Letter No. J-11015/237/2010-IA,II(M) dtd. 15.01.2014 for 3.50 MTPA of coal production.
Date of commencement of the project work-	**08.04.1993.**

STATUS OF LAND ACQUISITION:-

Type of Land	Required as per EMP (ha)	Actual acquired (ha)
Forest Land	---	---
Agriculture	1272.22	1268.49
Govt. Land	12.90	
Total	**1285.12**	**1268.49**

STATUS OF LEGAL COMPLIANCE:-

a. Consent under water (Prevention and control of pollution) Act.	Consent to operate is granted by MPCB vide Consent order No:: Format 1.0/CAC/UAN No.MPCBCONSENT – 0000159831/CR/2305000853 dated 12.05.2023 Valid up to 31.03.2024 CTO renewal applied vide Ref no. MPCB-CONSENT-0000243163 dated : 05.04.2025
b. Consent under water (Prevention and control of Pollution) cess Act.	- do -
c. Environment (Protection) Act.	Environment Audit Statement for the year 2023-24 has been submitted online on MPCB web portal
d. Forest (Conservation) Act.	N.A.

Contd.2

STATUS OF ENVIRONMENT

AIR POLLUTION CONTROL:-

a. No. of ambient air monitoring stations.	4 Nos.
b. Name of the location-	1) Workshop –WNUOA – 1 CORE ZONE 2) Bhalar Township- WNUOA-2 Buffer Zone 3) Ukni Village – WNUOA-3 Buffer Zone 4) Pimpri village – WNUOA-4 Buffer Zone **FUGITIVE DUST MONITORING DATA** 1) **WEIGHBRIDGE & 2) CHP**
c. Ambient air quality status for the parameters prescribed by state Pollution Control Board. (Average 95% time weighted value)	Detailed reports of sampling & analysis of Ambient Air Quality carried out as per statues through CMPDIL, Nagpur for the period **October 2024 to March 2025** has been enclosed

WATER POLLUTION CONTROL:-

a. No. of stations and frequency of monitoring.	Three, fortnightly.
b. Description of locations	1) Mine Water discharge effluent quality WNUOW-1 2) Discharge effluent quality (ETP) WNUOW-2 3) STP (Bhallar Township) WNUOW-3
C. Average Concentrations of major pollutants prescribed by State Pollution Control Board (fig. in mg/lit except ph):-	Detailed reports of sampling & analysis of Water Quality carried out as per statues through CMPDIL, Nagpur for the period **October 2024 to March 2025** has been enclosed

NOISE POOLUTION CONTROL:-

a. No. of noise monitoring stations	:	2 Nos. (Fortnightly)
b. Description of locations	:	1) CHP (WNUON-1) 2) Colony (Bhallar) WNUON-2
c) Noise level prescribed by by State Pollution Control Board.		Detailed reports of Noise level carried out as per statues through CMPDIL, Nagpur for the period **October 2024 to March 2025** has been enclosed

Contd.3

PART – III
STATUS OF IMPLEMENTATION OF PROVISIONS OF EMP

LAND USE STATUS:-

S.N.	Particulars	Current Period October 2024 to March 2025	Progressive Up to March 2025
1)	Area excavated (ha)	0.00	**295.00**
2)	Top Soil removed (Mm3)	0.04	**16.398**
3)	OB removed (Mm3)	9.78	**209.818**
4)	OB back filled (Mm3)	**Nil**	**5.487**
5)	Area recovered for Reclamation (Physical area)	-	-
6)	Area reclaimed biologically (Tree Plantation on backfilled area)	-	-

PRODUCTION:-

Target Capacity – 3.50 MTY.

Present Capacity /Coal Production- 1.557 MT (up to 31.03.2025)

Year	Coal Production - Million Tonnes
2018-19	1.616
2019-20	1.379
2020-21	1.538
2021-22	1.500
2022-23	1.756
2023-24	1.838
2024-25 (up to March.2025)	1.557

Afforestation:

S.N.	Locations	Current period	Progressive
1)	OB Dump & embankment	----	**98Ha**
2)	Safety Zones	----	**43.8 Ha**
3)	Backfilled Area	----	**----**
4)	Other Area	----	**35.6 Ha**
	Total	----	**177.4 Ha**

Area Under Plantation (Progressive)	177.4 ha
No. of Plants per hectare	2500/Hect.
Species planted up to date	Teak, Bamboo, Sivan, Khair, Nim, Sisam, Maharuk, Pimpal, Subabul, Bijja, Raintree, Nilgiri, ulmor, Fanas, Karanj, Casis ,Glarasies,Emli, & Mango.

Contd.4

REHABILITATION AND RESETTLEMENT:-

S.N.	Particulars	SC	ST	OTHER
1	No. of land oustees	**326.00**		
2.	No. of land oustee rehabilitated	**----**		
3.	No. of PAP's/PAFs to be resettled	**Nil**		
4.	No. of PAPs/PAFs resettled	**41 Nos. families.**		
5.	Area of new site (ha)			
6.	Status of development	**(Approach road & surface drain provided by WCL**		
7.	Civic amenities provided at new resettlement site-		DO.	

Organizational set up at project level:

Name and designation of the persons:

1) **Shri. M Shankaraswamy, SAM, Ukni deep OC mine, UJSA.**
2) **Shri. S K Verma, Colliery Manager, Ukni deep OC mine**
3) **Shri. Sanjay Sakharwade, S.O.E (C)/N.O.(Env.), Ukni deep OCM/UJSA.**

19/3/25

Colliery Manager
Ukni deep OCM

19/3/25

S.O.E (Civil)/NO(Env.)
Ukni -Junad Sub Area

19/3/25

Sub Area Manager
Ukni -Junad Sub Area

EXPANSION OF UKNI DEEP OC
COMPLIANCE OF CONDITIONS OF ENVIRONMENTAL CLEARANCE (EC)
Vide Letter No:-J-11015/237/2010-IA.II (M) dated 15.01.2014 for 3.50 MTPA

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
A.	**SPECIFIC CONDITIONS:**		
i.	The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.	:	The maximum production of coal from the mine has not exceeded its prescribed limit of **3.50MTPA** and nor proposed to exceed in future.
ii.	All the conditions made by DGMS should be adhered to.	:	All the conditions made by DGMS are being followed and will continue to be followed.
iii.	The mine water after it is pumped out and treated in sedimentation tank on surface could be used within the mine premises for watering the mine area, roads, green belt development etc.	:	At present, in the existing Ukni OC mine, the mine water after it is pumped out on surface, is treated in surface Sedimentation tank and thereafter is used for :- (i) Dust suppression through mobile water tanker plying within the mine area & surface roads. (ii) Spraying of water through rain guns/fixed type Water Sprinklers (iii) For watering of plants etc. The same will continue to be maintained during the Operation of Ukni Deep OC also.
iv.	Mine discharge after proper settling should be made available for agricultural purpose through a properly developed distribution network. The project authorities should meet the water requirement of nearby villages in case the village wells go dry due to dewatering of the mine.	:	At present in the existing Ukni OC, strata seepage water first gets accumulated in the mine sump where adequate stagnation time is available for initial settlement of suspended particles. The supernatant water from the mine sump is then pumped out and discharged on to sedimentation tank made on the surface and clear water after further settling is discharged in to local Nallahs/ streams which are presently being used by the nearby villagers for their agriculture etc. The same will continue to be maintained during the operation of Ukni Deep OC also. In case of request coming from any village in the vicinity, whenever their wells go dry, project authorities are supplying water through truck mounted tankers and will continue to maintain the same in future also.
v.	Water meter in Surface Sedimentation tank will be installed by December-2013.	:	The modification and repair works of existing sedimentation tank in Ukni OCM has been completed. At present V-notch has been fitted.
vi.	Toe wall as well as garland drain be constructed as per DGMS guidelines.	:	R.C.C. Toe wall has been constructed at the toe of O.B. Dump No (7) for a length of 350.00 Mtr and garland drain has been made around O.B. dumps and periphery of mine as per statutory guidelines.

Contd.2

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
vii.	The external OB dumps are to be constructed in benches Keeping the individual bench slopes at natural angle of repose conforming to the DGMS Permission.	:	External O.B. dumps are being made bench wise and slope of each bench is kept at natural angle of repose as per the conditions laid down by DGMS.
viii.	Garland drains all along the periphery of external OB dumps be constructed before onset of every monsoon and all silt and sediments along with water may be allowed to accumulate in the said garland drains which be cleaned again before onset of next monsoon.	:	Garland drain of size 3.50 x 2.00m are made around the periphery of external O.B. dumps before onset of monsoon to arrest silt and sediments from the respective dump sites. The above garland drains are cleaned before onset of next monsoon.
ix.	The biological reclamation of external OB dumps should be taken up once the dumps get inactive.	:	External O.B. dump no. 1, 4 & 5 have been biologically reclaimed and vegetation grown has become self sustaining. In future biological reclamation shall be done of the external dumps once it gets inactive.
x.	There should be no external OB dumps at the end of mining. OB should be backfilled in the existing void in post mining stage. Grass should be planted on temporary OB dump should be re-handled and backfilled up to ground level. The land should be used as Agriculture Land.	:	Noted for compliance. It shall be implemented at the time of closure / end of mining. [Mine is in operation & its final stage is yet to be arrived]
xi.	The embankment constructed along the river boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side and stabilized with plantation so as to withstand the peak water flow and prevent mine inundation.	:	Presently the mine is **2.00Km** away from the Wardha river.
xii.	The production shall be within the same Mining lease area.	:	The production of coal shall be made well within the mining lease area as specified in the EC letter issued by MOEF dated 15.01.2014.
xiii.	The OB shall be completely re-handled at the end of the mining.	:	It shall be implemented at the time of mine closure/end of mining.
xiv.	The void area will be converted into water body. The rest of the area will be back filled up to the ground level and covered with about a meter thick top soil and put to use.	:	Noted for compliance. It shall be implemented at the time of closure / end of mining. [Mine is in operation & its final stage is yet to be arrived]
xv.	Garland drains be provided.	:	Garland drains of appropriate size have been provided along the periphery of mine area and around the external O.B. dumps.

<table>
<tr><td></td><td>Condition</td><td></td><td></td></tr>
<tr><td>1</td><td>2</td><td></td><td>3</td></tr>
<tr><td>xvi.</td><td>Appropriate embankment shall be a provided along the side of the river / nallah flowing near or adjacent to the mine.</td><td>:</td><td>Presently the mine is 2.00Km away from the Wardha river.</td></tr>
<tr><td>xvii.</td><td>The land after mining shall be brought back for agriculture purpose.</td><td>:</td><td>It shall be implemented at the time of mine closure/end of mining.</td></tr>
<tr><td>xviii.</td><td>Mine water should be treated for discharge into the lagoon. The quality of lagoon water shall be regularly monitored and mitigation measures taken.</td><td>:</td><td>Water pumped out from the mine after settlement in sump is being treated into surface Sedimentation tank before discharging into local nallah. The quality of treated water is being monitored fortnightly by CMPDIL and mitigation measures are being taken accordingly.</td></tr>
<tr><td>xix</td><td>The CSR cost should be Rs.5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.</td><td>:</td><td>As per the existing modified CSR policy of the Company, the fund for the C.S.R. should be allocated based on 2% of the average net profit of the Company for the three immediate preceding financial years or Rs 2.00 per tonne of coal production of previous year, whichever is higher.</td></tr>
<tr><td>xx</td><td>The transportation of Coal in the pit would be by Dumpers, from surface to siding by Tippers, from siding to loading would be by pay Loaders.</td><td>:</td><td>At present, in the existing Ukni OC mine, coal is being transported from pit of the mine to surface by dumpers, from surface to siding by tippers and from siding to wagons by pay loaders. The system will continue to be maintained.</td></tr>
<tr><td>xxi</td><td>There shall be no overflow of OB into the river and into the agricultural fields and massive plantation of native species shall be taken up in the area between the river and the project.</td><td>:</td><td>Presently the mine is about 2.00Km away from the Wardha river. Also garland drains have been made around the OB dumps to arrest any erosion to natural streams. Plantation has been already done over available sites and the same will be implemented in the future also.</td></tr>
<tr><td>xxii</td><td>OB shall be tacked at two earmarked external OB dumpsite(s) only. The ultimate slope of the dump shall not exceed 28º. 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.</td><td>:</td><td>OB Excavated from the quarry area has been dumped on surface a. The details area of dumps as follows:-
<table>
<tr><td>S.N</td><td>Dump No</td><td>Height (M)</td><td>Area (In Ha.)</td><td>Status of reclamation.</td></tr>
<tr><td>1</td><td>1</td><td>40.00</td><td>36.12</td><td>Partially Biologically reclaimed.</td></tr>
<tr><td>2</td><td>4</td><td>45.00</td><td>17.50</td><td>Biologically reclaimed.</td></tr>
<tr><td>3</td><td>5</td><td>38.00</td><td>96.30</td><td rowspan="2">Partially biologically reclaimed.</td></tr>
<tr><td></td><td>5(A)</td><td>55.00</td><td>68.72</td></tr>
<tr><td>4</td><td>6</td><td>21.57</td><td>25.20</td><td rowspan="3"></td></tr>
<tr><td></td><td>6(A)</td><td>9.40</td><td>16.00</td></tr>
<tr><td>5</td><td>10A</td><td>30.00</td><td>6.50</td></tr>
<tr><td>6</td><td>11</td><td>60.00</td><td>30.00</td><td></td></tr>
</table>
The details area of active dumps are as given below:-
<table>
<tr><td>S.N</td><td>Dump No</td><td>Height (M)</td><td>Area (In Ha.)</td><td>Status of reclamation.</td></tr>
<tr><td>1</td><td>22</td><td>45</td><td>186</td><td>Partially biologically reclaimed.</td></tr>
</table></td></tr>
</table>

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
xxiii.	Catch drains and Siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development, etc. The drains shall be regularly de-silted 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.	:	Catch drains of size 3.5m x 2 m have been provided around periphery of the OB dump as well as soil dumps to arrest silt and sediment flows from the respective dump sites. In case of OB benches in the quarry, cross drainage has been provided which carries silt and sediments into different sumps made at the floor which accumulates all the silts and act as first stage settling pond. The water then is pumped out through pumps on to the surface and discharged in to surface settling tank/sedimentation pond of size 30m x 10m x 2m. The clear water from the surface sedimentation tank is used for watering the mine area, roads and green belt development. The catch drains mentioned above are regularly de-silted and maintained properly. In addition, catch drains of size 4m x 2.5m have also been provided around the periphery of the excavated area, which carries surface run off and the drains are regularly de-silted
xxiv.	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.	:	R.C.C. retaining wall has been constructed at the toe of dump no 7 for 350 mtr length having dimension of 0.20 mtr x 1.05 mtr to check the siltation. As indicated above, the run off from the OB dumps are collected in the catch drains made around the periphery of the dumps (dimensions of catch drains given above in the previous point no. xxiii) for collecting run off and Siltation from OB benches different sumps as detailed out above, is in operation and acts as main settling/ Siltation pond more over the O.B. Benches are continuously moving front. The capacity of this sump has been made to cater the entire peak rainfall in the catchments area

Contd.5

<table>
<tr><th>S.N</th><th>MOEF Environmental Clearance Condition</th><th></th><th>Compliance.</th></tr>
<tr><td>1</td><td>2</td><td></td><td>3</td></tr>
<tr><td>xxv.</td><td>Crushers at the CHP of adequate capacity for the expansion project shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.</td><td>:</td><td>Crushers of suitable capacity are provided at CHP. Water sprinkling system is provided at feeder breaker, Conveyor and transfer points etc in addition the dust suppression measures like covering of crusher house, Covering of conveyor gantry, fixed type Water Sprinkler/Rain Guns in the CHP area etc. have also been provided to control fugitive dust emission. In addition, plantation in the CHP area has also been developed.</td></tr>
<tr><td>xxvi</td><td>Drills shall be wet operated.</td><td>:</td><td>Drills have been provided with dust extractors and are operated only during day time.</td></tr>
<tr><td>xxvii.</td><td>The project authorities shall undertake regular repairing and tarring of roads used for mineral transportation. A-3 tier green belt comprising of a mix of native species shall be developed all along the major approach roads.</td><td>:</td><td>Repairing of coal transportation road is regularly being done as per requirement and condition of road. Black Topping has been done over coal transportation roads of permanent nature. Adequate green belt has also been developed along the major approach roads.</td></tr>
<tr><td>xxviii.</td><td>Controlled blasting shall be practiced with use of delay detonators and only during daytime. The proponent would need to repair the crack in the houses if it occurred on account of blasting. The mitigative measures for control of ground vibrations and to arrest the flying rocks and boulders shall be implemented.</td><td>:</td><td>Controlled blasting is carried out after due permission from DGMS so as to control ground vibrations and arrest fly rock and strictly as per conditions laid down by DGMS. The blasting is carried out only in day time.</td></tr>
<tr><td>xxix.</td><td>A progressive afforestation plan shall be implemented covering an area of 779 ha at the end of mining, which includes reclaimed external OB dump 446ha, Backfilled area 180ha, Infrastructure 4ha, Township area 3 ha and Green belt 145ha by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. Massive plantation shall be carried out in open spaces in and around the mine and a 3-tire avenue plantation along the main approach roads to the mine.</td><td>:</td><td>Afforestation is being developed in the mine lease area covering various infrastructures, along haul road (Permanent type), coal transportation road, O.B. dumps, township area etc. The density of trees is around 2500 plants/ha plantation carried out so far is given below.
<table>
<tr><th>S.N.</th><th>Location</th><th>Area of Plantation</th></tr>
<tr><td>1)</td><td>O.B. Dumps</td><td>98 Ha</td></tr>
<tr><td>2)</td><td colspan="2">Mine Lease Area:-</td></tr>
<tr><td></td><td>a) Avenue</td><td>26.00 Ha.</td></tr>
<tr><td></td><td>b) Rationalisation Area</td><td>43.80 Ha</td></tr>
<tr><td></td><td>C) CHP</td><td>3.60 Ha</td></tr>
<tr><td></td><td>d) Workshop</td><td>2.00 Ha.</td></tr>
<tr><td></td><td>e) Infrastructure</td><td>4.00 Ha.</td></tr>
<tr><td></td><td>Total</td><td>177.4 Ha.</td></tr>
</table>
Afforestation plan shall be implemented in balance life of mine in consultation with DFO / Agriculture Department</td></tr>
</table>

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
xxx.	An estimated 221.66Mm³ of OB will be generated during the entire life of the mine. Out of which 117.52 Mm³ of OB will be dumped in four external OB Dumps in an earmarked area covering 446ha of land. 104.14Mm³ of OB will be dumped in internal dumps covering an area of 180ha. The maximum height of external OB dumps for hard OB will not exceed 90m and that for soft OB shall not exceed 60m. The maximum slop of the dump shall not exceed 28 degrees. Monitoring and management of reclaimed dump sites shall continue till the vegetation becomes self-sustaining and compliance status shall be submitted to MOEF and its Regional Office on yearly basis.	:	Presently the height of O.B. dumps is 90.00 Mtr (Max) and slope is well within 28°. Also the plantation already done over O.B. dumps has become self sustained . The quantities mentioned in this condition are for the entire life of the mine and can be achieved only when the mining will come to the end as per the approved project report of Ukni Deep OC. Similarly with the progress of mining activities in Ukni Deep OC, reclamation activities will be continued as per the plan.
xxxi.	The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.	:	The EIA/EMP as approved is already having a plan of reclamation of degraded land and the same shall be implemented.
xxxii.	Compensatory Ecological & Restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land be carried out.	:	The EIA/EMP as approved is already having a plan of reclamation of degraded land and the same shall be implemented.
xxxiii.	The mine should be phased out in sustainable manner. No extra over burden dumps are permitted.	:	The EIA/EMP as approved is already having a plan of operation and mine operations are being carried out in line with the plan in phase wise and sustainable manner. No extra over burden dumps are made.
xxxiv.	No groundwater shall be used for mining operations.	:	Ground water is not used for mining operation
xxxv.	Out of the total 1285.12ha, external OB dump area 446ha, excavation area of 218 ha, infrastructure area 55 ha, water body 153ha, Township 34 ha, Green belt 145ha shall be reclaimed with plantation and a void of 153 ha at a depth of 40 m which is proposed to be converted in to a water body shall be gently sloped and the upper benches shall be terraced and stabilized with plantation / afforestation by planting native plant species in consultation with the local DFO/Agriculture department. The density of the trees shall be around 2500 plants per ha.	:	The quantities mentioned in this condition are for the entire life of the mine and can be achieved only when the mining will come to the end as per the approved project report of Ukni Deep OC. The mine i.e. Ukni OC will get dovetailed in Ukni Deep OC. In the existing mine External OB dumps in parts have been reclaimed and the details have been given in previous paragraphs. Similarly with the progress of mining activities in Ukni Deep OC, reclamation activities will be continued as per the plan and adhering to the stipulations.

Contd.7

<table>
<tr><th>S.N</th><th>MOEF Environmental Clearance Condition</th><th></th><th>Compliance.</th></tr>
<tr><td>1</td><td>2</td><td></td><td>3</td></tr>
<tr><td>xxxvi</td><td>Regular monitoring of ground water 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 & forest and tot eh Central Pollution Control Board quarterly within one month of monitoring.</td><td>:</td><td>The monitoring of ground water level is regularly being carried out four times a year, by establishing a network of existing wells as well as through piezometers in the bore wells already in use . Data thus collected is regularly being submitted to the MoEF&CC and Pollution Control Board.</td></tr>
<tr><td>xxxvii</td><td>The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring indicates a decline in water table. The project authorities shall meet water requirement of nearby village(s) in case the village wells to dry due to dewatering of mine.</td><td>:</td><td>To augment the ground water recharge, the project/mine authority has adopted various groundwater recharge measure.
Existing Rain Water Harvesting and Artificial Recharge Details
<table>
<tr><th colspan="3">EXISTING ROOF TOP RAIN WATER HARVESTING/ARTIFICIAL RECHARGE STRUCTURE</th></tr>
<tr><td>Sr. no</td><td>Location</td><td>Roof Top Area (m^2)</td></tr>
<tr><td colspan="3">Existing Rooftop rainwater harvesting structure</td></tr>
<tr><td>1</td><td>Rooftop Rainwater Harvesting structure at Area General Manager Office, Wani North Area, WCL</td><td>1200</td></tr>
<tr><td>2</td><td>Rooftop Rainwater Harvesting Structure at VVIP Guest House, Wani North Area, WCL</td><td>866</td></tr>
<tr><td>3</td><td>Rooftop Rainwater Harvesting Structure at Vocational Training Centre (GVTC), Wani North Area, WCL</td><td>730</td></tr>
<tr><td colspan="3">Artificial Groundwater Recharge Structure</td></tr>
<tr><td>S. No</td><td>Location</td><td>Dimension</td></tr>
<tr><td>1</td><td>Recharge Pond Welhala village</td><td>Water Spread Area – 2000sq mtr Depth-1m</td></tr>
<tr><td>2</td><td>Recharge Pond at</td><td>Water Spread</td></tr>
</table></td></tr>
</table>

				Nilapur Village	Area- 12340sq. mtr Depth- 1m
			3	Abandoned Quarry of Sector IV, Kolarpimpri OC Mine, acting as recharge structure	360000 sq. mtr
xxxix	Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.	:	There is no exclusive colony meant for this project and residential accommodations for the manpower employed in the project have been provided at Bhalar Township, which is having sewage Treatment Plant (STP) of capacity 0.6 MLD. An Effluent Treatment Plant (ETP) of capacity 0.15 MLD is under upgradation for the workshop catering to the need of the project.		
xxxiv	Besides carrying out regular periodic health check-up of their workers, 10% of the workers identified from workforce engaged in active mining operation shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through a specialized agency/institution within the District/State and the results reported to this Ministry and to DGMS.	:	Periodical medical examination is being carried out of each employee once in every 3 years to detect any disease so that appropriate action can be taken. Health check up of 10% workers engaged in active mining operation shall be carried out to detect occupational disease and hearing impairment. Report of the same shall be submitted to MOEF and DGMS.		

Contd.8

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
xl.	Land oustees shall be compensated as per the norms laid out R&R policy of CIL or the National R&R policy or R&R policy of the State Government whichever is higher.	:	Compensation has been paid & will be paid to land oustees as per R&R policy of CIL
xli.	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 concerned Regional office.	:	Monitoring of land use pattern is regularly being done on satellite imagery by CMPDIL, Ranchi. The reports are regularly uploaded in the company website and also it is submitted to MOEF&CC and its concerned Regional office.
xlii.	A detailed Final Mine closure plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forest within 6 months of grant of Environmental Clearance.	:	The mine closure plan prepared as per the guideline of Ministry of Coal has already been approved by WCL Board on 06.02.2014 and Escrow Account has been opened with the corpus.

			Escrow A/C no.: 897107600002363 Balance as on 31.03.2025 : Rs. 1,19,10,85,820.94 /-
xliii.	The project authorities shall in consultation with the Panchayats of the local villages and administration identify socio-economic and welfare measures under CSR to be carried out over the balance life of the mine.	:	The various civil work and welfare works are being carried out under CSR every year in the adjacent villages in consultation of Gram-panchayat and local administrations. The same will continue to be carried during the balance life also.
xliv.	The commitment made by the Proponent to the issue raised during Public Hearing shall be implemented by the Proponent.	:	The issues which were raised by local villagers during Public Hearing have been solved.
xlv.	Corporate environment Responsibility:	:	
	a. The Company shall have a well laid down Environment Policy approved by the Board of Directors.	:	Corporate Environment policy of CIL approved by Board of Directors, CIL exists.
	b. The Environment policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.	:	----Agreed-------
	c. The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.	:	Hierarchical system is as follows- Company-level - D.T. Assisted by GM (Env)/HOD. Area Level – AGM Assisted by ANO (Env). Sub Area/Unit Level- Sub Area manager Assisted by N.O.(Env)

S. N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
	d. To have proper checks and balance, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large.	:	-------Agreed---------
B.	**GENERAL CONDITONS:**	:	
i.	No. Change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	:	Noted. No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forests and climate change.
ii.	No change in the calendar plan of production for quantum of mineral coal shall be made.	:	Noted. No change in the calendar plan of production for quantum of mineral coal in excess of EC shall be made.
iii.	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM 10, PM2.5, SO2 and NOx monitoring. Location of the stations shall be decided based on the meteorological	:	Four ambient air quality monitoring stations have already been established for monitoring PM_{10}, $PM_{2.5}$, SO_2 and NO_X . Monitoring is being done fortnightly on all stations. Location of the stations was decided based on the

	data, topographical features and environmentally and ecologically sensitive targets in consultation with the State pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.		meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the state pollution control board. Monitoring of heavy metals are being carried out once in six months.
iv.	Data on ambient air quality (PM10, PM2.5, SO2 and NOx) and heavy metals such as Hg. As, Ni,Cd,Cr and other monitoring data shall be regularly submitted to the ministry including its concerned Regional Office and to the State Control Board and the central Pollution Control Board once in Six months. Random verification of Samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report.	:	Data regarding ambient air quality and heavy metals and other monitoring data are submitted regularly to the ministry including its concerned Regional Office and to the Maharashtra pollution Control Board and the central Pollution Control Board
v.	Adequatė measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operation, operation of HEMM, etc shall be provided with ear plugs/muffs.	:	In order to keep the noise level below 85 dBA in the work environment, regular maintenance of HEMM is being done and protective gears viz. Ear plugs and muffs are being provided to the employees.

Contd.10

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
vi.	Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GDR 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.	:	Mine pumped out water after initial sedimentation in the mine sump is collected in to surface sedimentation pond for further settlement. The quality of treated effluent from sedimentation pond is monitored every fortnight. Similarly, the effluents from the Workshop are treated in ETP of 0.15 MLD capacity fitted with Oil and Grease Trap and clear water is also regularly monitored. It may be mentioned here that there is no discharge of effluent from Workshop in to any surface water body.
vii.	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.	:	The vehicles namely Jeeps, Trucks, Ambulance, Pick-up Vans and hired vehicles are having valid PUC Certificate. from RTO authorized agencies. Proper check-up and maintenance and monitoring of Hydraulic HEMM is being done

			regularly.
viii.	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Board and data got analyzed through a laboratory recognized under EPA Rules, 1986.	:	Centralized Environmental laboratory has been established CMPDIL, RI-IV (Regional institute of CMPDIL, a subsidiary of CIL and ISO certified consultant for giving total support to all the coal producing subsidiary of CIL) at Nagpur for catering to the needs of WCL exclusively. The schedule of monitoring every fortnight is communicated to SPCB to the respective Regional Offices in advance.
ix.	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.	:	Protective health & safety gears are provided to workmen exposed to dust, namely, Dust Mask, Helmets, Safety Boots, and Goggles, as per DGMS specifications. The workers are regularly given training as well as Re-training/Refresher training on safety & health aspects (Statutory requirement under Mines Act).
x.	Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.	:	Periodical medical examination is carried out for each employee once in every 5 year to detect any disease so that, appropriate action can be taken and its record is maintained.

Contd.11

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
xi.	A separate environmental management cell with suitable qualified personnel shall be set up under the control of Senior Executive, who will report directly to the Head of the company.	:	At project level, Environmental Management Cell is headed by Sub Area Manager and is assisted directly by Project Nodal Officer (Environment)/ Sr. Manager (Civil). At Area level, AGM heads the cell assisted by Area Nodal Officer (Environment), GM(Environment) heads the Environment Department at HQ /Corporate level with a multidisciplinary team of qualified and trained Engineers.
xii.	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this ministry and its concerned Regional Office.	:	The funds have been earmarked for environmental protection measures are kept in separate account and are not used for any other purpose. The expenditure both under Capital & Revenue for the current year as well as progressive is enclosed with this report.
xiii.	The Project authorities shall advertise at	:	The advertisement has been published in the

	least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State pollution Control Board and may also be seen at the website of the ministry of Environment & Forest at http://envfor.nic.in.		news paper (English – The Hitavada, Marathi – Lokmat).
xiv.	A copy of the environmental clearance letter shall be marked to concern Panchayat/Zila Parishad, Municipal Corporation or Urban local body and local NGO, if nay, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website.	:	A copy of the environmental clearance letter has already been marked to concerned Sarpanch of the Village Panchayat. The receipt of the same by Sarpanch of Ukni Gram-panchyat is enclosed vide letter No. WCL/WNA/SAM/CIVIL/UOC/2013-14/599 dt 06.02.2014
xv.	A copy of the environmental clearance letter shall be shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the regional Office, District industry Sector and Collector's office/Tahsildar's Office for 30 days.	:	Not applicable.

Contd.12

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
xvi.	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM10, OM2.5, SO2 and NOx (ambient)and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website.	:	EC letter has already been uploaded in the WCL web site. The Environmental quality monitoring data, Annual Environment (Audit) Statement and land Reclamation Monitoring reports (Carried out through satellite Monitoring) are also uploaded in company's website regularly updated.
xvii.	The project proponent shall submit six monthly compliance reports on status of	:	----------Agreed-------

	compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective regional Office of the Ministry, respective Zonal Office's of CPCB and the SPCB.		
xviii.	The Regional Office of this Ministry located in the Region shall monitor compliance of the stipulated conditions. The project authorities shall extend full cooperation to the office (S) of the regional Office by furnishing the requisite data/information/monitoring reports.	:	----------Noted.---------- All necessary co-operation will be extended to regional Office, Nagpur.
xix.	The Env. statement for each financial year ending 31st March in Form-V is mandated to be submitted by the project proponent for the concerned State pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by e-mail.	:	----------Agreed------- Environment Statement (Form V) for the FY 2023-24 has been submitted in Maharashtra Pollution Control Board web portal.

19/5/25

Colliery Manager
Ukni deep OCM
Wani North Area

19/5/25

S.O.E (Civil) / N.O.(Env)
Ukni-Junad Sub Area
Wani North Area

19/5/25

Sub Area Manager
Ukni-Junad Sub Area
Wani North Area



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ENVIRONMENTAL MONITORING REPORT

UKNI DEEP OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

OCTOBER 2024

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report		
TEST REPORT NO.	RIN/TR/OCT-24/29	DATE OF ISSUE	25.11.2024
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-10-24 TO 15-11-24

WORKSHOP PREMISES		WNUOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
08.10.2024	09.10.2024	283	192	37	14	10	CLEAR/LIGHT BREEZE
21.10.2024	22.10.2024	262	178	33	12	BDL	CLEAR/LIGHT BREEZE
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		**600**	**300**	**-**	**120**	**120**	

BHALAR TOWNSHIP		WNUOA2				
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	
05.10.2024	06.10.2024	82	29	10	BDL	CLEAR/LIGHT BREEZE
06.10.2024	07.10.2024	71	23	9	BDL	CLOUDY/CALM
12.10.2024	13.10.2024	88	26	9	BDL	CLEAR/MODERATE BREEZE
13.10.2024	14.10.2024	63	18	8	BDL	CLOUDY/CALM
18.10.2024	19.10.2024	88	32	10	BDL	CLEAR/LIGHT BREEZE
19.10.2024	20.10.2024	69	23	9	BDL	CLOUDY / CALM
25.10.2024	26.10.2024	78	29	9	BDL	CLEAR/MODERATE BREEZE
26.10.2024	27.10.2024	70	24	8	BDL	CLEAR/LIGHT BREEZE
30.10.2024	31.10.2024	72	22	9	BDL	CLEAR/MODERATE BREEZE
31.10.2024	01.11.2024	68	24	10	BDL	CLEAR/LIGHT BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

UKNI VILLAGE		WNUOA3				
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	
14.10.2024	15.10.2024	72	25	8	BDL	CLEAR/MODERATE BREEZE
27.10.2024	28.10.2024	84	29	10	BDL	CLEAR/MODERATE BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

PIMPRI VILLAGE		WNKOA3				
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	
03.10.2024	04.10.2024	81	26	9	BDL	CLEAR/CALM
04.10.2024	05.10.2024	89	29	10	BDL	CLEAR/CALM
10.10.2024	11.10.2024	75	19	7	BDL	CLEAR/CALM
11.10.2024	12.10.2024	85	23	8	BDL	CLEAR/CALM
16.10.2024	17.10.2024	86	31	10	BDL	CLEAR/CALM
17.10.2024	18.10.2024	74	23	9	BDL	CLEAR/CALM
23.10.2024	24.10.2024	79	29	10	BDL	CLEAR/CALM
24.10.2024	25.10.2024	66	20	8	BDL	CLEAR/CALM
28.10.2024	29.10.2024	72	22	10	BDL	CLEAR/CALM
29.10.2024	30.10.2024	82	26	12	BDL	CLEAR/CALM
NAAQS, 2009		**100**	**60**	**80**	**80**	

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

FUGITIVE DUST MONITORING

TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017) & PM2.5: USEPA Quality Assurance guidance			
SAMPLE DESCRIPTION	Air sample(Fugitive)			
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:			16-10-24 TO 15-11-24

WEIGH BRIDGE		WNUOF1		
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	
FROM	TO	5	5	
21.10.2024	22.10.2024	358	233	CLEAR / LIGHT BREEZE

CHP		WNOF2		
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	
FROM	TO	5	5	
21.10.2024	22.10.2024	351	236	CLEAR / LIGHT BREEZE

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

SAMPLE DESCRIPTION	Water sample			
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)			
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-10-24 TO 15-11-24

MINE WATER DISCHARGE:	WNUOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
15.10.2024	7.85	30	44	BDL
28.10.2024	7.75	20	32	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNUOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
15.10.2024	8.20	28	40	BDL
28.10.2024	8.16	24	32	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

STP DISCHARGE:	WNUOW3	
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS	
	TSS (in mg/l)	BOD(in mg/l)
DETECTION LIMIT	10	2
15.10.2024	24	12
28.10.2024	30	16
GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENT POLLUTANTS GSR 801E EPA 1993	100	30

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

NOISE LEVEL MONITORING DATA

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

CHP:		WNUON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
OCT'24	09.10.2024	70.4	67.3
OCT'24	21.10.2024	67.4	65.1
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY:		WNUON2	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
OCT'24	09.10.2024	45.3	44.2
OCT'24	21.10.2024	43.4	41.6
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Amol Kamble
Reviewed by

Deepanshu Sahu
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ENVIRONMENTAL MONITORING REPORT

UKNI DEEP OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

NOVEMBER 2024

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

AN ISO 9001:2015 COMPANY

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

TEST REPORT NO.	RIN/TR/NOV-24/29	DATE OF ISSUE	24.12.2024
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-11-24 TO 15-12-24

WORKSHOP PREMISES		WNUOA1				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)				ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2
FROM	TO	5	5	2	6	10
09.11.2024	10.11.2024	260	188	43	14	10	CLEAR/LIGHT BREEZE
23.11.2024	24.11.2024	286	192	48	16	13	CLEAR/LIGHT BREEZE
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		**600**	**300**	**-**	**120**	**120**	

BHALAR TOWNSHIP		WNUOA2				
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	
06.11.2024	07.11.2024	74	24	9	BDL	CLEAR/LIGHT BREEZE
07.11.2024	08.11.2024	86	30	10	BDL	CLEAR/LIGHT BREEZE
13.11.2024	14.11.2024	67	18	8	BDL	CLEAR/LIGHT BREEZE
14.11.2024	15.11.2024	79	28	9	BDL	CLEAR/LIGHT BREEZE
20.11.2024	21.11.2024	88	29	11	BDL	CLEAR/LIGHT BREEZE
21.11.2024	22.11.2024	71	22	8	BDL	CLEAR/CALM
27.11.2024	28.11.2024	92	26	10	BDL	EAR/MODERATE BREE
28.11.2024	29.11.2024	82	23	10	BDL	CLEAR/LIGHT BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

UKNI VILLAGE		WNUOA3				
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	
03.11.2024	04.11.2024	69	23	9	BDL	EAR/MODERATE BREE
17.11.2024	18.11.2024	83	27	10	BDL	EAR/MODERATE BREE
NAAQS, 2009		**100**	**60**	**80**	**80**	

PIMPRI VILLAGE		WNKOA3				
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	
04.11.2024	05.11.2024	72	24	8	BDL	CLEAR/CALM
05.11.2024	06.11.2024	82	29	9	BDL	CLEAR/CALM
11.11.2024	12.11.2024	67	18	9	BDL	CLEAR/CALM
12.11.2024	13.11.2024	77	22	9	BDL	CLEAR/CALM
18.11.2024	19.11.2024	80	29	10	BDL	CLEAR/LIGHT BREEZE
19.11.2024	20.11.2024	88	32	8	BDL	CLEAR/LIGHT BREEZE
25.11.2024	26.11.2024	76	25	7	BDL	CLEAR/CALM
26.11.2024	27.11.2024	70	21	7	BDL	CLEAR/CALM
NAAQS, 2009		**100**	**60**	**80**	**80**	

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

SAMPLE DESCRIPTION	Water sample			
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)			
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-11-24 TO 15-12-24

MINE WATER DISCHARGE:	WNUOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
10.11.2024	7.93	24	32	BDL
25.11.2024	7.88	26	36	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNUOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
10.11.2024	8.15	26	40	BDL
25.11.2024	8.36	28	44	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

STP DISCHARGE:	WNUOW3	
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS	
	TSS (in mg/l)	BOD(in mg/l)
DETECTION LIMIT	10	2
10.11.2024	26	14
25.11.2024	28	12
GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENT POLLUTANTS GSR 801E EPA 1993	100	30

Analysed by

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	

NOISE LEVEL MONITORING DATA

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

CHP:		WNUON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
NOV'24	09.11.2024	67.6	65.4
NOV'24	26.11.2024	68.4	66.2
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY:		WNUON2	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
NOV'24	09.11.2024	43.2	41.4
NOV'24	26.11.2024	45.6	43.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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WESTERN COALFIELDS LTD.

JOB NO. 4094423068

DECEMBER 2024

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

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

TEST REPORT NO.	RIN/TR/DEC-24/29	DATE OF ISSUE	28-01-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-12-24 TO 15-01-25

WORKSHOP PREMISES		WNUOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
08-12-2024	09-12-2024	273	182	43	14	11	CLEAR/LIGHT BREEZE
22-12-2024	23-12-2024	309	201	49	18	13	CLEAR/LIGHT BREEZE
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		**600**	**300**	**-**	**120**	**120**	

BHALAR TOWNSHIP		WNUOA2				
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	
05-12-2024	06-12-2024	78	27	9	BDL	CLEAR/LIGHT BREEZE
06-12-2002	07-12-2002	71	21	8	BDL	CLEAR/CALM
12-12-2024	13-12-2024	86	31	10	BDL	CLEAR/MODERATE BREEZE
13-12-2024	14-12-2024	82	25	10	BDL	CLEAR/LIGHT BREEZE
19-12-2024	20-12-2024	93	34	12	BDL	CLEAR/LIGHT BREEZE
20-12-2024	21-12-2024	71	27	10	BDL	CLEAR/CALM
26-12-2024	27-12-2024	83	30	11	BDL	CLEAR/MODERATE BREEZE
27-12-2024	28-12-2024	77	29	11	BDL	CLEAR/LIGHT BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

UKNI VILLAGE		WNUOA3				
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	
02-12-2024	03-12-2024	74	23	8	BDL	CLEAR/MODERATE BREEZE
16-12-2024	17-12-2024	88	29	10	BDL	CLEAR/MODERATE BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

PIMPRI VILLAGE		WNKOA3				
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	
03-12-2024	04-12-2024	88	32	10	BDL	CLEAR/CALM
04-12-2024	05-12-2024	71	25	9	BDL	CLEAR/CALM
10-12-2024	11-12-2024	86	29	10	BDL	CLEAR/CALM
11-12-2024	12-12-2024	69	20	8	BDL	CLEAR/CALM
17-12-2024	18-12-2024	76	29	9	BDL	CLEAR/LIGHT BREEZE
18-12-2024	19-12-2024	89	31	10	BDL	CLEAR/CALM
24-12-2024	25-12-2024	61	25	8	BDL	CLEAR/LIGHT BREEZE
25-12-2024	26-12-2024	80	29	9	BDL	CLEAR/LIGHT BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

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

SAMPLE DESCRIPTION	Water sample			
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)			
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-12-24 TO 15-01-25

MINE WATER DISCHARGE:	WNUOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
13-12-2024	7.85	28	44	BDL
26-12-2024	7.50	20	40	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNUOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
13-12-2024	7.89	20	32	BDL
25-12-2024	8.08	26	44	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

STP DISCHARGE:	WNUOW3	
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS	
	TSS (in mg/l)	BOD(in mg/l)
DETECTION LIMIT	10	2
13-12-2024	24	12
26-12-2024	32	16
GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENT POLLUTANTS GSR 801E EPA 1993	100	30

Analysed by

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

NOISE LEVEL MONITORING DATA

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

CHP:	WNUON1		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
DEC'24	09-12-2024	67.5	65.4
DEC'24	23-12-2024	68.1	66.2
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY:	WNUON2		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
DEC'24	09-12-2024	44.2	42.1
DEC'24	23-12-2024	45.4	43.1
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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ENVIRONMENTAL MONITORING REPORT

UKNI DEEP OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

JANUARY 2025

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

TEST REPORT NO.	RIN/TR/JAN-25/29	DATE OF ISSUE	25-02-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-01-25 TO 15-02-25

WORKSHOP PREMISES		WNUOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
07-01-2025	08-01-2025	332	229	57	18	15	CLOUDY/MODERATE BREEZE
21-01-2025	22-01-2025	290	197	50	15	11	CLOUDY/MODERATE BREEZE
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		**600**	**300**	**-**	**120**	**120**	

BHALAR TOWNSHIP		WNUOA2				
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	
03-01-2025	04-01-2025	82	28	10	BDL	CLEAR/LIGHT BREEZE
04-01-2025	05-01-2025	77	22	9	BDL	CLEAR/CALM
10-01-2025	11-01-2025	93	32	11	BDL	CLEAR/MODERATE BREEZE
11-01-2025	12-01-2025	71	26	9	BDL	CLOUDY/MODERATE BREEZE
17-01-2025	18-01-2025	82	29	10	BDL	CLEAR/LIGHT BREEZE
18-01-2025	19-01-2025	69	20	8	BDL	CLEAR/CALM
24-01-2025	25-01-2025	91	34	12	BDL	CLEAR/MODERATE BREEZE
25-01-2025	26-01-2025	82	26	11	BDL	CLOUDY/MODERATE BREEZE
29-01-2025	30-01-2025	74	21	10	BDL	CLEAR/MODERATE BREEZE
30-01-2025	31-01-2025	89	28	11	BDL	CLOUDY/MODERATE BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

UKNI VILLAGE		WNUOA3				
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	
05-01-2025	06-01-2025	74	23	9	BDL	CLEAR/MODERATE BREEZE
19-01-2025	20-01-2025	88	29	9	BDL	CLEAR/MODERATE BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

PIMPRI VILLAGE		WNKOA3				
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	
01-01-2025	02-01-2025	72	21	9	BDL	CLEAR/CALM
02-01-2025	03-01-2025	85	26	10	BDL	CLEAR/CALM
08-01-2025	09-01-2025	93	30	10	BDL	CLEAR/CALM
09-01-2025	10-01-2025	66	18	7	BDL	CLEAR/CALM
13-01-2025	14-01-2025	75	24	10	BDL	CLEAR/CALM
16-01-2025	17-01-2025	69	20	7	BDL	CLEAR/CALM
22-01-2025	23-01-2025	72	27	8	BDL	CLEAR/CALM
23-01-2025	24-01-2025	86	30	9	BDL	CLEAR/CALM
27-01-2025	28-01-2025	62	20	7	BDL	CLEAR/CALM
28-01-2025	29-01-2025	77	25	9	BDL	CLEAR/CALM
NAAQS, 2009		**100**	**60**	**80**	**80**	

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

SAMPLE DESCRIPTION	Water sample			
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)			
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-01-25 TO 15-02-25

MINE WATER DISCHARGE:	WNUOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
12-01-2025	8.20	36	52	BDL
29-01-2025	7.59	28	36	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	**5.5 - 9.0**	**100**	**250**	**10**

ETP DISCHARGE:	WNUOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
12-01-2025	8.28	30	40	BDL
29-01-2025	7.88	24	36	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	**5.5 - 9.0**	**100**	**250**	**10**

STP DISCHARGE:	WNUOW3	
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS	
	TSS (in mg/l)	BOD(in mg/l)
DETECTION LIMIT	10	2
12-01-2025	24	12
29-01-2025	28	14
GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENT POLLUTANTS GSR 801E EPA 1993	**100**	**30**

Analysed by

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

NOISE LEVEL MONITORING DATA

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

CHP:		WNUON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JAN'25	11-01-2025	68.7	66.6
JAN'25	26-01-2025	69.1	67.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY:		WNUON2	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JAN'25	11-01-2025	43.5	41.2
JAN'25	26-01-2025	42.6	40.1
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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ENVIRONMENTAL MONITORING REPORT

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

TEST REPORT NO.	RIN/TR/FEB-25/29	DATE OF ISSUE	25-03-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-02-25 TO 15-03-25

WORKSHOP PREMISES		WNUOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
09-02-2025	10-02-2025	273	182	43	14	11	CLOUDY/MODERATE BREEZE
23-02-2025	24-02-2025	251	168	35	12	10	CLEAR/MODERATE BREEZE
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		600	300	-	120	120	

BHALAR TOWNSHIP		WNUOA2				
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	
05-02-2025	06-02-2025	78	27	9	BDL	CLEAR/LIGHT BREEZE
06-02-2025	07-02-2025	71	21	8	BDL	CLEAR/CALM
12-02-2025	13-02-2025	86	31	10	BDL	CLEAR/MODERATE BREEZE
13-02-2025	14-02-2025	82	25	10	BDL	CLOUDY/MODERATE BREEZE
19-02-2025	20-02-2025	79	26	9	BDL	CLEAR/LIGHT BREEZE
20-02-2025	21-02-2025	66	20	8	BDL	CLEAR/CALM
26-02-2025	27-02-2025	88	30	10	BDL	CLEAR/MODERATE BREEZE
27-02-2025	28-02-2025	93	33	11	BDL	CLEAR/MODERATE BREEZE
NAAQS, 2009		100	60	80	80	

UKNI VILLAGE		WNUOA3				
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	
07-02-2025	08-02-2025	74	23	8	BDL	CLEAR/MODERATE BREEZE
21-02-2025	22-02-2025	88	29	10	BDL	CLEAR/MODERATE BREEZE
NAAQS, 2009		100	60	80	80	

PIMPRI VILLAGE		WNKOA3				
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	
03-02-2025	04-02-2025	88	32	10	BDL	CLEAR/CALM
04-02-2025	05-02-2025	71	25	9	BDL	CLEAR/CALM
10-02-2025	11-02-2025	86	29	10	BDL	CLEAR/CALM
11-02-2025	12-02-2025	69	20	8	BDL	CLEAR/CALM
17-02-2025	18-02-2025	72	22	8	BDL	CLEAR/CALM
18-02-2025	19-02-2025	66	18	7	BDL	CLEAR/CALM
24-02-2025	25-02-2025	81	28	9	BDL	CLEAR/CALM
25-02-2025	26-02-2025	75	25	8	BDL	CLEAR/CALM
NAAQS, 2009		100	60	80	80	

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SAMPLE DESCRIPTION	Water sample			
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)			
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-02-25 TO 15-03-25

MINE WATER DISCHARGE:	WNUOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
13-02-2025	7.87	24	40	BDL
27-02-2025	7.81	46	52	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	**5.5 - 9.0**	**100**	**250**	**10**

ETP DISCHARGE:	WNUOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
13-02-2025	8.25	26	36	BDL
27-02-2025	8.07	22	32	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	**5.5 - 9.0**	**100**	**250**	**10**

STP DISCHARGE:	WNUOW3	
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS	
	TSS (in mg/l)	BOD(in mg/l)
DETECTION LIMIT	10	2
13-02-2025	22	12
27-02-2025	38	16
GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENT POLLUTANTS GSR 801E EPA 1993	**100**	**30**

Analysed by

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

NOISE LEVEL MONITORING DATA

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

CHP:	WNUON1		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
FEB'25	09-02-2025	70.8	68.5
FEB'25	21-02-2025	68.1	65.3
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY:	WNUON2		
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
FEB'25	09-02-2025	44.1	43.8
FEB'25	21-02-2025	42.6	40.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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WANI NORTH AREA

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

TEST REPORT NO.	RIN/TR/MAR-25/29	DATE OF ISSUE	15-04-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-03-25 TO 15-04-25

WORKSHOP PREMISES		WNUOA1					
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	TO	5	5	2	6	10	
08-03-2025	09-03-2025	291	202	50	16	13	CLEAR/MODERATE BREEZE
27-03-2025	28-03-2025	254	160	30	14	10	CLEAR/LIGHT BREEZE
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH DECember 2000		**600**	**300**	**-**	**120**	**120**	

BHALAR TOWNSHIP		WNUOA2				
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	
04-03-2025	05-03-2025	83	31	8	BDL	CLEAR/LIGHT BREEZE
05-03-2025	06-03-2025	69	24	7	BDL	CLEAR/CALM
11-03-2025	12-03-2025	79	29	8	BDL	CLEAR/MODERATE BREEZE
12-03-2025	13-03-2025	86	37	9	BDL	CLEAR/MODERATE BREEZE
18-03-2025	19-03-2025	89	28	10	BDL	CLEAR/LIGHT BREEZE
19-03-2025	20-03-2025	72	24	9	BDL	CLEAR/CALM
25-03-2025	26-03-2025	80	27	10	BDL	CLEAR/LIGHT BREEZE
26-03-2025	27-03-2025	96	32	11	BDL	CLEAR/LIGHT BREEZE
28-03-2025	29-03-2025	81	26	10	BDL	CLEAR/LIGHT BREEZE
29-03-2025	30-03-2025	90	30	11	BDL	CLEAR/MODERATE BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

UKNI VILLAGE		WNUOA3				
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	
07-03-2025	08-03-2025	68	20	7	BDL	CLEAR/MODERATE BREEZE
21-03-2025	22-03-2025	77	25	9	BDL	CLEAR/LIGHT BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

PIMPRI VILLAGE		WNKOA3				
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	
02-03-2025	03-03-2025	74	23	8	BDL	CLEAR/CALM
03-03-2025	04-03-2025	64	18	7	BDL	CLEAR/CALM
09-03-2025	10-03-2025	88	29	10	BDL	CLEAR/CALM
10-03-2025	11-03-2025	79	26	9	BDL	CLEAR/CALM
16-03-2025	17-03-2025	88	31	9	BDL	CLEAR/CALM
17-03-2025	18-03-2025	79	27	7	BDL	CLEAR/CALM
23-03-2025	24-03-2025	66	20	7	BDL	CLEAR/CALM
24-03-2025	25-03-2025	71	24	8	BDL	CLEAR/CALM
28-03-2025	29-03-2025	86	29	10	BDL	CLEAR/CALM
29-03-2025	30-03-2025	63	19	8	BDL	CLEAR/CALM
NAAQS, 2009		**100**	**60**	**80**	**80**	

Analysed by

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

FUGITIVE DUST MONITORING

TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017) & PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016		
SAMPLE DESCRIPTION	Air sample(Fugitive)		
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-03-25 TO 15-04-25

WEIGH BRIDGE		WNUOF1		
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	
FROM	TO	5	5	
09-03-2025	10-03-2025	455	332	CLEAR/LIGHT BREEZE

CHP		WNOF2		
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m^3)		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM_{10}	
FROM	TO	5	5	
09-03-2025	10-03-2025	438	321	CLEAR/LIGHT BREEZE

Analysed by

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

SAMPLE DESCRIPTION	Water sample			
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)			
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-03-25 TO 15-04-25

MINE WATER DISCHARGE:	WNUOW1			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-03-2025	7.88	32	48	BDL
29-03-2025	7.66	36	56	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE:	WNUOW2			
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-03-2025	7.99	24	40	BDL
29-03-2025	7.83	20	36	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

STP DISCHARGE:	WNUOW3	
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS	
	TSS (in mg/l)	BOD(in mg/l)
DETECTION LIMIT	10	2
08-03-2025	30	14
29-03-2025	24	12
GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENT POLLUTANTS GSR 801E EPA 1993	100	30



Analysed by

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

NOISE LEVEL MONITORING DATA

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

CHP:		WNUON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAR'25	06-03-2025	71.8	68.5
MAR'25	25-03-2025	68.1	66.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY:		WNUON2	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAR'25	06-03-2025	43.5	42.8
MAR'25	25-03-2025	44.2	42.3
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45



Amol Kamble
Reviewed by



M. Rabbani
Authoriesed by

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

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

WANI NORTH AREA

WESTERN COALFIELDS LTD.

HALF YEARLY (OCT 24 - MAR 25)

Environment Laboratory
NABL Accredited vide Cert. No. TC-7102

CMPDI

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

AN ISO 9001:2015 COMPANY

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Sl. No.	PARTICULARS	PAGE NO.
1	HEAVY METAL ANALYSIS REPORT	1 TO 15

Environment Laboratory CMPDI RI-IV, NAGPUR	**Test Report** **Ambient Air Quality Monitoring Data For Heavy Metals**	

TEST REPORT NO.	RIN/TR/DEC /HM82	DATE OF ISSUE	28-01-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/443-455 DATED 03.04.2024		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI NORTH	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	UKNI OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	WORKSHOP PREMISES	WNUOA-1	08-10-2024
2	BHALAR TOWNSHIP	WNUOA-2	05-10-2024
3	UKNI VILLAGE	WNUOA-3	14-10-2024

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

BDL: BELOW DETECTION LIMIT

SCIENTIFIC ASSISTANT

M. RABBANI
AUTHORIZED SIGNATORY

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Environment Laboratory CMPDI RI-IV, NAGPUR	**Test Report** **Ambient Air Quality Monitoring Data For Heavy Metals**	

TEST REPORT NO.	RIN/TR/DEC /HM90	DATE OF ISSUE	28-01-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/443-455 DATED 03.04.2024		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI NORTH	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	UKNI OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	WEIGH BRIDGE	WNUOF-1	21-10-2024
2	CHP	WNUOF-2	21-10-2024

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value		National Ambient Air Quality Standard NAAQS, 2009
				WNUOF-1	WNGOA-2	
1	Arsenic, µg/m^3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	0.006 µg/m^3 (Annual average)
2	Lead, µg/m3	IS 5182 PART 22	7.0 µg/m^3	BDL	BDL	1.0 µg/m^3 (24 Hourly average)
3	Nickle, µg/m^3	ASTM D 4185	0.007 µg/m^3	0.0081	0.0071	0.02 µg/m3 (Annual average)
4	Total Chromium, µg/m^3	ASTM D 4185	0.0045 µg/m^3	BDL	BDL	**
5	Cadmium, µg/m^3	ASTM D 4185	0.0015 µg/m^3	BDL	BDL	**
6	Mercury, µg/m3	ASTM D 4185	0.0007 µg/m^3	BDL	BDL	**

BDL: BELOW DETECTION LIMIT

SCIENTIFIC ASSISTANT

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REPORT ON

MONITORING OF GROUND WATER LEVEL

OF

UKNI DEEP OC MINES,

WANI NORTH 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), NOV (POST-MONSOON) 2024 & JAN 2025 (WINTER)

M/s Anacon Laboratories Pvt. Ltd., Nagpur

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

2023-24 & 2024-25

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 & second extension of work vide reference no. वेकोलि/मुख्यालय/पर्यावरण /14-L/48-60 Dated-01.01.2025 for the Jan 2025 (winter) Period.

The report includes the monitoring of groundwater levels and water quality analysis of observation wells pertaining to the UKNI DEEP OC MINES, Wani North area of Yeotmal District, M.S.

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

ANACON LABORATORIES PVT. LTD. NAGPUR

Nagpur
Jan-2025

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

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ANACON LABORATORIES PVT. LTD. NAGPUR

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 & second extension of work vide reference no. वेकोलि/मुख्यालय/पर्यावरण /14-L/48-60 Dated- 01.01.2025 for the Jan 2025 (winter) Period.

This Ground Water Level Monitoring report is prepared UKNI DEEP OC MINES,of Wani North area of WCL for 10 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), NOV (POST-MONSOON) 2024 & JAN 2025 (WINTER).**These mines are located in Wani North Area of Yeotmal District, Maharashtra.

GENERAL HYDROGEOLOGICAL CONDITION

Deccan Trap Basalt is the predominant water bearing formation, followed by Gondwana formation having Sandstone and Shale sequence. Penganga and Quaternary Alluvium aquifers are spread in limited areas. Archean aquifers are limited and have less significance in the area.

ARCHEAN

Achaeans, which comprise granites, granitic gneisses and schists, occur in Umarkhed taluka. These rocks as such have limited ground water potential. In these rocks only weathered portions and jointed zones possess water-bearing capacity and ground water occurs under unconfined condition in the area.

VINDHYAN

In Vindhyans, Limestones are water bearing formation while Sandstone, due to their hard and compact nature, have poor ground water potential and occur in southeastern peripheral parts of Wani taluka. The Limestones as such are massive but wherever they are cavernous they are capable of holding water. The ground water occurs under unconfined condition in the area.

GONDWANA

The Gondwana consists of Kamthi and Barakar Sandstone and Shale and occupy north-south extending elongated stretch in parts of Maregaon and Wani talukas. Sandstone is usually friable and possesses primary porosity due to its granular nature. They are most productive water bearing formations in the district. The ground water occurs under semi confined to confined conditions in the area and water bearing zones have been encountered down to depth of 470 m.

DECCAN TRAP BASALT

Deccan Trap Basalt is widely spread and forms important water bearing formation, which occupies almost entire district except south eastern part. On the whole, Deccan Trap Basalt exhibits a multi aquifer system. Based on the Litholog of 51 exploratory wells and Piezometers, it is observed that weathered Vesicular Basalt mainly forms the predominant shallow aquifer down to the depth of 20 m bgl. Massive Basalt is also encountered at the top thereby forming poor yielding aquifer and also restricting the ground water recharge to the underlying porous Vesicular Basalt. Fractured Basalt is also observed in certain places with limited to significant thickness. In Deccan Trap Basalt phreatic aquifer generally occurs down to 25 m, however, fracture zones have occurred within 80 m range except at few places where it occurs down to 158 m also.

ALLUVIUM

Alluvium occurs in patches along the banks of Wardha and Penganga rivers and their major tributaries and consists of clay and silt with lenticular bodies of sand and gravel. In Ralegaon area, it is observed that sand zones are found in the depth range of 20-25 m bgl, while the top 15-16 m is full of clay and silt. Ground water in Alluvium occurs both under unconfined and 8 semi-confined conditions.



UKNI DEEP OC MINES,

WANI NORTH 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), NOV (POST-MONSOON) 2024 & JAN 2025 (WINTER)



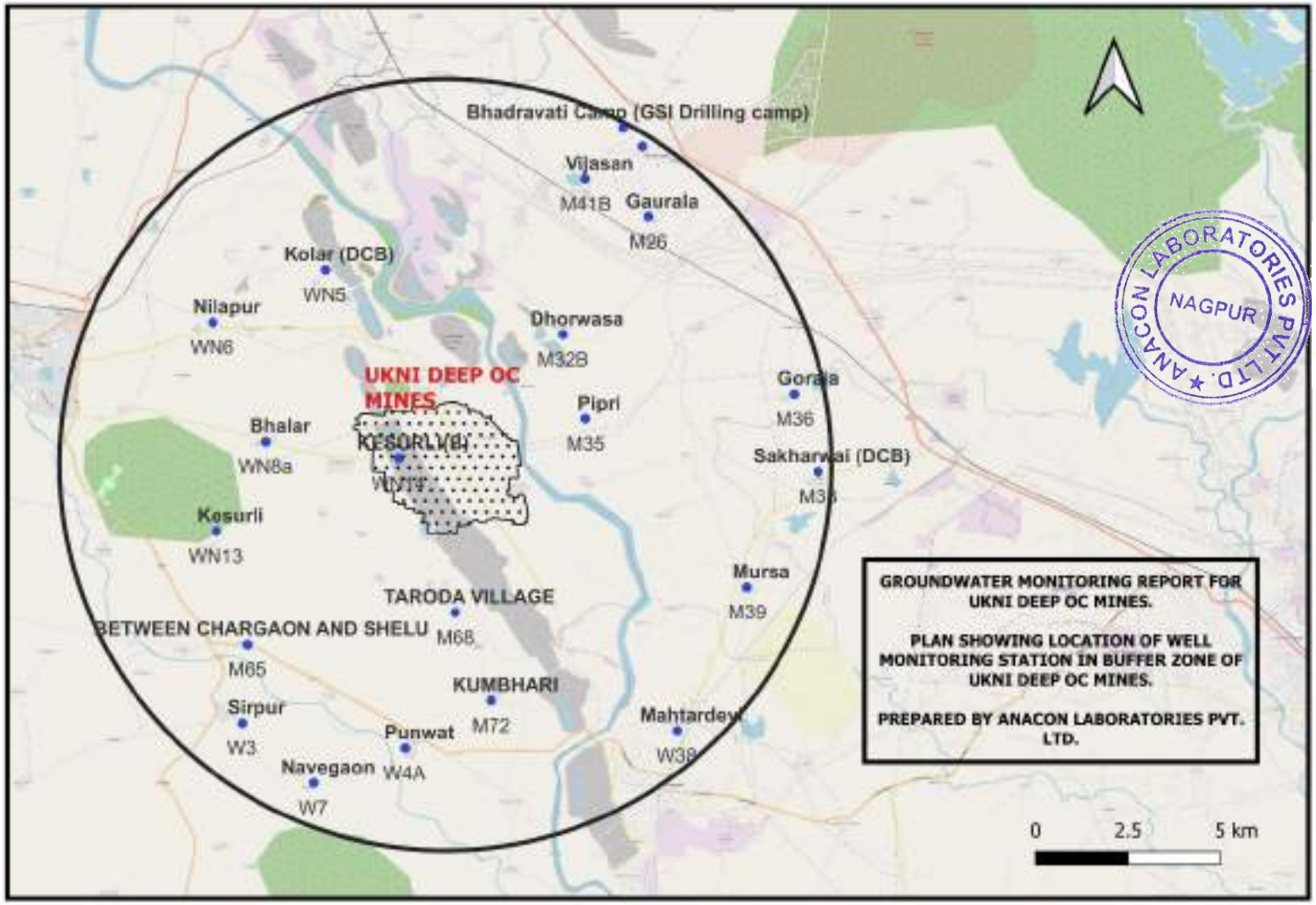


FIGURE-I : GROUND WATER MONITORING STATION (OBSERVATION WELLS IN AND AROUND OF UKNI DEEP OC MINE)

Table- IA: Groundwater level monitoring data of dugwells/piezometers in buffer zone of Ukni Deep OC , Wani North Area, WCL

Sr. No	Well No.	Name of village	Well location	Latitude	Longitude	R.L. in m	Well dia (m)	Well depth (m bmp)	Height of measuring point (m agl)	Depth to Water Level (m bgl)										Utility / Owner	Formation Tapped
										Dec-22	JAN-FEB-23	May-23	Aug-23	Nov-23	Jan-24	May-24	Aug-24	Nov-24	Jan-25		
1	W3	Sirpur	700 m W of village in field, near to Mendholi road junction	19°57'33.3283058629647"	79°0'28.97774076931 23"	210	4.21	7.05	0.27	2.10	2.80	4.8	1.50	2.90	3.10	5.00	1.30	2.60	3.00	DOMESTIC	LIMESTONE
2	W4	Punwat	W of village, low lying area, Twin wells 50m apart	19°57'9.94109204433613"	79°3'0.776787366426096"	216	4.57	4.93	0.67	1.10	3.30	4.3	2.60	4.00	3.80	4.10	2.00	3.80	4.15	DOMESTIC	BASALT
3	W4A	Punwat 2	Near Hospital	19°57'9.85"	79°3'0.75"	221	2.3	8	0.34	2.50	2.90	3.9	2.75	3.30	3.50	4.00	2.80	3.15	3.40	DOMESTIC	BASALT
4	W7	Navegaon	About of 300 m N of village, adjacent to Sirpur road	19°56'37.5497120752541"	79°1'35.73452786283 95"	220	3.81	4.67	0.24	2.10	3.10	4.3	3.00	2.90	3.20	4.50	2.90	2.95	3.10	DOMESTIC	BASALT
5	W38	Mahtard evi	S of the village, adjacent to village road	19°57'26.2228297765034"	79°7'14.66092402360 34"	212	2.47	15.12	0.67	4.60	5.00	8.1	3.10	3.80	5.20	8.00	2.80	3.85	4.90	IRRIGATION	SHELLY LIMESTONE
6	WN6	Nilapur	About 800 m W of village, adjacent to Wani road	20°3'47.1976829585572"	79°0'1.446359869760 27"	197	4.95	9.2	0.34	2.10	3.50	4.2	1.60	2.30	3.40	4.35	1.50	2.40	3.30	D/I	
7	WN8a	Bhalar	Near bus stop. Well of Sri. Arun Maruti Goble	20°1'56"	79°0'51"	215	1.55	8.6	0.73	2.60	4.20	6.7	2.30	3.10	4.00	6.10	2.10	3.00	3.80	D/I	
8	WN13	Kesurli	N of village, near Hanuman Mandir	20°0'32.3905962013654"	79°0'4.785185153031 08"	198	2.8	8.5	0.33	3.40	3.70	4.9	2.00	2.60	3.50	5.10	2.20	2.45	3.40	D/I	
9	WN14	KESURLI(B)	TW near Kesurli More on E of Wani road	20°1'40"	79°2'55.2"	210	4	9.3	0.5	2.90	4.55	6.2	1.90	2.00	4.10	5.70	2.00	2.20	3.70	D/I	

Sr. No	Well No.	Name of village	Well location	Latitude	Longitude	R.L. in m	Well dia (m)	Well depth (m bmp)	Height of measuring point (m agl)	Depth to Water Level (m bgl)										Utility / Owner	Formation Tapped
										Dec-22	JAN-FEB-23	May-23	Aug-23	Nov-23	Jan-24	May-24	Aug-24	Nov-24	Jan-25		
10	WN5	Kolar (DCB)	E of village, adjacent to nalla well of Nilkant Pijurkar	20°4'36.126217532636"	79°1'46.45401268508 29"	211	1.82	10.52	0.15	3.40	5.50	7.2	2.00	3.10	5.00	6.80	2.40	2.70	2.70	D/I	
11	M23	Bhadravati Camp (GSI Drilling camp)	N of village (outside) , about 70 m E of Kesurli road after G.S.I drilling camp	20°6'48.6793 512288855"	79°6'24.29 876375212 75"	221	2.68	12.25	0.82	3.6	4	5.3	4.50	5.50	5.00	6.00	5.00	5.10	5.30	DOMESTIC	SHELLY LIMESTONE
12	M23A	Bhadravati killa word	Vivekanand Madhyamik vidhalaya	20°6'31.3914 312007597"	79°6'42.02 757812465 96"	224	2.49	17.74	0.54	5.6	8.2	10.1	3.80	4.60	6.00	9.30	3.70	4.50	5.70	IRRIGATION	SHELLY LIMESTONE
13	M26	Gaurala	C of village, near OHT	20°5'25.727 1036416739"	79°6'47.63 153626709 25"	202	2.59	8.81	0.51	3.2	2.6	4.5	1.90	2.60	2.80	4.20	1.95	2.40	3.00	IRRIGATION	BASALT
14	M32B	Dhorwasa	W of village, adjacent to road & near to embankment	20°3'36"	79°5'28"	204	2.62	9.54	0.54	1.60	3.00	4.9	3.30	3.90	4.10	4.50	3.00	4.20	4.40	IRRIGATION	BASALT
15	M41B	Vijasan	Near ZP school of Balwadi	20°6'0.9012 83823739618 "	79°5'48.96 162714746 31"	213	2.74	12.59	0.82	3.1	2.8	5.7	4.50	6.00	6.50	6.10	4.75	5.70	6.10	DOMESTIC	SHELLY LIMESTONE
16	M35	Pipri	1.5 km NE of village, adjacent to Bhadravati road, near to road culvart infield	20°2'17.27"	79°5'49.07 "	215	1.98	9.38	GL	3.80	4.50	7.7	3.10	4.00	4.70	7.50	3.00	3.70	4.40	IRRIGATION	SHELLY LIMESTONE

Sr. No	Well No.	Name of village	Well location	Latitude	Longitude	R.L. in m	Well dia (m)	Well depth (m bmp)	Height of measuring point (m agl)	Depth to Water Level (m bgl)										Utility / Owner	Formation Tapped
										Dec-22	JAN-FEB-23	May-23	Aug-23	Nov-23	Jan-24	May-24	Aug-24	Nov-24	Jan-25		
17	M36	Goraja	SE of village (60 m outside) near Hanuman Mandir	20°2'40.24"	79°9'4.01"	208	2.22	15.15	0.55	4.70	6.20	11.1	3.60	4.80	6.00	10.00	3.10	4.60	5.50	IRRIGATION	BASALT
18	M38	Sakharwai (DCB)	C of village, near ZP school	20°1'27.85"	79°9'25.94"	204	2.16	9.42	0.36	1.85	3.20	4.4	3.20	3.50	3.80	5.00	2.90	3.60	3.95	IRRIGATION	BASALT
19	M39	Mursa	W of village Ghugus road in field near road junction for Bensan	19°59'39.98"	79°8'19.71"	221	2.32	10.85	0.7	3.1	2.8	5.2	1.70	2.20	3.00	4.50	1.65	1.95	2.75	DOMESTIC	BASALT
20	M65	BETWEEN CHARGAON AND SHELU	IN THE CENTER OF THE VILLAGE	19°58'46.59"	79°0'33.54"	205	3.6	8.7	0.5	2.30	3.00	5.7	2.10	2.40	2.90	5.10	1.80	2.15	3.10	IRRIGATION	BASALT
21	M68	TARODA VILLAGE	OUT SIDE THE VILLAGE IN AGRICULTURE LAND	19°59'16.44"	79°3'47.46"	210	4	9.3	0.4	3.3	4.1	8.4	2.00	3.50	4.30	7.60	2.00	3.80	4.50	IRRIGATION	SHELLY LIMESTONE
22	M72	KUMBHARI	SOUTH 100M TO THE BHASKAR KIRANA STORE	19°57'54.26"	79°4'20.97"	220	3.6	11.2	0.5	3.1	6.8	9.4	3.20	4.30	5.80	9.00	3.00	4.10	5.40	IRRIGATION	SHELLY LIMESTONE

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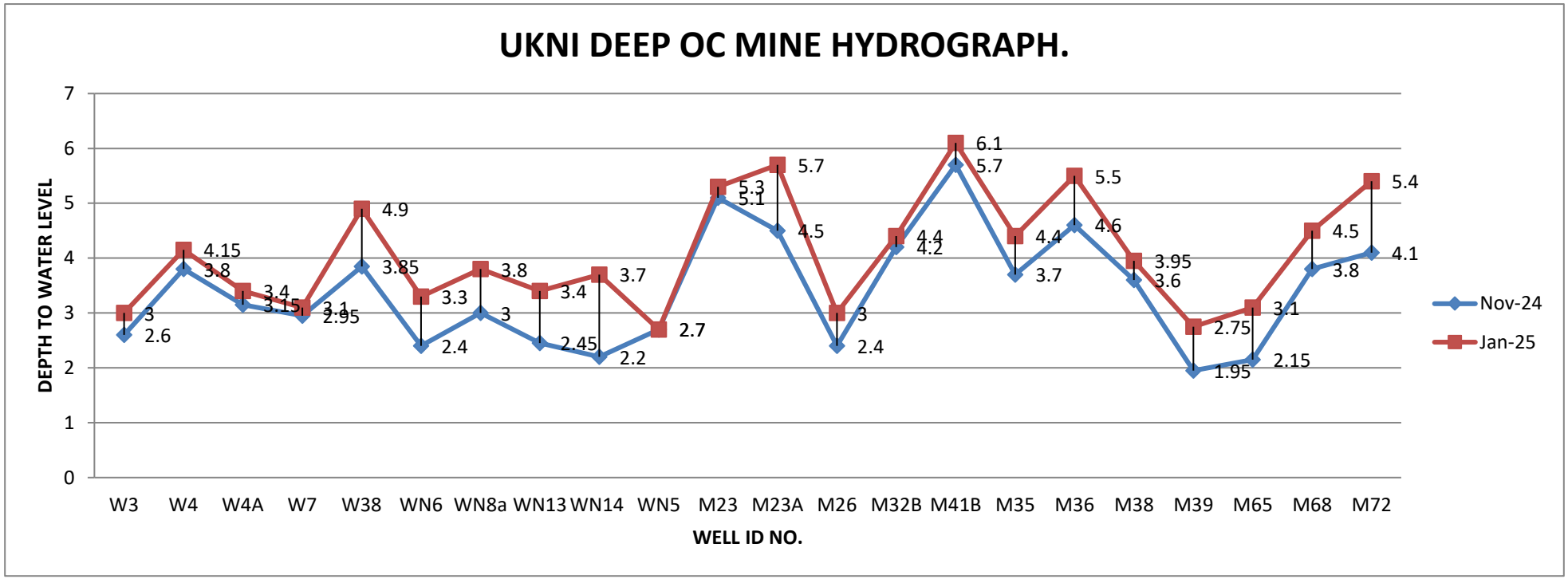


FIGURE-II: HYDROGRAPHS OF THE WATER LEVEL (OBSERVATION WELLS IN AND AROUND UKNI DEEP OC MINES)

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Recognized by Ministry of Environment, Forest & Climate Change (MoEFCC), Govt. of India, New Delhi
• ENVIRONMENT • FOOD • TEXTILE
TC 5150

ULR:TC5150240000000069F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-069)
REPORT DATE : 07/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-069)

SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :02/05/2024
SAMPLE RECEIPT DATE :03/05/2024
ANALYSIS START DATE :03/05/2024
ANALYSIS COMPLETE DATE :07/05/2024

GROUND WATER ANALYSIS

LOCATION : Bhadravati Camp (GSI Drilling Camp) -(Majri Area) (Well No: M23)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	240.42	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	184.77	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	130.36	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	33.12	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	5.13	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.87	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	30.20	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	948	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL (DL-1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	458	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	0.11	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, Magnesium ,TDS, Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

M.I.D.C. Kon

END OF REPORT

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

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ULR:TC5150240000000070F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-070)
REPORT DATE : 07/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-070)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :02/05/2024
SAMPLE RECEIPT DATE :03/05/2024
ANALYSIS START DATE :03/05/2024
ANALYSIS COMPLETE DATE :07/05/2024

GROUND WATER ANALYSIS

LOCATION : Bhadravatikilla Word -(Majri Area) (Well No: M23A)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	240.43	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDl (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	187.12	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	139.02	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	BDl (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	32.15	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.65	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.81	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	33.43	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	942	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDl (DL-1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	448	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	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, Magnesium ,TDS, 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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SALAC24230915712

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

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-071)
REPORT DATE : 07/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-071)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :02/05/2024
SAMPLE RECEIPT DATE :03/05/2024
ANALYSIS START DATE :03/05/2024
ANALYSIS COMPLETE DATE :07/05/2024

GROUND WATER ANALYSIS

LOCATION : Gaurala -(Majri Area) (Well No: M26)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	256.25	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	204.57	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	135.2	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	BDl (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	10.69	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.12	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, SO4	mg/L	23.65	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	868	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDl (DL-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	0.52	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 ,TDS, Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

M.I.D.C KON

END OF REPORT

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SALAC2423091571

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Recognized by Ministry of Environment, Forest & Climate Change (MoEFCC), Govt. of India, New Delhi
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TC 5150

ULR:TC5150240000000075F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-075)
REPORT DATE : 07/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-075)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :02/05/2024
SAMPLE RECEIPT DATE :03/05/2024
ANALYSIS START DATE :03/05/2024
ANALYSIS COMPLETE DATE :07/05/2024

GROUND WATER ANALYSIS

LOCATION : Dhorwasa - (Majri Area) (Well No: M32B)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	225.86	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	169.25	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	115.56	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	5.83	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	-	8.10	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	38.47	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	889	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL (DL-1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	422	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	0.18	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	0.89	5	15	IS 3025 (Part 2)

Opinion/Observation: *Analyzed parameters in above tested sample* As per IS 10500: 2012 Alkalinity, Calcium, *TDS, 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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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-092)
REPORT DATE : 10/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-092)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :04/05/2024
SAMPLE RECEIPT DATE :06/05/2024
ANALYSIS START DATE :06/05/2024
ANALYSIS COMPLETE DATE :10/05/2024

GROUND WATER ANALYSIS

LOCATION : Pipri-(Majri Area) (Well No: M35)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	244.09	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	229.67	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	151.2	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	44.06	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.65	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	30.20	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	952	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL (DL-1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	404	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	0.27	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	0.08	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Alkalinity, Calcium ,TDS ,Hardness(total), Magnesium 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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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-093)
REPORT DATE : 10/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-093)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :04/05/2024
SAMPLE RECEIPT DATE :06/05/2024
ANALYSIS START DATE :06/05/2024
ANALYSIS COMPLETE DATE :10/05/2024

GROUND WATER ANALYSIS

LOCATION : Goraja –(Majri Area) (Well No: M36)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	137.5	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	133.85	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	46.4	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	17.49	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.92	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.21	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	20.51	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	188	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	0.14	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	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	0.08	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012,TDS 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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TC 5150

ULR:TC5150240000000094F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-094)
REPORT DATE : 10/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE: GROUND WATER ANALYSIS

SAMPLE REGISTRATION NO. : 05/GW(24-25-094)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :04/05/2024
SAMPLE RECEIPT DATE :06/05/2024
ANALYSIS START DATE :06/05/2024
ANALYSIS COMPLETE DATE :10/05/2024

LOCATION : Sakharwai (DCB)-(Majri Area) (Well No: M38)
SAMPLE SPECIFICATION : Ground Water
SAMPLE COLLECTED BY : Mr.Kartik Shrivas-Anacon Laboratory
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	212.8	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	172.09	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	140.06	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	34.06	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.92	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, SO4	mg/L	15.00	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	972	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL (DL-1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	512	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	0.08	5	15	IS 3025 (Part 2)

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

Verified by
Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY
Authorised Signatory

END OF REPORT

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ULR:TC5150240000000095F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-095)
REPORT DATE : 10/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-095)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :04/05/2024
SAMPLE RECEIPT DATE :06/05/2024
ANALYSIS START DATE :06/05/2024
ANALYSIS COMPLETE DATE :10/05/2024

GROUND WATER ANALYSIS

LOCATION Mursa –(Majri Area) (Well No: M39)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	118.75	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	117.12	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	59.2	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	15.55	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	5.28	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	22.70	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	379	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL (DL-1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	212	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	0.09	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 ,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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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-076)
REPORT DATE : 07/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-076)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :02/05/2024
SAMPLE RECEIPT DATE :03/05/2024
ANALYSIS START DATE :03/05/2024
ANALYSIS COMPLETE DATE :07/05/2024

GROUND WATER ANALYSIS

LOCATION : Vijasan -(Majri Area) (Well No: M41B)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit *	Permissible Limit *	Reference Method
1	Alkalinity	mg/L	267.62	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDl (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	149.02	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	156.09	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	27.49	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	-	8.14	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	36.66	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	898	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDl (DL 1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	444	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	0.3	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 ,TDS, 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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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-096)
REPORT DATE : 10/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-096)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :05/05/2024
SAMPLE RECEIPT DATE :06/05/2024
ANALYSIS START DATE :06/05/2024
ANALYSIS COMPLETE DATE :10/05/2024

GROUND WATER ANALYSIS

LOCATION : Between Chargaon And Shelu –(Majri Area) (Well No: M65)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	112.5	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	146.40	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	64.8	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	17.98	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.14	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.87	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	17.85	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	431	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL (DL-1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	248	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	0.08	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample As per IS 10500: 2012 Hardness(total) 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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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-099)
REPORT DATE : 10/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-099)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :05/05/2024
SAMPLE RECEIPT DATE :06/05/2024
ANALYSIS START DATE :06/05/2024
ANALYSIS COMPLETE DATE :10/05/2024

GROUND WATER ANALYSIS

LOCATION : Taroda Village –(Majri Area) (Well No: M68)
SAMPLE SPECIFICATION : Ground Water

SAMPLE COLLECTED BY : Mr.Kartik Shrivas-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	BDl (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	129.67	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	66.4	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	10.69	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	-	7.86	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	7.12	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	368	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDl (DL-1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	210	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 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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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Majri Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-103)
REPORT DATE : 10/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:
SAMPLE REGISTRATION NO. : 05/GW(24-25-103)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :05/05/2024
SAMPLE RECEIPT DATE :06/05/2024
ANALYSIS START DATE :06/05/2024
ANALYSIS COMPLETE DATE :10/05/2024

GROUND WATER ANALYSIS
LOCATION : Kumbhari –(Majri Area) (Well No: M72)
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit *	Permissible Limit *	Reference Method
1	Alkalinity	mg/L	237.5	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL (DL-1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	146.40	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	65.6	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	BDL (DL-0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	27.01	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	-	7.64	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	19.85	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	887	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL (DL-1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	432	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	0.33	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, TDS, Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit except Aluminium.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

M.I.D.C. KON

END OF REPORT

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ULR:TC515024000000104F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-104)
REPORT DATE : 08/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-104)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :03/05/2024
SAMPLE RECEIPT DATE :04/05/2024
ANALYSIS START DATE :04/05/2024
ANALYSIS COMPLETE DATE :08/05/2024

GROUND WATER ANALYSIS

LOCATION : Sirpur - (Wani Area) Well No.: W3
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	137.5	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	89.84	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	50	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	0.22	>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	11.29	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.94	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.26	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	30.77	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	240	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	62	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- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.02)	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	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 *are within limit* acceptable limit & Permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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• ENVIRONMENT • FOOD • TEXTILE
TC 5150

ULR:TC515024000000105F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-105)
REPORT DATE : 08/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-105)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :03/05/2024
SAMPLE RECEIPT DATE :04/05/2024
ANALYSIS START DATE :04/05/2024
ANALYSIS COMPLETE DATE :08/05/2024

GROUND WATER ANALYSIS

LOCATION : Punwat - (Wani Area) Well No.: W4
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit *	Permissible Limit *	Reference Method
1	Alkalinity	mg/L	184.26	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	59.6	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	56.2	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	0.63	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	10.62	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.70	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.64	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	29.25	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	324	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	64.2	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	BDL(DL- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.02)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.02)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.002)	0.003	No Relaxation	IS 3025 (Part 2)
20	Metal-Iron	mg/L	0.21	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- 0.02)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.01)	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- 0.02)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.02)	5	15	IS 3025 (Part 2)

Opinion/Observation: *Analyzed parameters in above tested sample* As per IS 10500: 2012 *are within limit* acceptable limit & Permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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SALAC24230915919

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TC 5158

ULR:TC515024000000106F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-106)
REPORT DATE : 08/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:
GROUND WATER ANALYSIS

SAMPLE REGISTRATION NO. : 05/GW(24-25-106)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :03/05/2024
SAMPLE RECEIPT DATE :04/05/2024
ANALYSIS START DATE :04/05/2024
ANALYSIS COMPLETE DATE :08/05/2024

LOCATION : Punwat 2- (Wani Area) Well No.: W4A
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	182.26	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	67.26	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	33.6	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	0.21	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	17.49	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.53	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.89	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	12.44	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	369	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	82	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- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.02)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.02)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.002)	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- 0.02)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.01)	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- 0.02)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.02)	5	15	IS 3025 (Part 2)

Opinion/Observation: *Analyzed parameters in above tested sample* As per IS 10500: 2012 *are within limit* acceptable limit & Permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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ULR:TC515024000000107F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-107)
REPORT DATE : 08/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-107)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :03/05/2024
SAMPLE RECEIPT DATE :04/05/2024
ANALYSIS START DATE :04/05/2024
ANALYSIS COMPLETE DATE :08/05/2024

GROUND WATER ANALYSIS

LOCATION : Navegaon - (Wani Area) Well No.: W7
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit *	Permissible Limit *	Reference Method
1	Alkalinity	mg/L	174.99	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	1	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	52.06	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	74	75	200	IS 3025 (Part 40)
5	Residual free chlorine (RFC)	mg/L	0.75	>0.2	1	IS 3025 (Part 26)
6	Fluoride	mg/L	1.34	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	91.36	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	17.06	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.87	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	149.13	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	377	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	110.26	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- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.02)	0.5	2.4	IS 3025 (Part 2)
18	Metal-Copper	mg/L	BDL(DL- 0.02)	0.05	1.5	IS 3025 (Part 2)
19	Metal-Cadmium	mg/L	BDL(DL-0.002)	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- 0.02)	0.1	0.3	IS 3025 (Part 2)
23	Metal-Nickel	mg/L	BDL(DL- 0.01)	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- 0.02)	0.05	No Relaxation	IS 3025 (Part 2)
26	Zinc	mg/L	BDL(DL- 0.02)	5	15	IS 3025 (Part 2)

Opinion/Observation: *Analyzed parameters in above tested sample* As per IS 10500: 2012 *are within limit* acceptable limit & Permissible limit.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Authorized Signatory

END OF REPORT

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SALAC24230915921

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ULR:TC515024000000124F

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-124)
REPORT DATE : 10/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-124)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :04/05/2024
SAMPLE RECEIPT DATE :06/05/2024
ANALYSIS START DATE :06/05/2024
ANALYSIS COMPLETE DATE :10/05/2024

GROUND WATER ANALYSIS

LOCATION : Mahtardevi (Wani Area) Well No.: W38
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit *	Permissible Limit *	Reference Method
1	Alkalinity	mg/L	143.75	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	252.06	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	45.6	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	0.76	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	6.69	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.67	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	8.47	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	18.71	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	491	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	87.9	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- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	BDL(DL- 0.02)	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 Chloride is *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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SALAC24230915938

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani North Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-025)
REPORT DATE : 06/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-025)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :01/05/2024
SAMPLE RECEIPT DATE :02/05/2024
ANALYSIS START DATE :02/05/2024
ANALYSIS COMPLETE DATE :06/05/2024

GROUND WATER ANALYSIS

LOCATION : Kolar(DCB) - (Wani North Area) Well No: WN5
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	**224.06**	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	130.66	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	**88.6**	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	BDL(DL- 0.1)	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	15.55	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	2.32	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.04	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	11.30	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	**786**	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL(DL- 0.1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	**288**	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- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.05	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	0.06	5	15	IS 3025 (Part 2)

Opinion/Observation: Analyzed parameters in above tested sample. As per IS 10500: 2012 Alkalinity Calcium, TDS , Hardness (total)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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TC 5150

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani North Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-001)
REPORT DATE : 06/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-001)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :01/05/2024
SAMPLE RECEIPT DATE :02/05/2024
ANALYSIS START DATE :02/05/2024
ANALYSIS COMPLETE DATE :06/05/2024

GROUND WATER ANALYSIS

LOCATION : Nilapur- (Wani North Area) Well No.: WN6
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit *	Permissible Limit *	Reference Method
1	Alkalinity	mg/L	198.25	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	126.02	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	**186.26**	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	BDL(DL- 0.1)	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	BDL(DL-2)	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	6.36	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	12.44	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	**889**	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	BDL(DL- 0.1)	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	**446**	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- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.04	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	BDL (DL-0.05)	5	15	IS 3025 (Part 2)

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

Verified by
Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY
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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani North Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-002)
REPORT DATE : 06/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-002)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :01/05/2024
SAMPLE RECEIPT DATE :02/05/2024
ANALYSIS START DATE :02/05/2024
ANALYSIS COMPLETE DATE :06/05/2024

GROUND WATER ANALYSIS

LOCATION : Bhalar - (Wani North Area) Well No.: WN8A
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit *	Permissible Limit *	Reference Method
1	Alkalinity	mg/L	188.8	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	129.67	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	**128.7**	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	0.63	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	**31.10**	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.03	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.82	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	15.10	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	**789**	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	**379**	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- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.04	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	0.08	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 Calcium, Magnesium, TDS, Hardness(total) are Exceeds acceptable limit, however, the result is within permissible limit.

Verified By

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani North Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-003)
REPORT DATE : 06/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-003)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :01/05/2024
SAMPLE RECEIPT DATE :02/05/2024
ANALYSIS START DATE :02/05/2024
ANALYSIS COMPLETE DATE :06/05/2024

GROUND WATER ANALYSIS

LOCATION : Kesurli - (Wani North Area) Well No.: WN13
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit *	Permissible Limit *	Reference Method
1	Alkalinity	mg/L	**268.02**	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	**98.2**	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	0.82	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	**32.56**	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	4.63	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.64	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	16.71	200	400	IS 3025 (Part 24)
12	Total dissolved solids	mg/L	**916**	500	2000	IS 3025 (Part 16)
13	Turbidity	NTU	0.1	1	5	IS 3025 (Part 10)
14	Hardness (total)	mg/L	**414**	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- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.06	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	0.08	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, Magnesium , TDS, Hardness(total) 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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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s Western Coalfields Limited (WCL)(Wani North Area)
Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 44000.

REPORT NO :SAL/MSP19/FMD/05/GW(24-25-004)
REPORT DATE : 06/05/2024
CUSTOMER REF : Verbal
REF DATE : NA

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : 05/GW(24-25-004)
SAMPLING PLAN& METHOD NO.: IS 3025 Part 1
SAMPLING DATE :01/05/2024
SAMPLE RECEIPT DATE :02/05/2024
ANALYSIS START DATE :02/05/2024
ANALYSIS COMPLETE DATE :06/05/2024

GROUND WATER ANALYSIS

LOCATION : KESURLI(B) - (Wani North Area) Well No.: WN14
SAMPLE SPECIFICATION : Ground Water

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

Sr. No.	Test Parameter	Unit	Result	Acceptable Limit #	Permissible Limit #	Reference Method
1	Alkalinity	mg/L	**212.06**	200	600	IS 3025 (Part 23)
2	Colour	Hazen Unit	BDL(DL- 1)	5	15	IS 3025 (Part 4)
3	Chloride	mg/L	117.12	250	1000	IS 3025 (Part 32)
4	Calcium	mg/L	**165.6**	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	0.46	1.0	1.5	IS 3025 (Part 60)
7	Metal-Magnesium	mg/L	**32.56**	30	100	IS 3025 (Part 46)
8	Nitrate	mg/L	3.54	45	No Relaxation	IS 3025 (Part 34)
9	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
10	pH	-	7.11	6.5 - 8.5	No Relaxation	IS 3025 (Part 11)
11	Sulphate, SO4	mg/L	13.58	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	**468**	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- 0.02)	0.03	0.2	IS 3025 (Part 2)
17	Boron as B	mg/L	0.06	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	0.15	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 , Magnesium ,TDS, Hardness(total) 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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Land Restoration / Reclamation Monitoring of 26 opencast projects of Western Coalfield Limited producing More than 5 million Cu. M. (Coal+OB) per annum based on Satellite Data of the Year 2024

वेस्टर्न कोल्फील्ड्स लिमिटेड के ५ मिलियन घनमीटर (कोल+अधिभार) से अधिक उत्पादन क्षमतावाले २६ खुली खदानों के भूमि पुनरूद्धार हेतु २०२४ के उपग्रह डाटा के आधार पर निगरानी का वार्षिक प्रतिवेदन



Submitted to

Western Coalfields Limited

Land Restoration / Reclamation Monitoring of 26 opencast projects of Western Coalfield Limited producing More than 5 million Cu. M. (Coal+OB) per annum based on Satellite Data of the Year 2024

वेस्टर्न कोल्फील्ड्स लिमिटेड के ५ मिलियन घनमीटर (कोल+अधिभार) से अधिक उत्पादन क्षमतावाले २६ खुली खदानों के भूमि पुनरूद्धार हेतु २०२४ के उपग्रह डाटा के आधार पर निगरानी का वार्षिक प्रतिवेदन

March 2025

Remote Sensing Cell
Geomatics Division
CMPDI-HQ, Ranchi

Document Control Sheet

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(8) Aim of the Report	To prepare land use/cover map of leasehold area of 26 opencast projects based on high resolution satellite data (IRSR2-L4FX) of the year 2024 using digital image processing technique.
(9) Executing Unit	Remote Sensing Cell, Geomatics Division, Central Mine Planning & Design Institute Limited, Gondwana Place, Kanke Road, Ranchi 834008
(10) User Agency	Western Coalfields Ltd., Nagpur, Maharashtra.
(11) Author	1) Swabhiman Dehariya, Asst. Manager (Mining/Geomatics) 2) Taluk Mondal, Chief Manager (E&M /Geomatics)
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कार्यकारी सारांश

1.0 परियोजना

वेस्टर्न कोल्फील्ड्स लिमिटेड के ५ मिलियन घन मीटर (कोल+ अधिभार) से अधिक उत्पादन क्षमतावाली २६ खुली खदानों के पुनरुद्धार हेतु वर्ष २०२४ के उपग्रह डाटा पर आधारित पर सलाना नियमित निगरानी।

उपरोक्त २६ खुली में से १३ परियोजनाए जिन्हें भताड़ी, बेलोरा-नयागांव, बल्लारपुर, जुनाड ,कोलारपिम्प्री, हिंदुस्तान लाल्पेथ, गौरी-पौनी, गोंडेगाँव, अदासा (भूमिगत से खुली खदान) ,भानेगओं, गोकुल, इन्दर-कामठी एकीकृत और धुपतला खुली खदानों के नाम से जाना जाता है, इन्हें कार्य - आदेश के तहत ५ मिलियन घन मीटर (कोल+अधिभार) से अधिक क्षमता वाले खदानों के श्रेणी में पहली बार शामिल किया गया है|

2.0 उद्देश्य

भूमि पुनरुद्धार (लैंड रिक्लेमेशन) का उद्देश्य कुल पट्टाक्षेत्र में बैकफील, वृक्षारोपण, सामाजिक वानिकी, सक्रिय खनन क्षेत्र, जल निकाय (वाटर ड्रेनेज) बंजर भूमि, कृषि भूमि और जंगल के विभिन्न प्रकार के वितरण प्रणाली के क्षेत्र का आकलन करना है। यह अध्ययन न केवल उपरोक्त सभी खुली खदानों के भूमि पुनरुद्धार (लैंड रिक्लेमेशन) की प्रगति का आकलन में मदद करेगा बल्कि पर्यावरण संरक्षण के लिए आवश्यक उपचारात्मक उपायों को क्रियान्वित करने में भी सहायता करेगा।

3.0 मुख्य निष्कर्ष

- वर्ष २०२४-२०२५ के लिए भुमि पुनरूद्धार(लेंड रिक्लेमेंशन) की निगरानी हेतु डब्लू.सी.एल के २६ खुली परियोजनाए जिनका नाम सास्ती, दुर्गापुर, मुंगोली, उमरेड, उकनी, नीलजयी, न्यू माजरी, मकरधोकरा ३, पेनगंगा , एकोना १ और २ (एकीकृत), न्यू मजरी भूमिगत से खुली खदान, पौनी-२ (विस्तार), मकरधोकरा १ (विस्तार), भटाडी, गोकुल, इन्दर-कामठी एकीकृत तथा धुपतला है| इनका कुल पट्टा क्षेत्र २४२.७३ वर्ग किलोमीटर हैं, जिसमे से ६५.९९ वर्ग किलोमीटर उत्खनित क्षेत्र है जिसमें क्रमशः १९.२४ वर्ग किलोमीटर (२९.१६%) बैकफील क्षेत्र (तकनीकी पुनुरुद्धार), ६.०८ वर्ग किलोमीटर (९.२१%) वृक्षारोपण (जैविक पुनरुद्धार) का क्षेत्र तथा ४०.६७ वर्ग किलोमीटर (६१..६३%) सक्रिय खनन क्षेत्र के अंतर्गत पाया गया| इस विश्लेषण से स्पष्ट है कि कुल खुली खदानों के उत्खनित क्षेत्र में से ३८.३७ प्रतिशत का क्षेत्र जैविक और तकनिकी रूप से भूमि पुनरूद्धार का कार्य हो गया है और शेष ६१.६३ प्रतिशत का क्षेत्र सक्रिय खनन के अंतर्गत है| परियोजनावार विवरण तालिका -१ और चित्र-१ दर्शाया गया है (तुलनात्मक अध्ययन के उद्देष्य के लिए तालिका -१ देखें)

- विभिन्न परियोजनाओं के लिए वर्ष २०२३ के सापेक्ष में वर्ष २०२४ में किये गए भुमि पुनरूद्धार की स्थिति की तूलना करने के पश्चात विश्लेषण से यह स्पष्ट है कि भूमि पुनरुद्धार के अंतर्गत वर्ष २०२३ के कुल क्षेत्र २३.२४ वर्ग किलोमीटर से बढ़कर वर्ष २०२४ में २५.३२ वर्ग किलोमीटर हो गया है, २६ खुली परियोजनाओं में से बल्लारपुर खुली खदान में भुमि पुनरूद्धार का कार्य

अधिकतम ८५.९५ प्रतिशत हुआ है अतः इसे शीर्ष स्थान पर रखा गया है इसके बाद क्रमशः सास्ती खुली खदान (८०.७३ प्रतिशत) तथा उमरेड (६६.२५ प्रतिशत) खुली परियोजनाओं का स्थान है|

- वर्ष २०२३ के कुल जैविक भूमि पुनरूद्धार (बैकफ़िल पर वृक्षारोपण) के अंतर्गत का क्षेत्र ५.२६ वर्ग किलोमीटर के तूलना में वर्ष २०२४ में बढ़कर ६.०८ वर्ग किलोमीटर हो गया है जबकि वर्ष २०२३ के तकनीकी पुनरूद्धार (बैकफील के अंतर्गत क्षेत्र) का क्षेत्र १७.९५ वर्ग किलोमीटर से बढ़कर वर्ष २०२४ में १९.२४ वर्ग किलोमीटर हो गया है | भूमि पुनरूद्धार के अंतर्गत २.०८ वर्ग किलोमीटर की यह वृद्धि पर्यावरण सरंक्षण के दिशा में वेस्टर्न कोलफील्ड्स लिमिटेड के द्वारा उठाये गए सकारात्मक प्रयासों का परिणाम है|

Executive Summary

1.0 Project Land restoration / reclamation monitoring of 26 opencast coal mines of Western Coalfields Ltd. (WCL) producing 5 million cu.m. and more (Coal+OB) per year based on satellite data, regularly on annual basis. Among 26 opencast coal mines projects, 13 projects namely Bhatadi, Bellora-Naigaon, Ballarpur, Junad, Kolarpimpiri, Hindustan Lalpeth (HLOCM), Gauri- Pauni, Gondegaon, Adasa UG to OC, Bhanegaon, Gokul, Inder Kamptee Amal. and Dhuptala have been included in 2024 for the first time as per the work order, their capacity (Coal+OB) have been increased to category of more than 5 million cubic meter from category of less than 5 million cu.m. per year.

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, distribution of wasteland, agricultural land and forest in the leasehold area of the project. This will help in assessing the progressive status of mined land reclamation and to take up remedial measures, if any, required for environmental protection.

3.0 Salient Findings

- Out of total leasehold area of 242.73 Km2 of 26 projects of WCL viz. Sasti, Durgapur, Mungoli, Umrer, Ukni, Niljai, New Majri. Makardhokra-III, Penganga, Yekona-I & II (Amal), New Majri UG to OC, Pauni-II (Expn.), MKD-I (Expn.), Bhatadi, Bellora-Naigaon, Ballarpur, Junad, Kolarpimpiri, Hindustan Lalpeth (HLOCM), Gauri-Pauni, Gondegaon, Adasa UG to OC, Bhanegaon, Gokul, Inder-Kamptee Amal., and Dhuptala considered for monitoring during 2024-25; the total excavated area is 65.99 Km2 out of which 19.24 Km2 area (29.16%) is backfilled (Technical Reclamation), 6.08 Km2 area (9.21%) has been planted (Biological Reclamation) and 40.67 Km2 area (61.63%) is under active mining. It is evident from the analysis that 38.37% area of the OC projects has been reclaimed (biological and technical) and balance 61.63% area is under active mining. Project wise details are given in Table-1 & Fig-1. (For comparison purpose, refer Table-1).

- On comparing the status of land reclamation for the year 2024 with respect to the year 2023 in different projects, it is evident from the analysis that total area under land reclamation has increased from 23.24 Km2 (Yr. 2023) to 25.32 Km2 (Yr.2024). Out of 26 projects of WCL, Ballarpur OC ranks on top for land reclamation (85.95%) followed by Sasti OC (80.73%) and Umrer OC (66.25%).

- Area under biological reclamation (Plantation on backfill) has increased from 5.26 Km2 (Yr. 2023) to 6.08 Km2 (Yr. 2024) whereas area of technical reclamation (area under backfilling) has increased from 17.98 Km2 (Yr. 2023) to 19.24 Km2 (Yr. 2024) in WCL. The total increase of 2.08 Km2 under reclamation is the result of the efforts of the Western Coalfields Ltd. taken up towards environmental protection

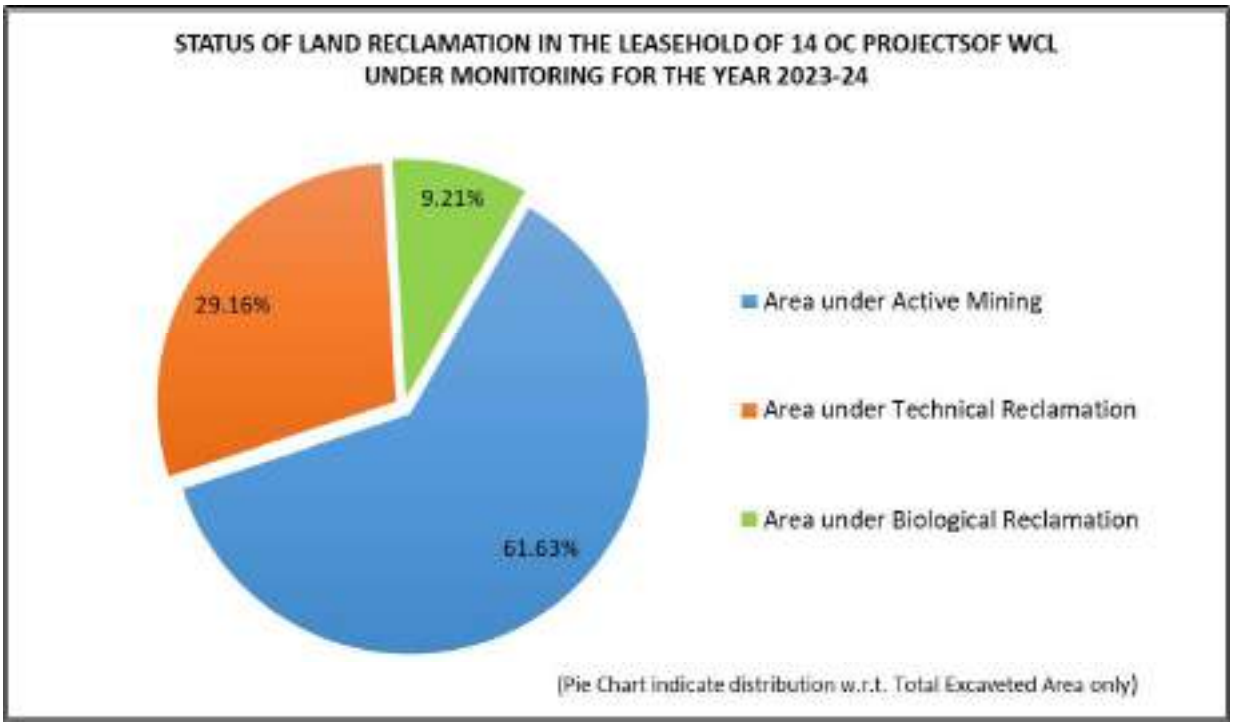


Fig.1: Pie Chart indicating distribution (%) of reclamation activities in 26 OC Mines of WCL

Table-1

Projectwise Land Reclamation Status in Opencast Projects of WCL

(>5 Million Cubic Metre Coal+OB) based on Satellite Data of the year 2024

(Area in Sq. Kms.)

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	
				Area under Backfilling		Biological Reclamation		Other Plantations											
						Plantation on Excavated / Backfilled Area		Plantation on External Over Burden Dumps		Social Forestry, Avanue Plantation Etc.									
1	*2*	*3*		*4*		*5*		*6*		*7*		*8*		*9 (=4+5+8)*		*10 (=5+6+7)*		*11(=4+5)*	
	A	*2023*	*2024*	*2023*	*2024*	*2023*	*2024*	*2023*	*2024*	*2023*	*2024*	*2023*	*2024*	*2023*	*2024*	*2023*	*2024*	*2023*	*2024*
1	Sasti	9.20	11.12	2.72	2.90	0.73	0.62	1.68	1.92	0.68	0.71	0.50	0.84	3.95	4.36	3.09	3.25	3.45	3.52
				68.86%	66.51%	18.48%	14.22%					12.66%	19.27%			33.59%	29.23%	87.34%	80.73%
2	Durgapur	15.50	15.50	1.04	0.96	1.06	1.18	2.81	2.99	1.19	1.26	2.57	2.75	4.67	4.89	5.06	5.43	2.10	2.14
				22.27%	19.63%	22.70%	24.13%					55.03%	56.24%			32.65%	35.03%	44.97%	43.76%
3	Mugoli	12.55	12.55	1.53	1.70	0.17	0.2	1.9	1.98	0.61	0.65	1.95	2.23	3.65	4.13	2.68	2.83	1.70	1.90
				41.92%	41.16%	4.66%	4.84%					53.42%	54.00%			21.35%	22.55%	46.58%	46.00%
4	Umrer	9.45	9.45	1.51	1.47	1.63	1.73	1.45	1.45	2.32	2.32	1.69	1.63	4.83	4.83	5.40	5.50	3.14	3.20
				31.26%	30.43%	33.75%	35.82%					34.99%	33.75%			57.14%	58.20%	65.01%	66.25%
5	Ukni	12.85	12.85	0.54	0.65	0.00	0.00	1.74	1.81	0.86	0.98	2.15	2.15	2.69	2.80	2.60	2.79	0.54	0.65
				20.07%	23.21%	0.00%	0.00%					79.93%	76.79%			20.23%	21.71%	20.07%	23.21%
6	Niljai	17.61	17.61	1.46	1.75	0.13	0.13	2.11	2.23	1.25	1.31	2.99	3.09	4.58	4.97	3.49	3.67	1.59	1.88
				31.88%	35.21%	2.84%	2.62%					65.28%	62.17%			19.82%	20.84%	34.72%	37.83%
7	New Majri	7.74	7.74	1.64	1.82	0.24	0.28	0.97	1.04	1.47	1.47	2.22	2.27	4.10	4.37	2.68	2.79	1.88	2.10
				40.00%	41.65%	5.85%	6.41%					54.15%	51.95%			34.63%	36.05%	45.85%	48.05%
8	MKD-III	9.23	9.23	0.41	0.46	0.00	0.00	0.00	0.25	0.12	0.17	1.09	1.55	1.50	2.01	0.12	0.42	0.41	0.46
				27.33%	22.89%	0.00%	0.00%					72.67%	77.11%			1.30%	4.55%	27.33%	22.89%
9	Penganga	7.63	7.63	0.75	0.84	0.00	0.00	0.49	0.50	0.55	0.68	1.25	1.42	2.00	2.26	1.04	1.18	0.75	0.84
				37.50%	37.17%	0.00%	0.00%					62.50%	62.83%			13.63%	15.47%	37.50%	37.17%
10	Yekona-I&II(Amal)	16.79	16.79	0.01	0.20	0.00	0.00	0.00	0.00	0.03	0.08	1.29	1.64	1.30	1.84	0.03	0.08	0.01	0.20
				0.77%	10.87%	0.00%	0.00%					99.23%	89.13%			0.18%	0.48%	0.77%	10.87%
11	New Majri UG to OC	7.06	7.06	0.00	0.00	0.00	0.00	0.27	0.35	0.37	0.46	1.06	1.44	1.06	1.44	0.64	0.81	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			9.07%	11.47%	0.00%	0.00%
12	Pauni -II (Expn)	10.95	10.95	0.00	0.00	0.00	0.00	0.18	0.25	0.22	0.30	1.34	1.74	1.34	1.74	0.40	0.55	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			3.65%	5.02%	0.00%	0.00%
13	MKD -1 (Expn) OC	6.14	6.14	0.00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	1.57	1.86	1.57	1.86	0.10	0.10	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			1.63%	1.63%	0.00%	0.00%
	Total-A	**142.70**	**144.62**	**11.61**	**12.75**	**3.96**	**4.14**	**13.70**	**14.87**	**9.67**	**10.39**	**21.67**	**24.61**	**37.24**	**41.50**	**27.33**	**29.40**	**15.57**	**16.89**
				31.18%	30.72%	10.63%	9.98%					58.19%	59.30%			19.15%	20.33%	41.81%	40.70%

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

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

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

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

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

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

Table-1

Projectwise Land Reclamation Status in Opencast Projects of WCL

(1518Sqm Cubic Meter Coal+OB) based on Satellite Data of the year 2024

(Area in Sq.Kms.)

Sl. No.	Project	Total Leasehold Area		Technical Reclamation		Plantation						Area under Active Mining		Total Excavated Area		Total Area under Plantation (Of Green Cover Associated to 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+6)		10=(5+6+7)		11=(4+5)	
		Prev cycle	2024	Prev cycle	2024	Prev cycle	2024	Prev cycle	2024	Prev cycle	2024	Prev cycle	2024	Prev cycle	2024	Prev cycle	2024	Prev cycle	2024
14	Bhatadi	8.47	8.47	0.39	0.44	0.00	0.00	0.50	0.59	0.43	0.48	0.97	1.12	1.36	1.56	0.93	1.07	0.39	0.44
				28.66%	28.21%	0.00%	0.00%					71.32%	71.79%			10.96%	12.63%	28.66%	28.21%
15	Bellora Nalgaon	8.65	8.65	0.73	0.83	0.16	0.20	0.48	0.57	0.32	0.45	1.15	1.20	2.08	2.23	0.93	1.22	0.91	1.03
				35.44%	37.22%	8.74%	8.97%					55.83%	53.81%			16.74%	18.35%	44.17%	46.18%
16	Belluspur	2.43	2.43	0.76	0.76	0.24	0.28	0.79	0.78	0.10	0.13	0.17	0.17	1.17	1.21	1.09	1.19	1.00	1.04
				64.96%	62.81%	20.51%	23.14%					14.53%	14.05%			44.44%	48.97%	85.47%	85.95%
17	Junad	4.50	4.50	0.37	0.41	0.05	0.12	0.75	0.81	0.34	0.38	0.66	0.67	1.08	1.20	1.14	1.31	0.42	0.53
				34.26%	34.17%	4.63%	10.00%					61.11%	55.83%			25.33%	29.11%	38.89%	44.17%
18	Kallarpimpri	14.89	14.89	0.15	0.21	0.08	0.11	1.35	1.43	0.12	0.16	1.72	1.79	1.95	2.11	1.55	1.70	0.23	0.32
				7.69%	9.95%	4.19%	5.21%					88.21%	84.83%			10.41%	11.42%	11.73%	15.17%
19	HLOCM	3.12	3.12	0.64	0.65	0.06	0.10	0.79	0.76	0.31	0.37	0.48	0.64	1.18	1.29	1.11	1.23	0.70	0.75
				54.24%	50.39%	5.08%	7.75%					40.68%	41.86%			25.58%	39.42%	59.32%	58.14%
20	Gouripouni	6.77	12.51	0.89	0.91	0.60	0.79	2.06	2.55	0.62	0.64	0.95	1.70	2.44	3.40	3.28	3.98	1.49	1.70
				36.48%	26.76%	24.55%	23.24%					38.93%	50.00%			48.45%	30.63%	61.07%	50.00%
21	Gondegaon	7.91	7.91	0.56	0.62	0.00	0.00	0.96	1.22	0.51	0.57	1.49	1.90	2.05	2.52	1.47	1.79	0.56	0.62
				27.32%	24.60%	0.00%	0.00%					72.68%	75.40%			18.56%	22.63%	27.32%	24.60%
22	Adasa UGroOC	5.64	5.64	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.27	0.57	0.80	0.57	0.80	0.14	0.27	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					######	######			2.48%	4.75%	0.00%	0.00%
23	Bhanegaon	3.48	3.48	0.01	0.02	0.00	0.00	0.16	0.33	0.20	0.24	0.35	0.69	0.36	0.71	0.36	0.57	0.01	0.02
				2.78%	2.82%	0.00%	0.00%					97.22%	97.18%			10.34%	16.38%	2.78%	2.82%
24	Gokul	7.57	10.02	0.75	0.89	0.00	0.00	0.00	0.00	0.30	0.92	1.76	2.12	2.51	3.01	0.30	0.92	0.75	0.89
				29.64%	29.57%	0.00%	0.00%					70.36%	70.43%			5.98%	5.19%	25.64%	29.57%
25	Inder Kamptee Ame	11.25	7.95	1.12	0.75	0.09	0.34	0.76	1.41	0.85	0.31	1.47	1.62	2.68	2.71	1.70	2.06	1.21	1.09
				41.73%	27.68%	3.36%	12.55%					54.85%	59.78%			15.11%	25.91%	45.15%	40.22%
26	Dhuptala	-	10.14	-	0.00	-	0.00	-	0.25	-	0.30	-	1.74	-	1.74	-	0.55	-	0.00
				-	0.00%	-	0.00%					-	######			-	5.42%	-	0.00%
	Total-B	**82.68**	**98.11**	**6.37**	**6.49**	**1.30**	**1.94**	**8.50**	**10.70**	**4.24**	**5.22**	**11.76**	**16.06**	**19.43**	**24.49**	**14.04**	**17.86**	**7.67**	**8.43**
				32.78%	26.56%	6.69%	7.92%					60.52%	65.58%			16.36%	18.20%	39.48%	34.42%
	Total- (A+B)	**225.38**	**242.73**	**17.98**	**19.24**	**5.26**	**6.08**	**22.20**	**25.57**	**13.91**	**15.61**	**33.43**	**40.67**	**56.67**	**65.99**	**41.37**	**47.26**	**23.24**	**25.32**
				31.73%	29.15%	9.28%	9.21%					58.99%	61.63%			18.36%	19.47%	41.01%	38.37%

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 backfilling 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. % calculated in respect to total excavated area except for "Total area under plantation" where % is in terms of leasehold area.

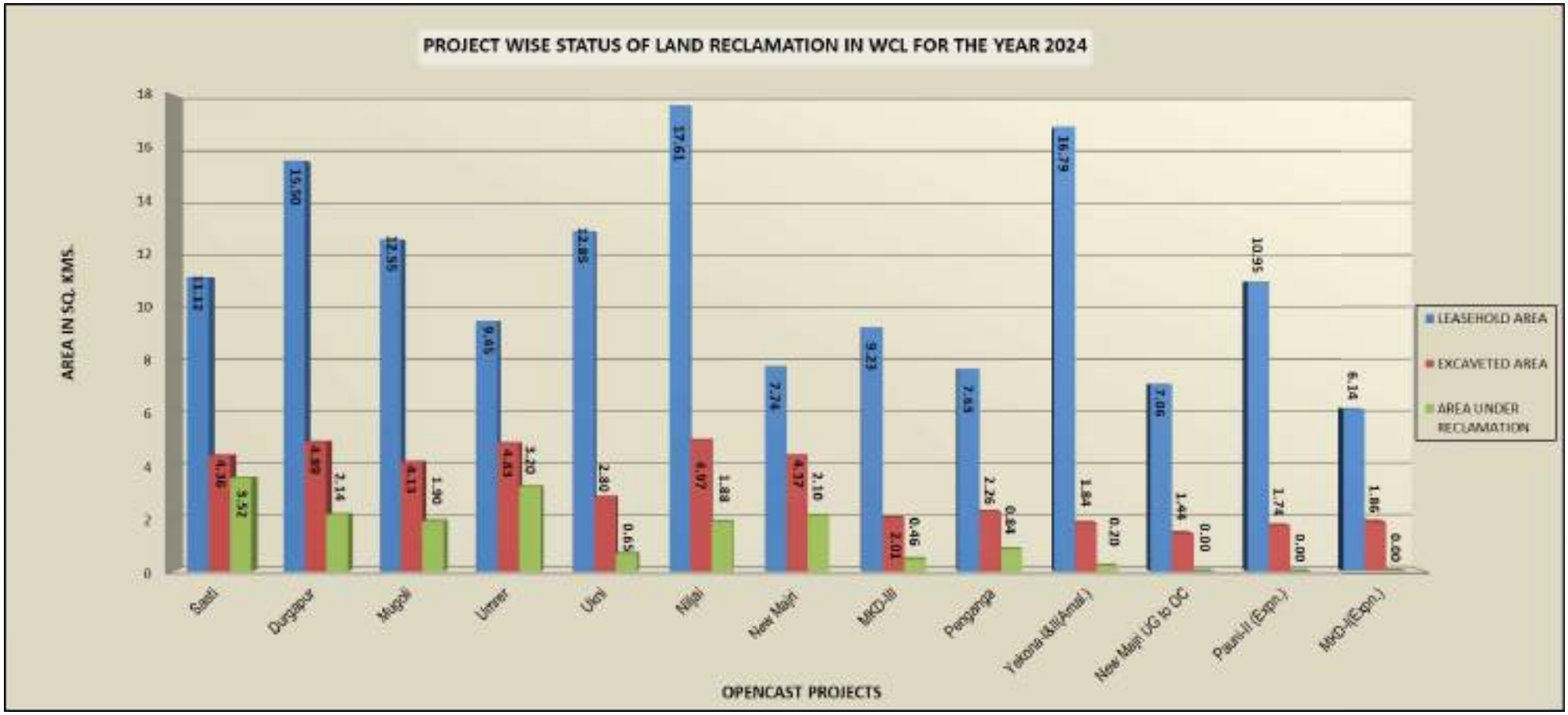


Fig.2: Land reclamation status in 14 OC projects of WCL for the year 2024

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/2009/2428dated 29.12.2009 to Central Mine Planning & Design Institute (CMPDI), Ranchi, for monitoring land reclamation. status of all the opencast coal mines having production of more than 5 million m^3 per annum (coal + OB taken together per annum) based on remote sensing satellite data, regularly on annual basis for sustainable development of mining. Further, another work order vide letter no. CIL/WBP/ENV./2011dated23/08/11was issued by CIL for monitoring of less than 5 million m^3 per annum capacity (Coal +OB) projects from the year 2011 at interval of three years. This order has been renewed in CIL letter no. CIL/WBP/Env/2011/4706dated 12.10.2012 for the next five years. Again this work order has been renewed vide letter no. CIL/WBP/Env/2017/DP/8391 dated 22.06.2017 for a period next five years starting from 2017-18 to 2021-22. 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. Again the above work order has been renewed vide letter no. CIL/ ENV/11463 dated 03.07.2024 for a period of 3 more years for 2024-25, 2025-26 and 2026-27. The result of land reclamation status of all such mines is put on the websites of **CIL**, (www.coalindia.in), **CMPDI** (www.cmpdi.co.in) and the concerned

coal companies in public domain. Detailed report is submitted to Coal India and respective subsidiaries.

1.3 Land reclamation monitoring of all opencast coal mining projects would also comply the statutory requirements of Ministry of Environment & Forest (MoEF). Such monitoring would not only facilitate in taking timely mitigation measures against environmental degradation, but would also enable coal companies to utilize the reclaimed land for larger socio-economic benefits in a planned way.

1.4 Present report is embodying the finding of the study based on satellite data of the year 2024 carried out for all the OC projects producing more 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. Bhoonidhi Portal of ISRO alongside National Remote Sensing Centre (NRSC) Hyderabad, being the nodal agency for satellite data supply in India, provides only raw digital satellite data, which needs further digital image processing for extracting the information and map preparation before uploading the same in the website. Methodology for land reclamation monitoring

is given in given in figure-3. Following steps are involved in land reclamation /restoration monitoring:

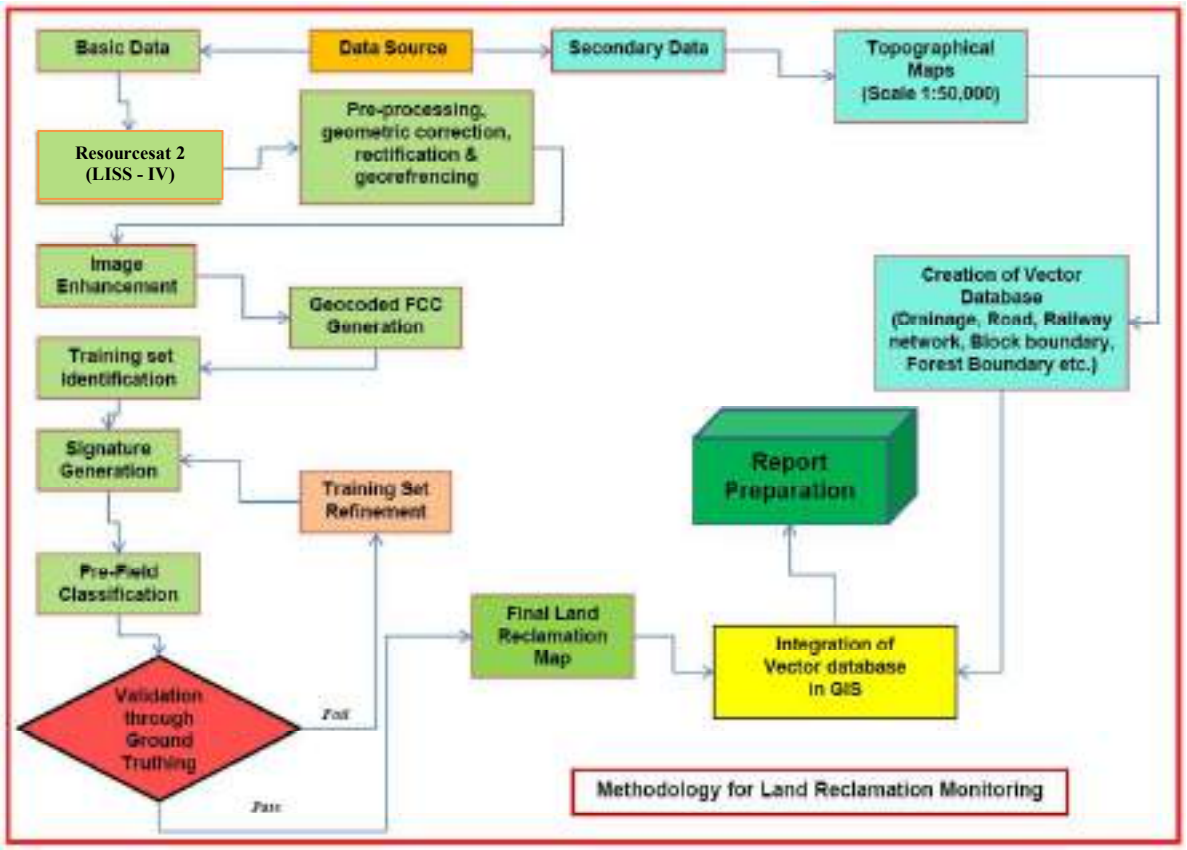


Figure: 3- ***Methodology for Land Reclamation Monitoring***

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

3.2 Satellite Data Processing: Satellite data are processed using ERDAS IMAGINE 2022 digital image processing s/w and ArcGIS. 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 SoI toposheet.

- **Image enhancement:**

  To improve the interpretability of the raw data, image enhancement is necessary. Local operations modify the value of each pixel based on brightness value of neighbouring pixels using ERDAS IMAGINE 2022 s/w. and enhance the image quality for interpretation.

- **Training set selection**

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

- **Classification and Accuracy assessment**

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

computing divergence matrix. The overall accuracy of the classification was finally assessed with reference to ground truth data.

- **Area calculation**

  The area of each land use class in the leasehold is determined using ERDAS IMAGINE v.2022software.

- **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 ArcGIS Pro 3.4 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 is carried out in the field and necessary corrections if required, are incorporated before map finalization.

3.4 Land reclamation database on GIS:

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

4.0 Work Plan

Twenty-six opencast projects of WCL producing more than 5 million cubic m. (Coal + OB together) have been taken up for land reclamation/ restoration monitoring in 2023-24, based on the Resoursesat-2/2A(L-IV) Satellite data, using

ERDAS Imaging digital image processing s/w, ArcGIS 10.2 and ArcGIS Pro 3.4 platform. Land reclamation monitoring will be carried out regularly on annual basis to assess the progressive status of land reclamation/ restoration in the above OC mines. The report of this study has been uploaded on the websites of CMPDI, CIL & WCL in public domain.

5.0 Land Reclamation Status in Western Coalfields Limited

5.1 Following 26 OC projects producing more than 5 million cubic m. (Coal + OB together) of Western Coalfields Ltd. have been taken up for land reclamation monitoring based on Satellite Data of the year 2024:

- Sasti
- Durgapur
- Mungoli
- Umrer
- Ukni
- Niljai
- New Majri
- MKD-III
- Penganga
- Yekona I&II Amal
- New Majri UG to OC
- Pauni-II (Expn.)
- MKD-I Expn.
- Bhatadi
- Bellora Naigaon
- Ballarpur
- Junad
- Kolarpimpiri
- HLOCM)
- Gauri Pauni
- Gondegaon
- Adasa UG to OC
- Bhanegaon
- Gokul
- Inder Kamptee Amal
- Dhuptala

5.2 Project wise Land Reclamation status in WCL for the year 2024 is given in Table 1 and also shown graphically in Fig 1. Area statistics of different land use class present in the mine leasehold of the above projects for the year 2024 are shown in the Table 2. Land use maps derived from satellite data are shown in Plate 1-26. This time both local grid and UTM grid is used for map preparation along with all essential

boundaries shape file such as Quarry limit line, Sump, OB Dump, EC Boundary, Plantation area etc. as per the work order from CIL. Year wise changes in the different land use classes based on satellite data are depicted in Bar Charts in Fig.4–29 for the last three years only excluding Dhuptala OC (Sasti UG to OC) as this mine been consider for the land reclamation for the first time in Yr. 2024-25.

5.3 Study reveals that 25.32 Km^2 (38.37%) of excavated area has been under reclamation in the above mentioned mines of WCL out of which 6.08 Km^2(9.21%) area has been revegetated and 19.24 Km^2 (29.16%) area is under backfilling. There is an overall increase of 2.08 Km^2 in area under reclamation in WCL in the year 2024 with respect to the year 2023, out of which there is an increase of 1.26 Km^2 in area under technical reclamation (Barren Backfilling) and an increase of 0.82 Km^2 in area under biological reclamation (Plantation on Backfilled Areas) (Refer Table-1).

In Sasti OC project, plantation on OB has been reduced by 0.11 Km^2 on account of tree felling and re-handling of backfill for the purpose of coal mining. In Durgapur OC and Umrer OC projects backfill has been reduced by 0.08 Km^2 and 0.04 Km^2 respectively as backfill has been converted to biological reclamation. In Inder Kamptee Amalgamated OC project total lease hold area have been decreased from 11.25 Km^2 to 7.95 Km^2. In previous cycle Inder OC project and Kamptee OC project had been analyzed separately in different year.

5.4 Analysis of satellite data also indicates that total area under active mining has increased from 33.43 Km^2 (Yr.2023) to 40.67 Km^2 (Yr.2024). In Umrer OC project area under active mining has reduced due to increase in area under backfilling.

5.5 After comparing the satellite data of year 2024 vs. 2023, study also reveals that area under backfilling has increased from 17.98 Km^2 (Yr.2023) to 19.24 Km^2 (Yr.2024).

5.6 Total area under biological reclamation has increased from 5.26 Km^2 (Yr.2023) to 6.08 Km^2 (Yr.2024). There is no biological reclamation in Yekona-I&II (Amal.), New Majri UG to OC, Pauni-II (Expn.), Bhatadi, MKD-I and MKD-III OC, Gondegaon, Adasa UG to OC, Bhanegaon, Gokul, Dhuptala & Penganga OC.

5.7 Analysis of satellite data also indicates that total area under plantation (Green Cover) has increased from 41.37 Km^2 (Yr.2023) to 47.26 Km^2 (Yr.2024). The increase of 5.89 Km^2 area under Green Cover areas may be attributed to continuous effort of WCL towards environmental protection.

5.8 After comparing the satellite data of year 2024 vs. 2023, it is evident that total area under plantation (Green Cover) in all 26 Opencast Projects has increased. It has been also observed in some of the projects natural vegetation has also started growing on stabilized old backfilled areas and overburden dumps due to high soil fertility.

5.9 On comparing the status of land reclamation for the year 2024 with respect to the year 2023 in different projects, it is evident that the total area under reclamation has increased from 23.24 Km^2 (Yr. 2023) to 25.32 Km^2 (Yr. 2023).

5.10 Out of 26 projects of WCL, maximum area under reclamation is in Ballarpur Opencast Project (85.95%) followed by Sasti OC (80.73%) and Umrer OC (66.25%).

TABLE - 2

Status of Land Use / Reclamation in OC Mines(>5mcu.m) of Western Coalfields Ltd based on Satellite data of the Year 2024

(Area in Sq.Km)

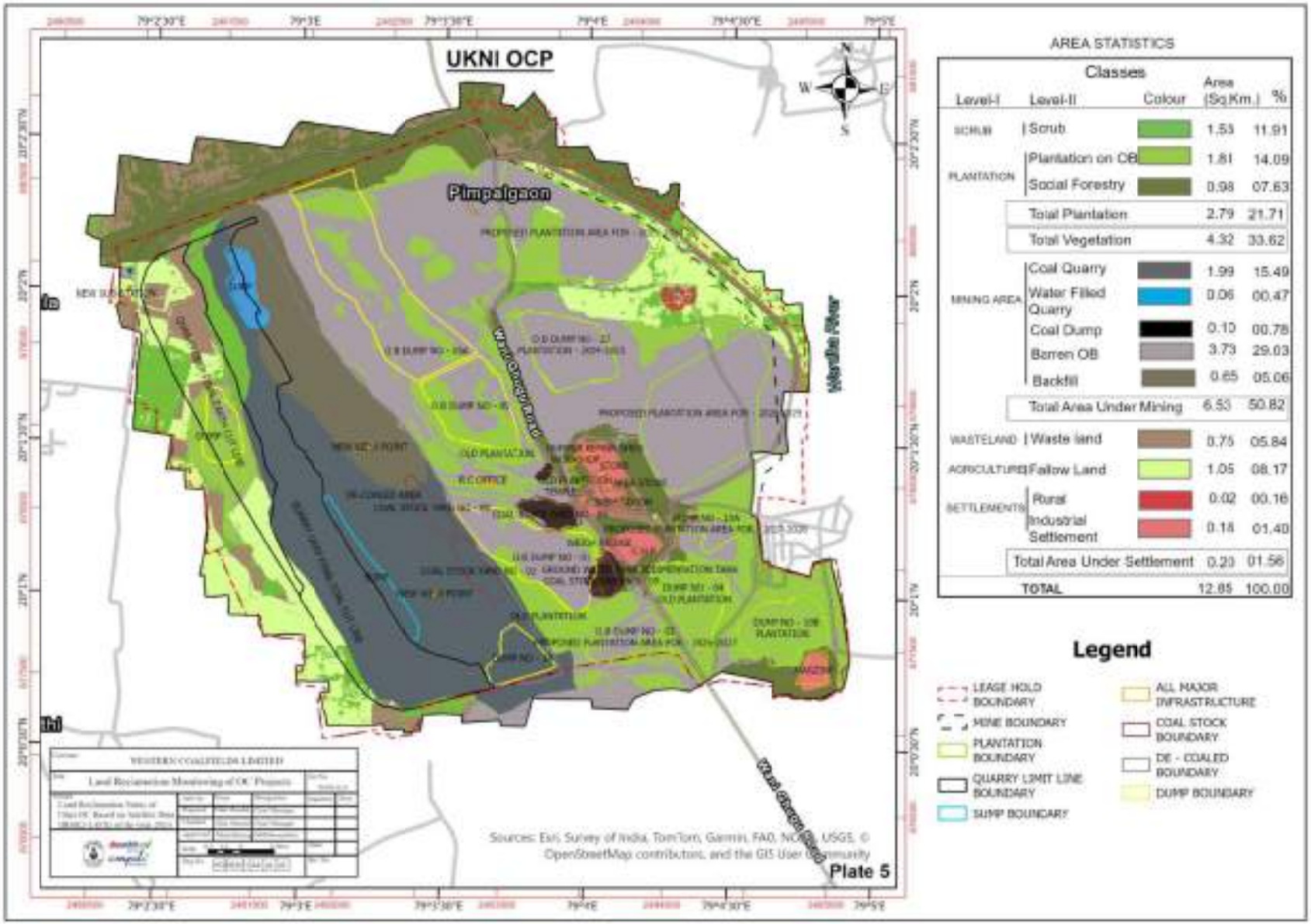
		Sasti		Durgapur		Mungoli		Umrer		Ukni		Niljai		New Majri		MKD-III		Penganga		Yekona-I&II (Amal)		New Majri Ug to OC		Pauni -II (Expn)		MKD-I (Expn.)		Total	
		Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
FORESTS	Dense Forest	0.00	0.00	1.27	8.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.88
	Open Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Forest	0.00	0.00	1.27	8.19	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	0.00	**0.00**	**0.00**	**0.00**	0.00	**0.00**	**1.27**	**0.88**
SCRUBS	Scrubs	**0.51**	**5.00**	**0.48**	**3.10**	**1.62**	**12.91**	**0.00**	**0.00**	**1.53**	**11.91**	**1.34**	**7.61**	**0.06**	**0.78**	**0.54**	**5.85**	**0.71**	**9.31**	**1.99**	**11.85**	**0.68**	**9.63**	**0.97**	**8.86**	**0.75**	**12.21**	**11.18**	**7.78**
PLANTATION	Social Forestry	0.71	6.95	1.26	8.13	0.65	5.18	2.32	24.55	0.98	7.63	1.31	7.44	1.47	18.99	0.17	1.84	0.68	8.91	0.08	0.48	0.46	6.52	0.30	2.74	0.00	0.00	10.39	7.23
	Plantation on OB Dump	1.92	18.81	2.99	19.29	1.98	15.78	1.45	15.34	1.81	14.09	2.23	12.66	1.04	13.44	0.25	2.71	0.50	6.55	0.00	0.00	0.35	4.96	0.25	2.28	0.10	1.63	14.87	10.35
	Plantation on Backfill (Biological Reclamation)	0.62	6.07	1.18	7.61	0.20	1.59	1.73	18.31	0.00	0.00	0.13	0.74	0.28	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.14	2.88
	Total Plantation	**3.25**	**31.83**	**5.43**	**35.03**	**2.83**	**22.55**	**5.50**	**58.20**	**2.79**	**21.71**	**3.67**	**20.84**	**2.79**	**36.05**	**0.42**	**4.55**	**1.18**	**15.47**	**0.08**	**0.48**	**0.81**	**11.47**	**0.55**	**5.02**	**0.10**	**1.63**	**29.40**	**20.46**
	Total Vegetation	**3.76**	**36.83**	**7.18**	**46.32**	**4.45**	**35.46**	**5.50**	**58.20**	**4.32**	**33.62**	**5.01**	**28.45**	**2.85**	**36.82**	**0.96**	**10.40**	**1.89**	**24.77**	**2.07**	**12.33**	**1.49**	**21.10**	**1.52**	**13.88**	**0.85**	**13.84**	**41.85**	**29.12**
ACTIVE MINING	Coal Quarry	0.78	7.64	2.25	14.52	2.23	17.77	1.52	16.08	1.99	15.49	3.00	17.04	2.27	29.33	1.55	16.79	1.19	15.60	1.43	8.52	1.31	18.56	1.54	14.06	1.86	30.29	22.92	15.95
	Coal Dump	0.06	0.59	0.05	0.32	0.00	0.00	0.10	1.06	0.10	0.78	0.05	0.28	0.00	0.00	0.00	0.00	0.23	3.01	0.21	1.25	0.13	1.84	0.20	1.83	0.00	0.00	1.13	0.79
	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	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
	Quarry Filled With Water	0.00	0.00	0.45	2.90	0.00	0.00	0.01	0.11	0.06	0.47	0.04	0.23	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	0.56	0.39
	Total Area under *Active Mining*	**0.84**	**8.23**	**2.75**	**17.74**	**2.23**	**17.77**	**1.63**	**17.25**	**2.15**	**16.73**	**3.09**	**17.55**	**2.27**	**29.33**	**1.55**	**16.79**	**1.42**	**18.61**	**1.64**	**9.77**	**1.44**	**20.40**	**1.74**	**15.89**	**1.86**	**30.29**	**24.61**	**17.12**
	Barren OB Dump	0.69	6.76	1.77	11.42	2.15	17.13	0.12	1.27	3.73	29.03	4.46	25.33	0.31	4.01	2.55	27.63	1.35	17.69	2.04	12.15	0.84	11.90	3.17	28.95	0.78	12.70	23.96	16.67
	Barren Backfilled Area (Technical Reclamation)	2.90	28.40	0.96	6.19	1.70	13.55	1.47	15.56	0.65	5.06	1.75	9.94	1.82	23.51	0.46	4.98	0.84	11.01	0.03	0.18	0.00	0.00	0.00	0.00	0.00	0.00	12.58	8.75
	Total Area	**3.59**	**35.16**	**2.73**	**17.61**	**3.85**	**30.68**	**1.59**	**16.83**	**4.38**	**34.09**	**6.21**	**35.26**	**2.13**	**27.52**	**3.01**	**32.61**	**2.19**	**28.70**	2.07	12.33	0.84	11.90	3.17	28.95	0.78	12.70	36.54	25.43
	Total Area Under Mine Operation	**4.43**	**43.39**	**5.48**	**35.35**	**6.08**	**48.45**	**3.22**	**34.07**	**6.53**	**50.82**	**9.30**	**52.81**	**4.40**	**56.85**	**4.56**	**49.40**	**3.61**	**47.31**	**3.71**	**22.10**	**2.28**	**32.29**	**4.91**	**44.84**	**2.64**	**43.00**	**61.15**	**42.55**
WASTELANDS	Waste Lands	0.53	5.19	1.16	7.48	0.23	1.83	0.27	2.86	0.75	5.84	0.79	4.49	0.10	1.29	0.15	1.63	1.65	21.63	1.26	7.50	0.26	3.68	0.33	3.01	0.11	1.79	7.59	5.28
	Fly Ash Pond / Sand Body	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.71	0.05	0.46	0.00	0.00	0.10	0.07
	Total Wasteland	**0.53**	**5.19**	**1.16**	**7.48**	**0.23**	**1.83**	**0.27**	**2.86**	**0.75**	**5.84**	**0.79**	**4.49**	**0.10**	**1.29**	**0.15**	**1.63**	**1.65**	**21.63**	**1.26**	**7.50**	**0.31**	**4.39**	**0.38**	**3.47**	**0.11**	**1.79**	**7.69**	**5.35**
WATERBODIES	Reservoir, nallah, ponds	0.07	0.69	0.05	0.32	0.00	0.00	0.20	2.12	0.00	0.00	0.03	0.17	0.01	0.13	0.00	0.00	0.12	1.57	0.10	0.60	0.03	0.42	0.22	2.01	0.07	1.14	0.90	0.63
	Total Waterbodies	**0.07**	**0.69**	**0.05**	**0.32**	**0.00**	**0.00**	**0.20**	**2.12**	**0.00**	**0.00**	**0.03**	**0.17**	**0.01**	**0.13**	**0.00**	**0.00**	**0.12**	**1.57**	**0.10**	**0.60**	**0.03**	**0.42**	**0.22**	**2.01**	**0.07**	**1.14**	0.90	0.63
AGRICULTURE	Crop Lands	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	0.93	10.08	0.00	0.00	3.26	19.42	0.87	12.32	0.46	4.20	0.51	8.31	6.03	4.20
	Fallow Lands	1.08	10.58	1.04	6.71	1.46	11.63	0.00	0.00	1.05	8.17	1.45	8.23	0.00	0.00	2.42	26.22	0.21	2.75	6.34	37.76	2.00	28.33	3.33	30.41	1.96	31.92	22.34	15.55
	Total Agriculture	**1.08**	**10.58**	**1.04**	**6.71**	**1.46**	**11.63**	**0.00**	**0.00**	**1.05**	**8.17**	**1.45**	**8.23**	**0.00**	**0.00**	**3.35**	**36.29**	**0.21**	**2.75**	**9.60**	**57.18**	**2.87**	**40.65**	**3.79**	**34.61**	**2.47**	**40.23**	**28.37**	**19.74**
SETTLEMENTS	Urban Settlement	0.08	0.78	0.39	2.52	0.12	0.96	0.15	1.59	0.00	0.00	0.34	1.93	0.34	4.39	0.00	0.00	0.00	0.00	0.01	0.06	0.07	0.99	0.00	0.00	0.00	0.00	1.50	1.04
	Rural Settlement	0.00	0.00	0.05	0.32	0.03	0.24	0.00	0.00	0.02	0.16	0.20	1.14	0.00	0.00	0.00	0.00	0.03	0.39	0.03	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.25
	Industrial Settlement	0.26	2.55	0.15	0.97	0.18	1.43	0.11	1.16	0.18	1.40	0.49	2.78	0.04	0.52	0.21	2.28	0.12	1.57	0.01	0.06	0.01	0.14	0.13	1.19	0.00	0.00	1.89	1.32
	Total Settlement	**0.34**	**3.33**	**0.59**	**3.81**	**0.33**	**2.63**	**0.26**	**2.75**	**0.20**	**1.56**	**1.03**	**5.85**	**0.38**	**4.91**	**0.21**	**2.28**	**0.15**	**1.97**	**0.05**	**0.30**	**0.08**	**1.13**	**0.13**	**1.19**	0.00	**0.00**	3.75	2.61
	Grand Total	**10.21**	**100.00**	**15.50**	**100.00**	**12.55**	**100.00**	**9.45**	**100.00**	**12.85**	**100.00**	**17.61**	**100.00**	**7.74**	**100.00**	**9.23**	**100.00**	**7.63**	**100.00**	**16.79**	**100.00**	**7.06**	**100.00**	**10.95**	**100.00**	**6.14**	**100.00**	**143.71**	**100.00**

TABLE - 2

Status of Land Use / Reclamation in OC Mines(>5mcu.m) of Western Coalfields Ltd based on Satellite data of the Year 2024

(Area in Sq.Km)

		Bhatadi		Bellora Naigaon		Ballarpur		Junad		Kolar Pimpiri		HLOCM		Gauri-Pouni		Gondegaon		Adasa UG to OC		Dhuptala		Gokul		Bhanegaon		Inder Kamptee		Total	
		Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
FORESTS	Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Open Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCRUBS	Scrubs	0.97	11.45	0.53	7.97	0.01	0.41	0.51	11.33	2.40	16.12	0.02	0.64	0.86	6.66	0.33	4.17	0.82	14.54	1.07	10.55	1.06	10.58	0.13	3.74	0.75	12.21	9.46	9.82
PLANTATION	Social Forestry	0.48	5.67	0.45	6.77	0.13	5.35	0.38	8.44	0.16	1.07	0.37	11.86	0.64	4.96	0.57	7.21	0.27	4.79	0.41	4.04	0.92	9.18	0.24	6.90	0.00	0.00	5.02	5.21
	Plantation on OB Dump	0.59	6.97	0.57	8.57	0.78	32.10	0.81	18.00	1.43	9.60	0.76	24.36	2.55	19.75	1.22	15.42	0.00	0.00	0.78	7.69	0.00	0.00	0.33	9.48	0.10	1.63	9.92	10.30
	Plantation on Backfill (Biological Reclamation)	0.00	0.00	0.20	3.01	0.28	11.52	0.12	2.67	0.11	0.74	0.10	3.21	0.79	6.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	1.66
	Total Plantation	1.07	12.63	1.22	18.35	1.19	48.97	1.31	29.11	1.70	11.42	1.23	39.42	3.98	30.83	1.79	22.63	0.27	4.79	1.19	11.74	0.92	9.18	0.57	16.38	0.10	1.63	16.54	17.18
	Total Vegetation	2.04	24.09	1.75	26.32	1.20	49.38	1.82	40.44	4.10	27.54	1.25	40.06	4.84	37.49	2.12	26.80	1.09	19.33	2.26	22.29	1.98	19.76	0.70	20.11	0.85	13.84	26.00	27.00
ACTIVE MINING	Coal Quarry	0.97	11.45	1.17	17.59	0.13	5.35	0.65	14.44	1.33	8.93	0.49	15.71	1.08	8.37	1.59	20.10	0.74	13.12	0.29	2.86	1.81	18.06	0.64	18.39	1.86	30.29	12.75	13.24
	Coal Dump	0.13	1.53	0.03	0.45	0.04	1.65	0.02	0.44	0.04	0.27	0.05	1.60	0.15	1.16	0.07	0.88	0.06	1.06	0.04	0.39	0.26	2.59	0.02	0.57	0.00	0.00	0.91	0.94
	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	0.00	0.00	0.00	0.00	0.09	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
	Quarry Filled With Water	0.02	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.42	2.82	0.00	0.00	0.47	3.64	0.24	3.03	0.00	0.00	0.04	0.39	0.05	0.50	0.03	0.86	0.00	0.00	1.27	1.32
	Total Area under *Active Mining*	1.12	13.22	1.20	18.05	0.17	7.00	0.67	14.89	1.79	12.02	0.54	17.31	1.70	13.17	1.90	24.02	0.80	14.18	0.46	4.54	2.12	21.16	0.69	19.83	1.86	30.29	15.02	15.60
	Barren OB Dump	1.77	20.90	0.45	6.77	0.19	7.82	1.15	25.56	3.58	24.04	0.31	9.94	0.90	6.97	1.62	20.48	0.97	17.20	1.18	11.64	1.52	15.17	0.96	27.59	0.78	12.70	15.38	15.97
	Barren Backfilled Area (Technical Reclamation)	0.44	5.19	0.83	12.48	0.76	31.28	0.41	9.11	0.21	1.41	0.65	20.83	0.91	7.05	0.62	7.84	0.00	0.00	0.00	0.00	0.89	8.88	0.02	0.57	0.00	0.00	5.74	5.96
	Total Area	2.21	26.09	1.28	19.25	0.95	39.09	1.56	34.67	3.79	25.45	0.96	30.77	1.81	14.02	2.24	28.32	0.97	17.20	1.18	11.64	2.41	24.05	0.98	28.16	0.78	12.70	21.12	21.93
	Total Area Under Mine Operation	3.33	39.32	2.48	37.29	1.12	46.09	2.23	49.56	5.58	37.47	1.50	48.08	3.51	27.19	4.14	52.34	1.77	31.38	1.64	16.17	4.53	45.21	1.67	47.99	2.64	43.00	36.14	37.53
WASTELANDS	Waste Lands	0.57	6.73	0.27	4.06	0.03	1.23	0.22	4.89	0.65	4.37	0.11	3.53	0.41	3.18	0.50	6.32	0.46	8.16	0.68	6.71	0.47	4.69	0.25	7.18	0.11	1.79	4.73	4.91
	Fly Ash Pond / Sand Body	0.05	0.59	0.05	0.75	0.02	0.00	0.04	0.89	0.03	0.20	0.00	0.00	0.06	0.46	0.00	0.00	0.04	0.71	0.05	0.49	0.00	0.00	0.03	0.86	0.00	0.00	0.37	0.38
WATERBODIES	**Total Wasteland**	0.62	7.32	0.32	4.81	0.05	1.23	0.26	5.78	0.68	4.57	0.11	3.53	0.47	3.64	0.50	6.32	0.50	8.87	0.73	7.20	0.47	4.69	0.28	8.05	0.11	1.79	5.10	5.30
	Reservoir, nallah, ponds	0.15	1.77	0.02	0.30	0.02	0.82	0.04	0.89	0.02	0.13	0.08	2.56	0.02	0.15	0.00	0.00	0.05	0.89	0.11	1.08	0.02	0.20	0.08	2.30	0.07	1.14	0.68	0.71
	Total Waterbodies	0.15	1.77	0.02	0.30	0.02	0.82	0.04	0.89	0.02	0.13	0.08	2.56	0.02	0.15	0.00	0.00	0.05	0.89	0.11	1.08	0.02	0.20	0.08	2.30	0.07	1.14	0.68	0.71
AGRICULTURE	Crop Lands	0.00	0.00	0.50	7.52	0.00	0.00	0.00	0.00	0.35	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.70	12.41	1.67	16.47	0.00	0.00	0.00	0.00	0.51	8.31	3.73	3.87
	Fallow Lands	2.25	26.56	1.58	23.76	0.02	0.82	0.12	2.67	3.99	26.80	0.04	1.28	3.94	30.52	1.08	13.65	1.45	25.71	3.56	35.11	2.80	27.94	0.67	19.25	1.96	31.92	23.46	24.36
	Total Agriculture	2.25	26.56	2.08	31.28	0.02	0.82	0.12	2.67	4.34	29.15	0.04	1.28	3.94	30.52	1.08	13.65	2.15	38.12	5.23	51.58	2.80	27.94	0.67	19.25	2.47	40.23	27.19	28.23
SETTLEMENTS	Urban Settlement	0.02	0.24	0.00	0.00	0.01	0.41	0.01	0.22	0.01	0.07	0.13	4.17	0.00	0.00	0.04	0.51	0.04	0.71	0.07	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.34
	Rural Settlement	0.04	0.47	0.00	0.00	0.00	0.00	0.01	0.22	0.06	0.40	0.00	0.00	0.05	0.39	0.00	0.00	0.03	0.53	0.02	0.20	0.16	1.60	0.00	0.00	0.00	0.00	0.37	0.38
	Industrial Settlement	0.02	0.24	0.00	0.00	0.01	0.41	0.01	0.22	0.10	0.67	0.01	0.32	0.08	0.62	0.03	0.38	0.01	0.18	0.08	0.79	0.06	0.60	0.08	2.30	0.00	0.00	0.49	0.51
	Total Settlement	0.08	0.94	0.00	0.00	0.02	0.82	0.03	0.67	0.17	1.14	0.14	4.49	0.13	1.01	0.07	0.88	0.08	1.42	0.17	1.68	0.22	2.20	0.08	2.30	0.00	0.00	1.19	1.24
	Grand Total	8.47	100.00	6.65	100.00	2.43	99.18	4.50	100.00	14.89	100.00	3.12	100.00	12.91	100.00	7.91	100.00	5.64	100.00	10.14	100.00	10.02	100.00	3.48	100.00	6.14	100.00	96.30	100.00


UKNI OCP
Pimpalgaon
Wardha River
Main Quarry Road
Sources: Esri, Survey of India, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
Plate 5
AREA STATISTICS
Classes
Level-I
Level-II
Colour
Area (Sq.Km.)
%
SCRUB
Scrub
1.53
11.91
PLANTATION
Plantation on OB
1.81
14.09
Social Forestry
0.98
07.63
Total Plantation
2.79
21.71
Total Vegetation
4.32
33.62
MINING AREA
Coal Quarry
1.99
15.49
Water Filled Quarry
0.06
00.47
Coal Dump
0.10
00.78
Barren OB
3.73
29.03
Backfill
0.65
05.06
Total Area Under Mining
6.53
50.82
WASTELAND
Waste land
0.75
05.84
AGRICULTURE
Fallow Land
1.05
08.17
SETTLEMENTS
Rural
0.02
00.16
Industrial Settlement
0.18
01.40
Total Area Under Settlement
0.20
01.56
TOTAL
12.85
100.00
Legend
LEASE HOLD BOUNDARY
MINE BOUNDARY
PLANTATION BOUNDARY
QUARRY LIMIT LINE BOUNDARY
SUMP BOUNDARY
ALL MAJOR INFRASTRUCTURE
COAL STOCK BOUNDARY
DE - COALED BOUNDARY
DUMP BOUNDARY

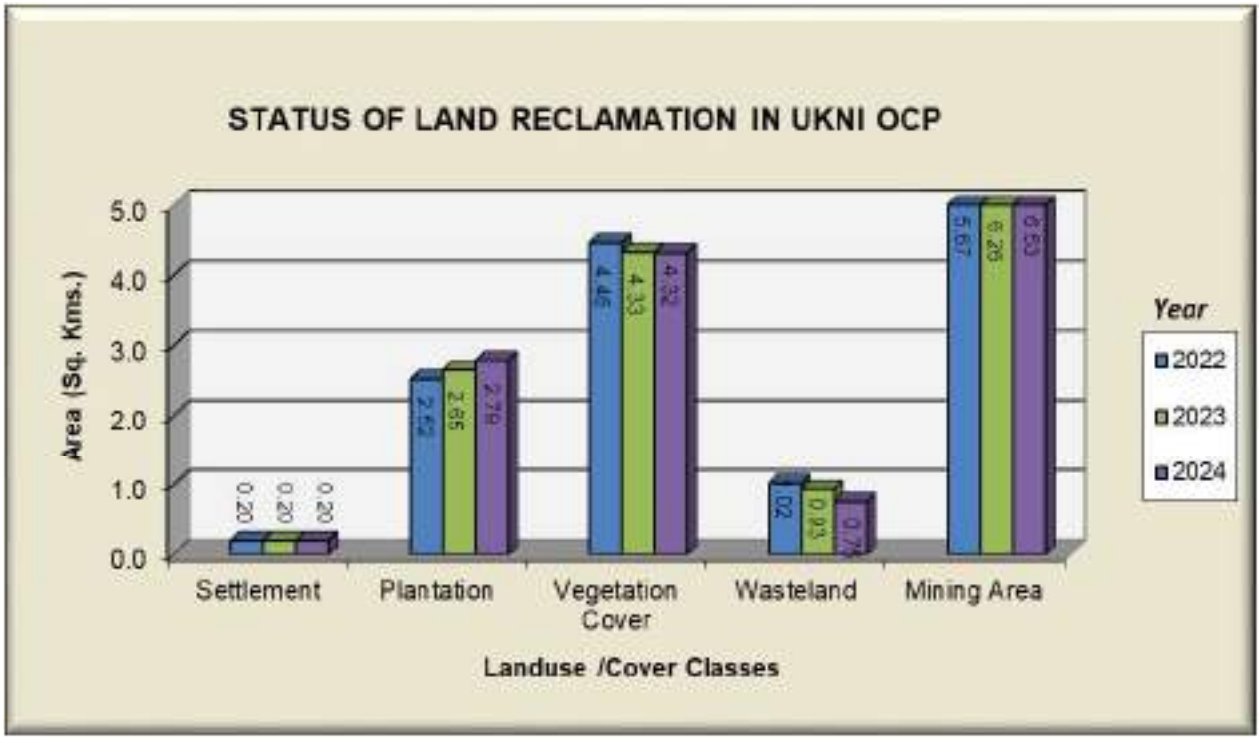


Figure 8

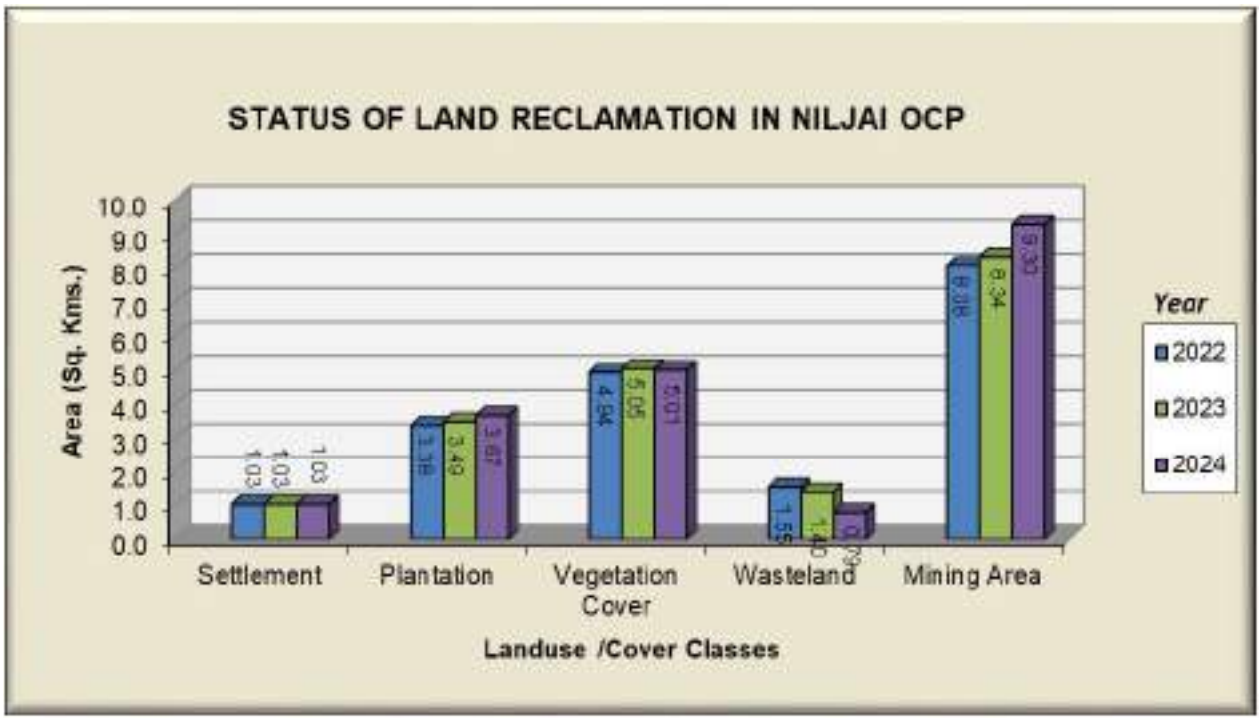


Figure 9



Photograph-5: Plantation on OB Dump (Ukni OCP)



Photograph-6: Plantation on OB dump (Niljai OCP)

शब्द-कोष

1	Land Reclamation	भूमि पुनरुद्धार
2	Over Burden	अधिभार
3	Monitoring	निगरानी
4	Report	प्रतिवेदन
5	Executive Summary	कार्यकारी सारांश
6	Opencast Mine	खुली खदान
7	Objective	उद्देश्य
8	Methodology	कार्य प्रणाली अथवा प्रक्रिया
9	Table	तालिका
10	List of Tables	तालिकाओं की सूची
11	Map	मानचित्र
12	Social Forestry	सामाजिक वानिकी
13	Plantation	पौधारोपण
14	Million	घनमीटर
15	Background	पृष्टभूमि
16	Planning	योजनाबद्ध
17	Asses	आकलन
18	Status	स्थिति
19	Regularly	निरंतर
20	Satellite	उपग्रह
21	Subsidiary	अनुषांगिक
22	Production	उत्पादन
23	Biological Reclamation	जैविक पुनरुद्धार
24	Technical Reclamation	तकनिकी पुनरुधार

25	Leasehold Area	पट्टा क्षेत्र
26	Excavated Area	उत्खनन क्षेत्र
27	Active mining	सक्रिय खनन
28	Environmental Protection	पर्यावरण संरक्षण
29	Remedial Measure	उपचारात्मक उपाय
30	Interval	अंतराल
31	Systematic Error	व्यवस्थित त्रुटियँ।
32	Error	अशुद्धियाँ
33	Curvature	वक्रता
34	Geometric	ज्यामितिक
35	Distortion	विरुपण
36	Plantation	पौधारोपण
37	Capacity	क्षमता
38	Software	सॉफ्टवेयर
39	Class	वर्ग
40	Accuracy	सटीकता
41	Statistical Separation	सांख्यिकीय पृथक्करण
42	Cubic meter	घनमीटर
43	Depicted	दर्शाया गया
44	Percentage	प्रतिशत
45	Salient Findings	मुख्य निष्कर्ष
46	Methodology	पद्धति
47	Data Procurement	डाटा क्रय
48	Satellite data Processing	उपग्रह डेटा प्रसंस्करण
49	Rectification and geo-referencing	सुधार और भूसन्दर्भ-

50	Image enhancement	छविगुण - बृद्धि
51	Training set selection	प्रशिक्षण सेट का चयन
52	Classification and Accuracy assessment	वर्गीकरण और मूल्यांकन की सटीकत
53	Area calculation	क्षेत्र गण-ना
54	Temporal	लौकिक
55	Processing	प्रसंस्करण
56	Overlay of Vector data base	वेक्टर डेटा बेस का अरोपन
57	Area calculation	क्षेत्रगणना-
58	Pre-field map preparation	क्षेत्र जाने के पहले नक्शे की त्तैयारी
59	Ground Truthing	भू-सत्यापन
60	Ground Information	भू-सुचना
61	Interpretation	व्याख्या
62	Eco-system	पारिस्थितिकी तंत्र
63	Minor	मामुली
64	Water Drainage	जल निकाय
65	Interval	अंतराल
66	Maximum	अधिकतम
67	Coal field	कोयला क्षेत्र
68	Design	परिकल्पना
69	Superimpose	आरोपित
70	Update	अद्यतनीकरण/नवीनीकरण
71	Cumulative	संचयित
72	Embankment	तटबंध
73	Cluster	खुली तथा भूमिगत खदानों के समूह

ABBREVIATIONS

SoI	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 (Stabilized 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

Central Mine Planning & Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)
Gondwana Place, Kanke Road, Ranchi 834031, Jharkhand
Phone : (+91) 651 2230001, 2230002, 2230483, FAX (+91) 651 2231447, 2231851
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Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

FORM V

(See Rule 14)

Environmental Audit Report for the financial Year ending the 31st March 2024

Unique Application Number	***Submitted Date***
MPCB-ENVIRONMENT_STATEMENT-0000072897	27-09-2024

PART A

Company Information

Company Name	***Application UAN number***
Western Coalfields Limited, Ukni Opencast Mine	-

Address

Office of the Sub Area Manager, Ukni - Junad Sub Area, PO. - Ukni, Tal- Wani, Dist - Yavatmal

Plot no	***Taluka***	***Village***
669	Wani	Ukni
Capital Investment (In lakhs)	***Scale***	***City***
37350.16	L.S.I	Wani
Pincode	***Person Name***	***Designation***
445304	Omprakash V. Fulare	Sub Area Manager, Ukni-Junad Sub Area
Telephone Number	***Fax Number***	***Email***
9424666269	07239241357	subareaofficeukni@gmail.com
Region	***Industry Category***	***Industry Type***
SRO-Chandrapur	Red	R35 Mining and ore beneficiation
Last Environmental statement submitted online	***Consent Number***	***Consent Issue Date***
yes	MPCBCONSENT-0000159831/CR/2305000853	2023-05-12
Consent Valid Upto	***Establishment Year***	***Date of last environment statement submitted***
2024-03-31	1993	Sep 19 2023 12:00:00:000AM

Industry Category Primary (STC Code) & Secondary (STC Code)

Product Information

Product Name	***Consent Quantity***	***Actual Quantity***	***UOM***
COAL	2.2	1.838	MT/A

By-product Information

By Product Name	***Consent Quantity***	***Actual Quantity***	***UOM***
-	0	0	CMD

Part-B (Water & Raw Material Consumption)

1) Water Consumption in m3/day

Water Consumption for	Consent Quantity in m3/day	Actual Quantity in m3/day
Process	380.00	380.00
Cooling	0.00	0.00
Domestic	100.00	33.90
All others	100.00	100.00
Total	580.00	513.90

2) Effluent Generation in CMD / MLD

Particulars	Consent Quantity	Actual Quantity	UOM
Mine discharge	5372	5222	CMD

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

Name of Products (Production)	During the Previous financial Year	During the current Financial year	UOM
Coal	0.1068	0.102	

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

Name of Raw Materials	During the Previous financial Year	During the current Financial year	UOM
Explosives	2.0569	3.62	Kg/Annum

4) Fuel Consumption

Fuel Name	Consent quantity	Actual Quantity	UOM
Diesel	0	4713.00	KL/A

Part-C

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

[A] Water

Pollutants Detail	Quantity of Pollutants discharged (kL/day)	Concentration of Pollutants discharged(Mg/Lit) Except PH,Temp,Colour	Percentage of variation from prescribed standards with reasons		
	Quantity	Concentration	%variation	Standard	Reason
Regular Water quality monitoring is carried out.(reports attached)	0	0	-	-	-

[B] Air (Stack)

Pollutants Detail	Quantity of Pollutants discharged (kL/day)	Concentration of Pollutants discharged(Mg/NM3)	Percentage of variation from prescribed standards with reasons		
	Quantity	Concentration	%variation	Standard	Reason
NA	0	0	-	-	-

Part-D

HAZARDOUS WASTES

1) From Process

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
5.1 Used or spent oil	50.752	60	KL/A
5.2 Wastes or residues containing oil	2.2	0.5	Ton/Y

2) From Pollution Control Facilities

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
35.3 Chemical sludge from waste water treatment	5	5.38	Ton/Y

Part-E

SOLID WASTES

1) From Process

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

2) From Pollution Control Facilities

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

3) Quantity Recycled or Re-utilized within the unit

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

Part-F

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

1) Hazardous Waste

Type of Hazardous Waste Generated	Qty of Hazardous Waste	UOM	Concentration of Hazardous Waste
5.1 Used or spent oil	60	KL/A	-
5.2 Wastes or residues containing oil	0.5	Ton/Y	-
34.2 Sludge from treatment of waste water arising out of cleaning / disposal of barrels / containers	5.38	Ton/Y	-

2) Solid Waste

Type of Solid Waste Generated	Qty of Solid Waste	UOM	Concentration of Solid Waste
-	0	CMD	-

Part-G

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

Description	Reduction in Water Consumption (M3/day)	Reduction in Fuel & Solvent Consumption (KL/day)	Reduction in Raw Material (Kg)	Reduction in Power Consumption (KWH)	Capital Investment(in Lacs)	Reduction in Maintenance(in Lacs)
Impact of the pollution Control measures taken	0	0	0	0	0	0

Part-H

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

[A] Investment made during the period of Environmental Statement

Detail of measures for Environmental Protection	***Environmental Protection Measures***	***Capital Investment (Lacks)***
Revenue expenditure for Pollution control works	-	2.89

[B] Investment Proposed for next Year

Detail of measures for Environmental Protection	***Environmental Protection Measures***	***Capital Investment (Lacks)***
Environment Protection works.	-	20

Part-I

Any other particulars for improving the quality of the environment.

Particulars

-

Name & Designation

Omprakash V. Fulare, Sub Area Manager, Ukni-Junad Sub Area

UAN No:

MPCB-ENVIRONMENT_STATEMENT-0000072897

Submitted On:

27-09-2024