वेस्टर्नकोलफील्ड्सलिमिटेड
Western Coalfields Limited
;मिनिरात्न कंपनीद्ध(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 रू वणी नार्थ क्षेत्र
मु॰ पो॰ उकनीए तह॰ वणीए जी॰ यवतमाल ,महाराष्ट्रद्ध पिन रू445304
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॰ वेकोलीध्वनाक्षेध्उण्क्षेण्प्रण्ध्उकनी.जूनाडध्नागरिकीध्2023.24 / 155 दिनांकरू 26-11-2023

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 **April 2023 to Sept. 2023**

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 **April 2023 to Sept. 2023**
This is for your kind information please.

Thanking you,

Yours sincerely,

26/11/23
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

April 2023 to September 2023

INDEX

Sr No	Contents
1	Environmental Clearance letter
2	Consent to operate
3	Data Sheet
4	Six Monthly Compliance Report of E. C. conditions
5	Environment Monitoring Reports of April 2023 to Sept. 2023
6	Ground water level & Quality analysis Report
7	Land Restoration – Reclamation monitoring report (Based on satellite data)
8	Environment Audit Statement 2022-23

BY SPEED POST

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

WCL/GM(Env)/HQ/Nagpur
सही / Ref. ...दिनांक / Date ...

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.: Ulni Deep OCP (Expansion of prod. from 2.20 MTPA to 3.50 MTPA and Expo. 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-H/557 dated 13.12.2011 and subsequent letters dated 24.02.2012; e-mails dated 02.06.2012; 14.06.2012; 17.08.2012; 27.08.2012; 21.12.2012; and letters dated 27.07.2013 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 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. It is noted that the application is for environmental clearance for **Ulni Deep OCP (Expansion of prod. from 2.20 MTPA to 3.50 MTPA and Expo. 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 from 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.

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 33.32 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 1:8.90. 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 – 153.00 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 as 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 at 970 m3/d which includes 460 m^3/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 261 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 Mm^3. The year of backfilling would be from 9th Year. There will be one internal dump over an area of 180.00 ha with the height upto ground level and with the quantity of 104.14 Mm3

xx. The Details of Final Mine Void would be over an area of 153.00 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. 319.9694 Crores (Additional). Rs. 1347.93 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.31.19 Lakhs; Additional Provision – Rs. 30.00 Lakhs; Revenue Expenditure – Rs. 246.29 Lakhs; Additional Revenue Provision- @ Rs. 3.30 per tonne

xxvi. Forestry issues: There is no forest area is a 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,

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 3-45/2005(ENV)/1588 dated 01.10.2013. The EAC deliberated on the compliance report in its meeting held on 3rd - 4th October, 2013 and in 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 1285.32 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 rehandled 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.

xvi. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine.

xvii. 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 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.

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 Mm^3 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 Mm^3 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 180 ha, infrastructure area 55 ha water body 153 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 their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through an specialised agency/institution within the District/State and the results reported to this Ministry and to DGMS.

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 Proponent 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

Date 6/

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 bring 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_x (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and at the 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 Offices of CPCB and the SPCB.

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

xix. The Environmental statement for each financial year ending 31 March in Form -V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional 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 Admin. Bldg., Madam Cama Road, MUMBAI - 400032..

Jsw_EC

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, Kalapataru Point, 3rd & 4th Floors, Sion, Matunga Scheme Road No. 5, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai – 400002
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-3 Kasturba Gandhi Marg, New Delhi.
7. Dr. R.K. Garg, Advisor, Coal India Limited, SCOPE Minar, Core-I, 4t 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

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.

1929696f
52d70d72
4adbbbef
3eaff749
a27d0617
2d2683e9
e45790ae
ef809411

Signed by: Dr J. B. Sangewar
Joint Director(WPC) & InCharge Of CAC-Cell
For and on behalf of,
Maharashtra Pollution Control Board
cac-cell@mpcb.gov.in
2023-05-12 16:10:35 IST

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 : As per EMP –

Type of Land	Required as per EMP(ha)	Actual acquired (ha) as on **30.09.2023**
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.[Progressive as on 31.03.2023]** **Revenue - Rs. 826.85 Lakhs.[Progressive as on 31.03.2023]**

EXPENDITURE:-

Capital:–

Account Head	**FY 2022-23 (up to Mar. 23)**	**Progressive as on 31.03.2023 (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 2022-23 (up to Mar. 23)**	**Progressive as on 31.03.2023 (Fig. In lakhs)**
Air Pollution Control Works-	**6.93**	**233.01**
Water pollution Control Works	**1.82**	**112.53**
Afforestation.	**Nil**	**195.35**
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	**Nil**	**156.15**
Other	**Nil**	**7.09**
Total-	**8.75**	**835.60**

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.

27/11/23

Sr. Manager (Min)
Ukni deep OCM

25/11/23
S.O.E.(Civil)/NO(Env)
Ukni -Junad Sub Area

26.11.23
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	:	9
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	:	160 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= 640 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: 9.4
19	Man power as per P.R.	:	716
20	Present Man power	:	733
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 April 2023 to September 2023

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
b. Consent under water (Prevention and control of Pollution) cess Act.	- do -
c. Environment (Protection) Act.	Environment Audit Statement for the year 2022-23 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 deep 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 **April 2023 to Sept. 2023** 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 **April 2023 to Sept. 2023** has been enclosed

NOISE POLLUTION 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 **April 2023 to Sept. 2023** has been enclosed

Contd.3

PART – III
STATUS OF IMPLEMENTATION OF PROVISIONS OF EMP

LAND USE STATUS:-

S.N.	Particulars	Current Period	Progressive upto Sept. 2023
1)	Area excavated (ha)	9.003	283.00
2)	Top Soil removed (Mm3)	0.350	15.457
3)	OB removed (Mm3)	6.561	183.543
4)	OB back filled (Mm3)	Nill	5.487
5)	Area recovered for Reclamation (Physical area)	-	-
6)	Area reclaimed biologically (Tree Plantation on backfilled area)	-	-

PRODUCTION:-

Target Capacity – **2.2** MTY.

Present Capacity /Coal Production- 0.737 MT (up to Sept. 2023)

Year	Coal Production - Million Tonnes
2018-19	1.616
2019-20	1.379
2020-21	1.538
2021-22	1.500
2022-23	0.965
2023-24	0.737 (Upto Sept. 2023)

Afforestation:

S.N.	Locations	Current period	Progressive
1)	OB Dump & embankment	----	82 Ha
2)	Safety Zones	----	43.8 Ha
3)	Backfilled Area	----	----
4)	Other Area	----	35.6 Ha
	Total	----	161.4 Ha

Area Under Plantation (Progressive)	161.40 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. Omprakash Phulare, SAM, Ukni deep OC mine, UJSA.
2) Shri. Dhananjay Kumar, Colliery Manager, Ukni deep OC mine
3) Shri. Sanjay Sakharwade, S.O.E (C)/N.O.(Env.), Ukni deep OCM/UJSA.

EXPENDITURE:-

Capital:–

Account Head	FY 2022-23 (up to Mar. 23)	Progressive as on 31.03.2023 (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 2022-23 (up to Mar. 23)	Progressive as on 31.03.2023 (Fig. In lakhs)
Air Pollution Control Works-	6.93	233.01
Water pollution Control Works	1.82	112.53
Afforestation.	Nil	195.35
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	Nil	156.15
Other	Nil	7.09
Total-	8.75	835.60

27/11/23
Colliery Manager
Ukni deep OCM

25/11/23
S.O.E (Civil)/NO(Env.)
Ukni -Junad Sub Area

26/11/23
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 also 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.

Contd.3

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
xvi.	Appropriate embankment shall be a provided along the side of the river / nallah flowing near or adjacent to the mine.	:	Presently the mine is 2.00Km away from the Wardha river.
xvii.	The land after mining shall be brought back for agriculture purpose.	:	It shall be implemented at the time of mine closure/end of mining.
xviii.	Mine water should be treated for discharge into the lagoon. The quality of lagoon water shall be regularly monitored and mitigation measures taken.	:	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.
xix	The CSR cost should be Rs.5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.	:	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.
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.	:	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.
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.	:	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.
xxii	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.	:	**OB Excavated from the quarry area has been dumped on surface a. The details area of dumps as follows:-** **S.N / Dump No / Height (M) / Area (In Ha.) / Status of reclamation.** 1 / 1 / 40.00 / 36.12 / Biologically reclaimed. 2 / 4 / 45.00 / 17.50 / Biologically reclaimed. 3 / 5 / 38.00 / 96.30 / Partially biologically reclaimed. 5(A) / 55.00 / 68.72 / Partially 4 / 6 / 21.57 / 25.20 6(A) / 9.40 / 16.00 5 / 10A / 30.00 / 6.50 6 / 11 / 60.00 / 30.00 The details area of active dumps are as given below:- S.N / Dump No / Height (M) / Area (In Ha.) / Status of reclamation. 1 / 18 / 55 / 28.956 / -

Contd.4

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

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
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.	:	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.
xxvi	Drills shall be wet operated.	:	Drills have been provided with dust extractors and are operated only during day time.
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.	:	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.
xxviii.	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.	:	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.
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 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.	:	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. S.N. Location Area of Plantation 1) O.B. Dumps 82.00 Ha 2) Mine Lease Area:- a) Avenue 26.00 Ha. b) Rationalisation Area 43.80 Ha C) CHP 3.60 Ha d) Workshop 2.00 Ha. e) Infrastructure 4.00 Ha. **Total 161.40Ha.** Afforestation plan shall be implemented in balance life of mine in consultation with DFO/Agriculture Department

Contd.6

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

S.N	MOEF Environmental Clearance Condition		Compliance.
1	2		3
xxxvi	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 to the Central Pollution Control Board quarterly within one month of monitoring.	:	The monitoring of ground water level is regularly being carried out four times a year in pre-monsoon (May), monsoon (August), Post-monsoon (November) and winter (January) seasons, by a NABL accredited lab. Data thus collected is regularly being submitted to the MoEF&CC and Pollution Control Board.
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 to dry due to dewatering of mine.	:	To augment the ground water recharge, the project/mine authority has adopted various groundwater recharge measures **Existing Rain Water Harvesting and Artificial Recharge Details**

EXISTING ROOF TOP RAIN WATER HARVESTING / ARTIFICIAL RECHARGE STRUCTURES		
S.No.	**Location**	**Roof Top Area(m^2)**
Existing Rooftop rainwater harvesting structure		
1	Rooftop Rainwater Harvesting Structure at Area General Manager Office, Wani North Area, WCL	1200
2	Rooftop Rainwater Harvesting Structure at VVIP Guest House, Wani North Area, WC	866
3	Rooftop Rainwater Harvesting Structure at Vocational Training Centre (GVTC), Wani North Area, WCL	730
Artificial Groundwater Recharge Structure		
S.No.	**Location**	**Dimension**
1	Recharge Pond at Welhala village	Water Spread Area-2000 sq. mtr Depth- 1m

			2	Recharge Pond at Nilapur Village	Water Spread Area-12340 sq. 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 has been provided for the workshop catering to the need of the project. The ETP is being operated in Zero Discharge Concept. In CHP, there is no waste water discharge made in to any of the surface water courses.		
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 5 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	:	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

	Environmental Clearance.		corpus. **Escrow A/C no.: 897107600002363** **Balance as on 31.03.23: Rs. 760675944/-**
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 Grampanchayat 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)

Contd.9

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 data,	:	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

	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.	Adequate 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 least in two local newspapers widely	:	The advertisement has been published in the news paper (English – The Hitavada, Marathi –

	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.		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 Grampanchyat 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 2022-23 has been submitted in Maharashtra Pollution Control Board web portal.

27/11/23

Colliery Manager
Ukni OCM
Wani North Area

25/11/23

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

Sub Area Manager
Ukni-Junad Sub Area
Wani North Area

STRICTLY RESTRICTED
FOR COMPANY USE ONLY
The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / Government

ENVIRONMENTAL MONITORING REPORT

UKNI DEEP OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

APRIL 2023

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report			
TEST REPORT NO.	RIN/TR/APRIL-23/29		DATE OF ISSUE	30-05-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)			
SAMPLE DESCRIPTION	AIR SAMPLE		SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:			13-04-23 TO 15-05-23

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	
05-04-23	06-04-23	230	140	54	20	16	Clear Sky / clam
20-04-23	21-04-23	240	148	50	22	18	Clear Sky / calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 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)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	**TO**	5	5	2	6	10	
05-04-23	06-04-23	130	58	32	16	14	ClearSky / Calm
20-04-23	21-04-23	136	66	40	12	10	clear Sky / calm
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)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	**TO**	5	5	2	6	10	
05-04-23	06-04-23	114	50	38	12	10	ClearSky / Calm
20-04-23	21-04-23	120	54	32	10	10	Clear Sky / calm
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)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	**TO**	5	5	2	6	10	
01-04-23	02-04-23	118	70	34	12	10	Clear Sky / Calm
16-04-23	17-04-23	112	60	32	10	BDL	Clear Sky / 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:		13-04-23 TO 15-05-23

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	
20-04-23	21-04-23	366	240	Clear Sky / Calm

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	
20-04-23	21-04-23	364	256	Clear Sky / Calm

Analysed by

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

MINE WATER DISCHARGE:	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
05-04-23	7.38	38	48	BDL
20-04-23	7.3	32	60	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
05-04-23	8.19	40	60	BDL
20-04-23	8.22	48	68	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
03-04-23	62	15.6
20-04-23	54	11
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 PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JUNE-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
APRIL'23	12-04-23	67.5	65.0
APRIL'23	27-04-23	64.4	63.7
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
APRIL'23	12-04-23	46.6	45.2
APRIL'23	27-04-23	45.2	44.7
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Ashwin B Wasnik
Reviewed by

Deepanshu Sahu
Authoriesed by

1. This report cannot be reproduced in part or full without written of the management.
2. Laboratc activities are performed at the Laboratory permanent facility that is ground floor, Environment Lab, CMPDI RI-IV, Nagpur.
3. This report refers to the values related to the items tested.

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

STRICTLY RESTRICTED
FOR COMPANY USE ONLY
The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / Government

ENVIRONMENTAL MONITORING REPORT

UKNI DEEP OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

MAY 2023

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report		TC-7102
TEST REPORT NO.	RIN/TR/MAY-23/29	DATE OF ISSUE	30-06-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-05-23 TO 15-06-23

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	
06-05-23	07-05-23	247	148	56	18	14	Clear Sky / clam
20-05-23	21-05-23	238	140	50	20	16	Clear Sky / calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 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)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	**TO**	5	5	2	6	10	
06-05-23	07-05-23	128	52	36	14	12	ClearSky / Calm
20-05-23	21-05-23	132	60	41	17	14	clear Sky / calm
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)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	**TO**	5	5	2	6	10	
06-05-23	07-05-23	118	60	36	10	BDL	ClearSky / Calm
20-05-23	21-05-23	123	57	33	12	10	Clear Sky / calm
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)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	**TO**	5	5	2	6	10	
02-05-23	03-05-23	114	68	37	14	10	Cloudy Sky / Windy
16-05-23	17-05-23	118	56	40	15	12	Clear Sky / Calm
NAAQS, 2009		**-**	**100**	**60**	**80**	**80**	

Analysed by

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

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

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
06-05-23	8.02	28	52	BDL
20-05-23	7.62	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
06-05-23	7.54	50	76	BDL
20-05-23	7.61	40	64	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
06-05-23	56	16
20-05-23	48	11.4
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 PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JUNE-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
MAY'23	13-05-23	65.6	64.3
MAY'23	24-05-23	66.4	65.6
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
MAY'23	13-05-23	44.0	43.5
MAY'23	24-05-23	44.7	43.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Ashwin B Wasnik
Reviewed by

Deepanshu Sahu
Authoriesed by

1. This report cannot be reproduced in part or full without written of the management.
2. Laborato activities are performed at the Laboratory permanent facility that is ground floor, Environment Lab, CMPDI RI-IV, Nagpur.
3. This report refers to the values related to the items tested.

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

STRICTLY RESTRICTED
FOR COMPANY USE ONLY
The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / Government

ENVIRONMENTAL MONITORING REPORT

UKNI DEEP OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

JUNE 2023

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report			
TEST REPORT NO.	RIN/TR/JUNE-23/29		DATE OF ISSUE	31-07-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)			
SAMPLE DESCRIPTION	AIR SAMPLE		SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:			16-06-23 TO 15-07-23

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	
08-06-23	09-06-23	240	151	48	20	14	Clear Sky / clam
22-06-23	23-06-23	233	140	50	18	15	Clear Sky / calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 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)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	**TO**	5	5	2	6	10	
08-06-23	09-06-23	130	56	32	14	10	ClearSky / Calm
22-06-23	23-06-23	124	64	43	16	13	clear Sky / calm
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)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	**TO**	5	5	2	6	10	
08-06-23	09-06-23	118	60	37	10	BDL	ClearSky / Calm
22-06-23	23-06-23	120	54	30	12	10	Clear Sky / calm
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)
		SPM	PM_{10}	$PM_{2.5}$	NO_2	SO_2	
FROM	**TO**	5	5	2	6	10	
03-06-23	04-06-23	118	55	45	14	12	Clear sky /calm
04-06-23	05-06-23	128	53	38	14	10	Clear sky /calm
09-06-23	10-06-23	120	64	46	12	BDL	Clear sky /calm
10-06-23	11-06-23	122	50	40	12	10	Clear sky /calm
18-06-23	19-06-23	110	51	35	14	12	clear sky/light breeze
19-06-23	20-06-23	112	50	34	12	10	clear sky/light breeze
24-06-23	25-06-23	118	58	40	10	BDL	cloudy sky/light breeze
25-06-23	26-06-23	123	57	30	13	10	Clear Sky / Calm
NAAQS, 2009		**-**	**100**	**60**	**80**	**80**	

Analysed by

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

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

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
08-06-23	6.50	24	36	BDL
22-06-23	5.68	34	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
08-06-23	7.36	40	60	BDL
22-06-23	6.76	38	60	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
08-06-23	56	10
22-06-23	46	12.4
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 PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JUNE-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
JUNE'23	11-06-23	65.4	64.9
JUNE'23	24-06-23	65.8	65.0
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
JUNE'23	11-06-23	44.5	43.4
JUNE'23	24-06-23	43.7	42.8
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Ashwin B Wasnik
Reviewed by

Deepanshu Sahu
Authoriesed by

1. This report cannot be reproduced in part or full without written of the management.
2. Laboratc activities are performed at the Laboratory permanent facility that is ground floor, Environment Lab, CMPDI RI-IV, Nagpur.
3. This report refers to the values related to the items tested.

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

STRICTLY RESTRICTED
FOR COMPANY USE ONLY
The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / Government

ENVIRONMENTAL MONITORING REPORT

UKNI DEEP OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

JULY 2023

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report		TC-7102
TEST REPORT NO.	RIN/TR/JULY-23/29	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-07-23 TO 14-08-23

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	
07-07-2023	08-07-2023	211	137	35	12	BDL	CLEAR / CALM
22-07-2023	23-07-2023	172	121	27	13	BDL	RAINY / CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 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	
07-07-2023	08-07-2023	63	20	7	BDL	CLEAR / CALM
22-07-2023	23-07-2023	55	28	8	BDL	RAINY / CALM
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	
07-07-2023	08-07-2023	59	18	9	BDL	CLEAR / CALM
22-07-2023	23-07-2023	67	26	10	BDL	RAINY / CALM
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	
01-07-2023	02-07-2023	78	25	9	BDL	CLEAR / CALM
02-07-2023	03-07-2023	64	18	10	BDL	CLEAR / CALM
08-07-2023	09-07-2023	52	17	8	BDL	CLEAR / CALM
09-07-2023	10-07-2023	61	20	7	BDL	CLEAR / CALM
16-07-2023	17-07-2023	62	31	8	BDL	RAINY / LIGHT BREEZE
17-07-2023	18-07-2023	70	25	8	BDL	RAINY / LIGHT BREEZE
23-07-2023	24-07-2023	63	28	9	BDL	CLEAR / CALM
24-07-2023	25-07-2023	51	25	8	BDL	CLOUDY / CALM
29-07-2023	30-07-2023	66	26	8	BDL	CLOUDY / CALM
30-07-2023	31-07-2023	74	23	7	BDL	CLOUDY / 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:		16-07-23 TO 14-08-23

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	
13-07-2023	14-07-2023	310	212	CLEAR / CALM

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	
13-07-2023	14-07-2023	273	189	CLEAR / CALM

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 : 16-07-23 TO 14-08-23

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
07-07-2023	6.46	26	32	BDL
22-07-2023	6.80	22	28	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
07-07-2023	6.92	36	44	BDL
22-07-2023	6.96	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
07-07-2023	28	14
22-07-2023	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	

NOISE LEVEL MONITORING DATA

SAMPLE DESCRIPTION	NOISE SAMPLE
Test Required	CPCB PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, JULY-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
JULY'23	12-07-2023	68.6	66.4
JULY'23	28-07-2023	68.3	67.1
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
JULY'23	12-07-2023	46.4	44.5
JULY'23	28-07-2023	47.5	46.8
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Amol Kamble
Reviewed by

Deepansnu Sanu
Authoriesed by

1. This report cannot be reproduced in part or full without written of the management.
2. Laborato activities are performed at the Laboratory permanent facility that is ground floor, Environment Lab, CMPDI RI-IV, Nagpur.
3. This report refers to the values related to the items tested.

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

STRICTLY RESTRICTED
FOR COMPANY USE ONLY
The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / Government

ENVIRONMENTAL MONITORING REPORT

UKNI DEEP OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

AUGUST 2023

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report		
TEST REPORT NO.	RIN/TR/AUG-23/29	DATE OF ISSUE	30-09-2023
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		15-08-23 TO 15-09-23

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	
06-08-2023	07-08-2023	201	139	33	14	11	RAINY / CALM
21-08-2023	22-08-2023	234	159	28	12	BDL	CLOUDY / CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 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	
06-08-2023	07-08-2023	68	24	9	BDL	RAINY / CALM
21-08-2023	22-08-2023	79	29	8	BDL	CLOUDY / CALM
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	
06-08-2023	07-08-2023	78	30	8	BDL	RAINY / CALM
21-08-2023	22-08-2023	82	26	9	BDL	CLOUDY / CALM
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	
06-08-2023	07-08-2023	55	24	10	BDL	CLOUDY / CALM
07-08-2023	08-08-2023	59	19	9	BDL	CLOUDY / CALM
12-08-2023	13-08-2023	64	25	10	BDL	CLEAR / CALM
13-08-2023	14-08-2023	75	28	10	BDL	CLEAR / CALM
19-08-2023	20-08-2023	63	26	7	BDL	CLOUDY / CALM
20-08-2023	21-08-2023	75	29	8	BDL	CLOUDY / CALM
25-08-2023	26-08-2023	86	30	9	BDL	CLEAR / CALM
26-08-2023	27-08-2023	93	25	10	BDL	CLEAR / CALM
NAAQS, 2009		**100**	**60**	**80**	**80**	

Analysed by

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

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

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
06-08-2023	7.02	28	36	BDL
21-08-2023	7.09	24	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
06-08-2023	7.08	24	28	BDL
21-08-2023	7.07	26	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
06-08-2023	34	16
21-08-2023	32	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 PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, AUG-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
AUG'23	13-08-2023	67.5	65.4
AUG'23	19-08-2023	67.4	66.1
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
AUG'23	13-08-2023	47.4	45.3
AUG'23	19-08-2023	46.5	44.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Ashwin B Wasnik
Reviewed by

Deepanshu Sahu
Authoriesed by

1. This report cannot be reproduced in part or full without written of the management.
2. Laboratc activities are performed at the Laboratory permanent facility that is ground floor, Environment Lab, CMPDI RI-IV, Nagpur.
3. This report refers to the values related to the items tested.

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

STRICTLY RESTRICTED
FOR COMPANY USE ONLY
The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / Government

ENVIRONMENTAL MONITORING REPORT

UKNI DEEP OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068

SEPTEMBER 2023

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report			
TEST REPORT NO.	RIN/TR/SEPT-23/29		DATE OF ISSUE	27-10-23
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017)			
SAMPLE DESCRIPTION	AIR SAMPLE		SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:			15-09-23 TO 15-10-23

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	
06-09-23	07-09-23	250	167	37	15	11	CLOUDY / CALM
21-09-23	22-09-23	281	182	34	16	12	RAINYSKY / LIGHT BREEZE
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25TH September 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	
06-09-23	07-09-23	86	26	8	BDL	CLOUDY / CALM
21-09-23	22-09-23	93	29	9	BDL	RAINYSKY / 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	
06-09-23	07-09-23	73	28	8	BDL	CLOUDY / CALM
21-09-23	22-09-23	86	32	10	BDL	RAINYSKY / 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	
03-09-23	04-09-23	66	23	7	BDL	CLOUDYSKY / CALM
04-09-23	05-09-23	70	25	8	BDL	CLOUDYSKY / CALM
10-09-23	11-09-23	86	29	10	BDL	CLEARYSKY / CALM
11-09-23	12-09-23	80	27	9	BDL	CLEARYSKY / CALM
17-09-23	18-09-23	82	28	8	BDL	CLEARSKY / LIGHT BREEZE
18-09-23	19-09-23	86	29	9	BDL	CLEARSKY / MODERATE BREEZE
24-09-23	25-09-23	92	24	8	BDL	CLOUDYSKY / LIGHT BREEZE
25-09-23	26-09-23	93	24	10	BDL	CLOUDYSKY / MODERATE BREEZE
NAAQS, 2009		**100**	**60**	**80**	**80**	

Analysed by

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

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

MINE WATER DISCHARGE:	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
06-09-23	7.05	32	40	BDL
22-09-23	7.1	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
06-09-23	7.03	22	28	BDL
22-09-23	7.07	26	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
06-09-23	36	12
22-09-23	32	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 PROCTOCOL FOR AMBIENT NOISE MEASUREMENT, SEPT-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
SEPT'23	14-09-23	66.8	65.1
SEPT'23	26-09-23	68.4	66.1
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
SEPT'23	14-09-23	45.5	43.4
SEPT'23	26-09-23	46.6	44.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

Ashwin B Wasnik
Reviewed by

Deepanshu Sahu
Authoriesed by

1. This report cannot be reproduced in part or full without written of the management.
2. Laboratc activities are performed at the Laboratory permanent facility that is ground floor, Environment Lab, CMPDI RI-IV, Nagpur.
3. This report refers to the values related to the items tested.

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

STRICTLY RESTRICTED
FOR COMPANY USE ONLY
The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / Government

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

WANI NORTH AREA

WESTERN COALFIELDS LTD.

APRIL 2023 TO JUNE 2023

Environment Laboratory

CMPDI

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

AN ISO 9001:2015 COMPANY

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

TEST REPORT NO.	RIN/TR/JUNE /HM82	DATE OF ISSUE	31-08-2023
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd) in air samples (ASTM D 4185)		
NAME OF AREA	WANI 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	21-04-2023
2	BHALAR TOWNSHIP	WNUOA-2	21-04-2023
3	UKNI VILLAGE	WNUOA-3	21-04-2023

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	0.0049	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

DEEPANSHU SAHU
AUTHORIZED SIGNATORY

1 This Report refers to the values related to the items tested.
2 This Report cannot be reproduced in part or full without written permission of the management.
3 ** This parameter not regulated as per NAAQS

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)

M/s Anacon Laboratories Pvt. Ltd., Nagpur

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

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

2022-23 & 2023-24

Certificate

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

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

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

Ajinkya Nakod
(Geologist)

Gyanchand Bohra
NABET Accredited EIA Expert
for Hydrogeology & Geology

ANACON LABORATORIES PVT. LTD. NAGPUR

Nagpur.
August-2023

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

CONTENTS			
TABLE/FIGURE	**NAME OF SUB MINE PROJECT**	**GROUND WATER MONITORING DETAILS OF WELL**	**Page No.**
I-FIGURE	UKNI DEEP OC MINES,	GROUND WATER MONITORING STATION (OBSERVATION WELLS IN AND AROUND OF UKNI DEEP OC MINES,	7
I-TABLE	UKNI DEEP OC MINES,	GROUND WATER MONITORING OF WELL DATA FROM DEC 2022(POST-MONSOON) , JAN-FEB 2023 (WINTER) & MAY-2023 (PRE-MONSOON)	8
III	UKNI DEEP OC MINES,	ANALYSIS REPORT	11

INTRODUCTION

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

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

This Ground Water Level Monitoring report is prepared UKNI DEEP OC MINES,of Wani North area of WCL for 3 seasons i.e. Post-monsoon (Dec 2022), Winter (Jan –Feb 2023) & Pre-monsoon (May-2023). 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)

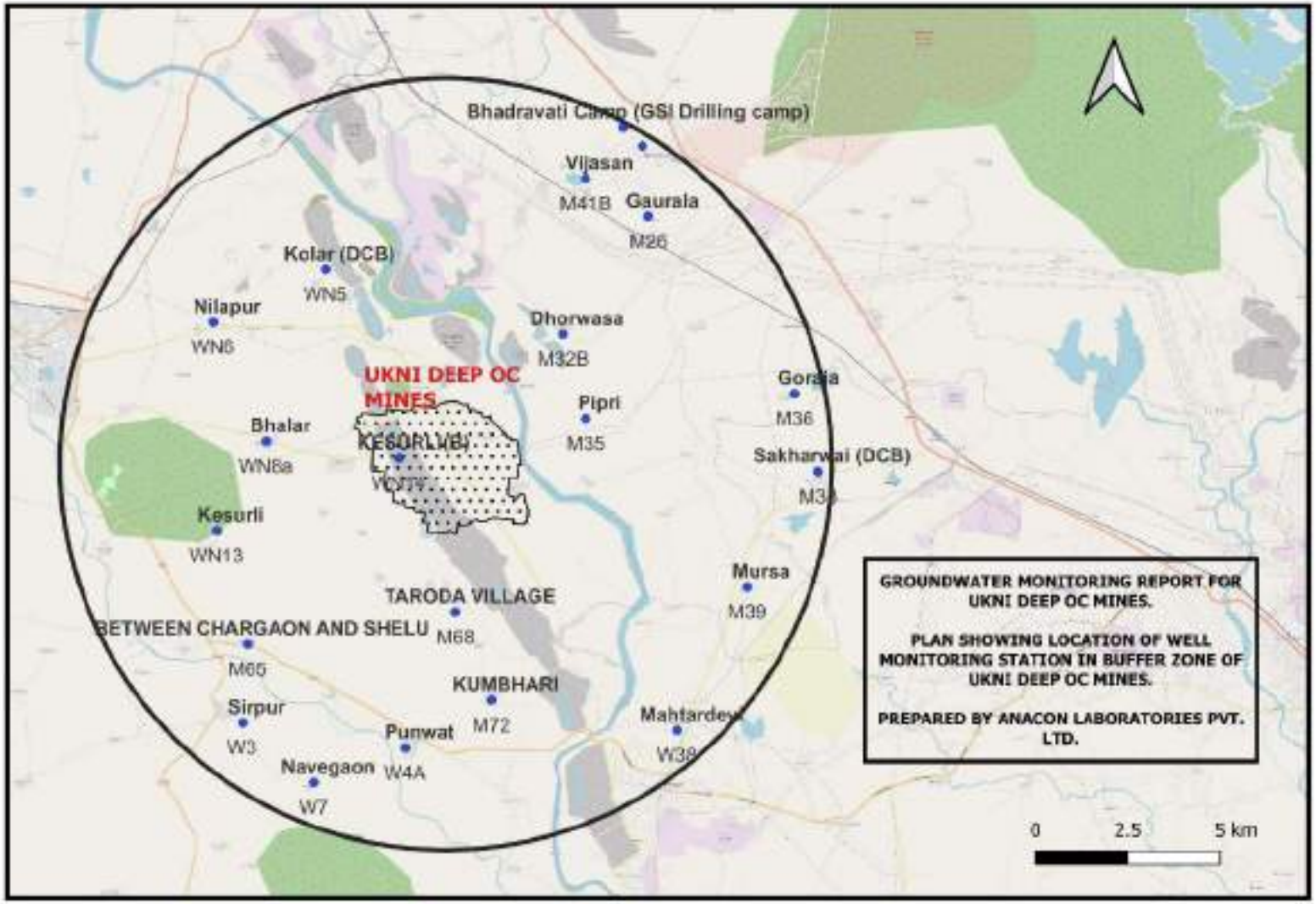


FIGURE-I : GROUND WATER MONITORING STATION (OBSERVATION WELLS IN AND AROUND OF UKNI DEEP OC MINE)

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		
1	W3	Sirpur	700 m W of village in field, near to Mendholi road junction	19°57'33.3283058629647"	79°0'28.9777407693123"	210	4.21	7.05	0.27	2.10	2.80	4.8	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	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	DOMESTIC	BASALT
4	W7	Navegaon	About of 300 m N of village, adjacent to Sirpur road	19°56'37.5497120752541"	79°1'35.7345278628395"	220	3.81	4.67	0.24	2.10	3.10	4.3	DOMESTIC	BASALT
5	W38	Mahtardevi	S of the village, adjacent to village road	19°57'26.2228297765034"	79°7'14.6609240236034"	212	2.47	15.12	0.67	4.60	5.00	8.1	IRRIGATION	SHELLY LIMESTONE
6	WN6	Nilapur	About 800 m W of village,	20°3'47.1976829585572"	79°0'1.44635986976027"	197	4.95	9.2	0.34	2.10	3.50	4.2	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		
			adjacent to Wani road											
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	D/I	
8	WN13	Kesurli	N of village, near Hanuman Mandir	20°0'32.3905962013654"	79°0'4.78518515303108"	198	2.8	8.5	0.33	3.40	3.70	4.9	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	D/I	
10	WN5	Kolar (DCB)	E of village, adjacent to nalla well of Nilkant Pijurkar	20°4'36.126217532636"	79°1'46.4540126850829"	211	1.82	10.52	0.15	3.40	5.50	7.2	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°6'48.6793512288855"	79°6'24.2987637521275"	221	2.68	12.25	0.82	3.6	4	5.3	DOMESTIC	SHELLY LIMESTONE

Sr.No	Well No.	Name of village	Well location	Latitude	Longitude	R.L. in m	Well dia (m)	Well depth (mbmp)	Height of measuring point (m agl)	Depth to Water Level (m bgl)			Utility / Owner	Formation Tapped
										Dec -22	JAN - FEB -23	May -23		
12	M23 A	Bhadravati killa word	Vivekanand Madhyamik vidhalaya	20°6'31.3914312007597"	79°6'42.0275781246596"	224	2.49	17.74	0.54	5.6	8.2	10.1	IRRIGATION	SHELLY LIMESTONE
13	M26	Gaurala	C of village, near OHT	20°5'25.7271036416739"	79°6'47.6315362670925"	202	2.59	8.81	0.51	3.2	2.6	4.5	IRRIGATION	BASALT
14	M32 B	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	IRRIGATION	BASALT
15	M41 B	Vijasan	Near ZP school of Balwadi	20°6'0.901283823739618"	79°5'48.9616271474631"	213	2.74	12.59	0.82	3.1	2.8	5.7	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	IRRIGATION	SHELLY LIMESTONE
17	M36	Goraja	SE of village (60 m outside) near	20°2'40.24"	79°9'4.01"	208	2.22	15.15	0.55	4.70	6.20	11.1	IRRIGATION	BASALT

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		
			Hanuman Mandir											
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	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	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	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	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	IRRIGATION	SHELLY LIMESTONE

ANALYSIS REPORT

Anacon Laboratories

TC 5458

Test Report

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

Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-11 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M23); (Majri Area)	Drinking	1 Ltr

Sample Collected By		Sampling Location
Mr. Mahesh Moharle	**Sampling Date** 06.05.2023 **Sampling Time** Not Mentioned	Bhadravati Camp (GSI Drilling Camp)

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	243.35
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	185.04
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	129.6
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.74
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	35.06
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	19.85
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.34
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	28.70
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	944
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	468
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.17
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.21
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

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

Verified By

Mangesh Bande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Jayway Gorway
Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 12

Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.**	ALPL/08062023/W-2/45-12	**Analysis Start** 08.06.2023
	Inward Date	08.06.2023	**Analysis End** 22.06.2023
	Reference	-	**Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M23A); (Majri Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	06.05.2023 Not Mentioned	Bhadravati Killa Word

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	259.05
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	204.19
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	100.8
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.66
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	23.37
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	21.69
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.32
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	30.64
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	863
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	348
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.01
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.21
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

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

Verified By

Mangesh Pande
Technical Manager

Soubal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Gokhale
Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001618F
Test Report No.: ALPL/24062023/11- 13

Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-13 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water	

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M26); (Majri Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	06.05.2023 Not Mentioned	Gaurala

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	235.5
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	178.66
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	134.4
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.65
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	8.766
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	35.94
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.39
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	30.71
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	853
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	372
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL(DL- 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.13
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

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

Verified By

Mangesh Tande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 24.06.2023

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

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

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

Tests Required: Chemical Testing

TEST RESULTS

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

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

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

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Gadkar
Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-24 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

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

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

Tests Required: Chemical Testing

TEST RESULTS

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

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

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

Verified By

Mangesh Pande
Technical Manager

Sneha Raut
Deputy Technical Manager

Authorized Signatory

Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

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

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

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

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

Tests Required: Chemical Testing

TEST RESULTS

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

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

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

Verified By		Authorised Signatory
Mangesh Fande Technical Manager	Shehal Raut Deputy Technical Manager	Chandan Gariyay Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 24.06.2023

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

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

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

Tests Required: Chemical Testing

TEST RESULTS

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

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

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

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 24.06.2023

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

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

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

Tests Required: Chemical Testing.

TEST RESULTS

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

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

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

Verified By		Authorized Signatory
Manjusri Fande Technical Manager	Shishil Raut Deputy Technical Manager	Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC5458230000001618F
Test Report No.: ALPL/24062023/11- 18 Dated 24.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/08062023/W-2/45-18 **Inward Date** 08.06.2023 **Reference** -	**Analysis Start** 08.06.2023 **Analysis End** 22.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Ground Water	Ground Water (Well No.: M41B); (Majri Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Moburle	07.05.2023 Not Mentioned	Vijasan

Tests Required: Chemical Testing

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	266.9
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	127.62
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	134.4
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.64
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	23.37
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL- 2)
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.40
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	20.28
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	846
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	432
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.04
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.23
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

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

Verified By		Authorized Signatory
Manish Dande Technical Manager	Sneha Raut Deputy Technical Manager	Chinmay Gurav Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 24.06.2023

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

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

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

Tests Required: Chemical Testing

TEST RESULTS

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

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

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

Verified By

Mangesh Fande
Technical Manager

Snehil Raut
Deputy Technical Manager

Authorized Signatory

Chinmoy Garway
Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 24.06.2023

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

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

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

Tests Required: Chemical Testing

TEST RESULTS

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

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

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

Verified By

Mangesh Pande
Technical Manager

Shefali Rani
Deputy Technical Manager

Authorized Signatory

Dhananjay Chaway
Deputy Quality Manager

-END OF REPORT-

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 24.06.2023

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

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

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

Tests Required: Chemical Testing

TEST RESULTS

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

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

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

Verified By

Mingesh Pande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chetanya Gedway
Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

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

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

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

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

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

TEST RESULTS

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

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

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

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

END OF REPORT

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 29.06.2023

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

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

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

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

TEST RESULTS

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

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

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

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

END OF REPORT

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

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

Anacon Laboratories

TC 5458

Test Report

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

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

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

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

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

TEST RESULTS

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

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

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

Verified By **Authorized Signatory**

pp

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Chinmay Gadway
Deputy Quality Manager

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

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

Anacon Laboratories

TC 5458

Test Report

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

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

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

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

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

TEST RESULTS

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

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

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

Verified By **Authorized Signatory**

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Chinmay Gadway
Deputy Quality Manager

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 29.06.2023

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

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

Sample Collected By		Sampling Location
Mr. Mahesh Moburle	**Sampling Date** 12.05.2023 **Sampling Time** Not Mentioned	Mahtardevi

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

TEST RESULTS

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

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

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

Verified By

Mangesh Fande
Technical Manager

Sachin Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

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

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

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001677F
Test Report No.: ALPL/29062023/06- 25

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/09062023/W-1/59-25 **Inward Date** 09.06.2023 **Reference** -	**Analysis Start** 09.06.2023 **Analysis End** 26.06.2023 **Sample Category** Water

Sample Name	**Sample Particulars/Details**	**Purpose of analysis**	**Quantity Received**
Water	Water (Well No.- WN5) (Wani North Area)	Drinking	1 Ltr

Sample Collected By		**Sampling Location**
Mr. Mahesh Mohurle	**Sampling Date** 15.05.2023 **Sampling Time** Not Mentioned	Kolar (DCB)

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

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing I. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	219.8
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	178.66
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	91.2
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.68
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	32.142
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	6.51
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.19
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	35.63
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	798
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	360
II	**Chemical Testing** **2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.36
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.13
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

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

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

END OF REPORT

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

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

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001677F
Test Report No.: ALPL/29062023/06- 1 Dated 29.06.2023

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

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Water	Water (Well No.- WN6) (Wani North Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	14.05.2023 Not Mentioned	Nilapur

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

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	196.25
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	146.76
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	195.6
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL(DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.89
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	14.61
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	21.79
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.48
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	8.89
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	938
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	564
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.44
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.26
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

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

Verified By **Authorized Signatory**

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Chinmay Gadway
Deputy Quality Manager

END OF REPORT

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

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

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC545823000001677F
Test Report No.: ALPL/29062023/06- 2

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/09062023/W-1/59-2 **Inward Date** 09.06.2023 **Reference** -	**Analysis Start** 09.06.2023 **Analysis End** 26.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Water	Water (Well No.- WN8a) (Wani North Area)	Drinking	1 Ltr

Sample Collected By	Sampling Date / Sampling Time	Sampling Location
Mr. Mahesh Mohurle	14.05.2023 Not Mentioned	Bhalar

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

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	211.95
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	134.00
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	139.2
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL (DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.72
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	26.29
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	11.11
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.79
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	16.45
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	829
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	456
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.07
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.27
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

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

Verified By

Mangesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Gadway
Deputy Quality Manager

END OF REPORT

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

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

Anacon Laboratories

TC 5458

Test Report

ULR No.- TC548823000001677F
Test Report No.: ALPL/29062023/06- 3

Dated 29.06.2023

Issued To : **M/s Western Coalfields Limited (WCL)** Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440001	**Sample Inward No.** ALPL/09062023/W-1/59-3 **Inward Date** 09.06.2023 **Reference** -	**Analysis Start** 09.06.2023 **Analysis End** 26.06.2023 **Sample Category** Water

Sample Name	Sample Particulars/Details	Purpose of analysis	Quantity Received
Water	Water (Well No.- WN13) (Wani North Area)	Drinking	1 Ltr

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

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

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	**Chemical Testing 1. Water**					
1	Alkalinity	mg/l	IS 3025 (Part 23) : 1986	200	600	274.75
2	Colour	Hazen	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	250	1000	185.04
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	110.4
5	Residual Chlorine	mg/l	IS 3025 (Part 26) : 2021	0.2	1	BDL (DL- 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.87
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	37.98
8	Nitrate (as NO_3)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	13.15
9	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.93
11	Sulphate (as SO_4)	mg/l	IS 3025 (Part 24) : 2022	200	400	21.53
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	929
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.2
14	Total hardness (as $CaCO_3$)	mg/l	IS 3025 (Part 21) : 2009	200	600	432
II	**Chemical Testing 2. Residues In Water**					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL(DL- 0.01)
17	Boron	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.13
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	0.29
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL- 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

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

Verified By

Mangesh Farde
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

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

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

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

Anacon Laboratories

TC 5458

Test Report

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

Dated 29.06.2023

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

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

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

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

TEST RESULTS

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

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

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

Verified By

Manglesh Fande
Technical Manager

Snehal Raut
Deputy Technical Manager

Authorized Signatory

Chinmay Garway
Deputy Quality Manager

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

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

Land Restoration/Reclamation Monitoring of more than 5 million cu.m. (Coal+OB) Capacity Opencast Coal Mines of Western Coalfields Limited based on Satellite Data of the Year 2022

Submitted to

Western Coalfields Limited

Land Restoration/Reclamation Monitoring of more than 5 million cu.m. (Coal+OB) Capacity Opencast Coal Mines of Western Coalfields Limited based on Satellite Data of the Year 2022

March 2023

Remote Sensing Cell
Geomatics Division
CMPDI, Ranchi

CONTENTS

Executive Summary iv-viii

1.0 Background 1

2.0 Objective 2

3.0 Methodology 2

4.0 Work Plan 5

5.0 Land Reclamation Status in Western Coalfields Limited 6

List of Tables

Table-1 Project wise Land Reclamation Status vii

Table-2 Area Statistics of Land Use Classes in OC Mines 9

List of Figures

Figure-1 Pie Chart of distribution percentage of Reclamation Activities vi

Figure-2 Bar-Chart of Project wise Land Reclamation Status viii

Figure-3 Methodology of Land Reclamation Monitoring 03

Figure-3 Bar-Chart of Land Reclamation Status of Sasti OCP 24

Figure-4 Bar-Chart of Land Reclamation Status of Padmapur OCP 24

Figure-5 Bar-Chart of Land Reclamation Status of Durgapur OCP 25

Figure-6 Bar-Chart of Land Reclamation Status of Mugoli OCP 25

Figure-7 Bar-Chart of Land Reclamation Status of Umrer OCP 26

Figure-8 Bar-Chart of Land Reclamation Status of Ukni OCP 26

Figure-9 Bar-Chart of Land Reclamation Status of Niljai OCP 27

Figure-10 Bar-Chart of Land Reclamation Status of New Majri OCP 27

Figure-11 Bar-Chart of Land Reclamation Status of MKD-III OCP 28

Figure-12 Bar-Chart of Land Reclamation Status of Penganga OCP 28

Figure-13 Bar-Chart of Land Reclamation Status of Yekona-I&II(Amal) OCP 29

Figure-14 Bar-Chart of Land Reclamation Status of New Majri UG to OCP 29

Figure-15 Bar-Chart of Land Reclamation Status of Pauni-II(Expn) OCP 30

Figure-16 Bar-Chart of Land Reclamation Status of MKD-I(Expn) OCP 30

List of Plates

Plate-1	Land Use Map of Sasti OCP	10
Plate -2	Land Use Map of Padmapur OCP	11
Plate -3	Land Use Map of Durgapur OCP	12
Plate -4	Land Use Map of Mugoli OCP	13
Plate-5	Land Use Map of Umrer OCP	14
Plate-6	Land Use Map of Ukni OCP	15
Plate-7	Land Use Map of Niljai OCP	16
Plate-8	Land Use Map of New Majri OCP	17
Plate-9	Land Use Map of MKD-III OCP	18
Plate-10	Land Use Map of Penganga OCP	19
Plate-11	Land Use Map of Yekona-I&II(Amal) OCP	20
Plate-12	Land Use Map of New Majri UG to OCP	21
Plate-13	Land Use Map of Pauni-II(Expn) OCP	22
Plate-14	Land Use Map of MKD-I(Expn) OCP	23

List of Photographs

Photo-1	Plantation on Internal OB/Backfill (Sasti OCP)	31
Photo-2	Plantation on External OB dump (Padmapur OCP)	31
Photo-3	Plantation on External OB dump (Durgapur OCP)	32
Photo-4	Plantation on External OB dump (Mugoli OCP)	32
Photo-5	Plantation on External OB dump (Umrer OCP)	33
Photo-6	Plantation on External OB dump (Ukni OCP)	33
Photo-7	Plantation along road (Niljai OCP)	34
Photo-8	Plantation along embankment (New Majri OCP)	34
Photo-9	Avenue plantation (Penganga OCP)	35
Photo-10	Avenue plantation (MKD-III OCP)	35
Photo-11	Avenue plantation (Yekona-I & II amal. OCP)	36
Photo-12	Avenue plantation (New Majri UG to OCP)	36
Photo-13	Avenue plantation (Pouni-II Expn. OCP)	37
Photo-14	Avenue plantation (MKD-I Expn. OCP)	37
Abbreviations		38
Glossary		39-40

Executive Summary

1.0 Project

Land restoration / reclamation monitoring of 14 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 14 opencast coal mines projects, 4 projects namely Yekona-I & II (Amal), New Majri UG to OC, Pauni-II (Expn) and MKD-I (Expn) have been included in 2021 for the first time as 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, and distribution of wasteland, agricultural land and forest in the leasehold area of the project. This will help in assessing the progressive status of mined land reclamation and to take up remedial measures, if any, required for environmental protection.

3.0 Salient Findings

- Out of total leasehold area of 150.99 Km2 of 14 projects of WCL viz. Sasti, Padmapur, Durgapur, Mugoli, Umrer, Ukni, Niljai, New Majri. Makardhokra-III, Penganga, Yekona-I & II (Amal), New Majri UG to OC, Pauni-II (Expn.) and MKD-I (Expn.) considered for monitoring during 2022-23; the total excavated area is 37.17 Km^2 out of which 11.87 Km^2 area (31.93%) is backfilled, 4.23 Km^2 area (11.38%) has been planted and 21.07 Km^2 area (56.69%) is under active mining. It is evident from the analysis that 43.31% area of the OC projects has been reclaimed (biological and technical) and balance 56.69% 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 2021 with respect to the year 2020 in different projects, it is evident from the analysis that total area under land reclamation has increased from 14.37 Km^2 (Yr. 2021) to 16.10 Km^2 (Yr.2022). Out of 14 projects of WCL, Sasti OC ranks on top for land reclamation (90.79%) followed by Umrer OC (64.17%) and New Majri OC (47.24%).

- Area under biological reclamation (plantation) has increased from 3.84 Km^2 (Yr. 2021) to 4.23 Km^2 (Yr. 2022) whereas area of technical reclamation (area under backfilling) has increased from 10.53 Km^2 (Yr. 2021) to 11.87 Km^2 (Yr. 2022) in WCL. The total increase of 1.73 Km^2 under reclamation is the result of the efforts of the Western Coalfields Ltd. taken up towards environmental protection.

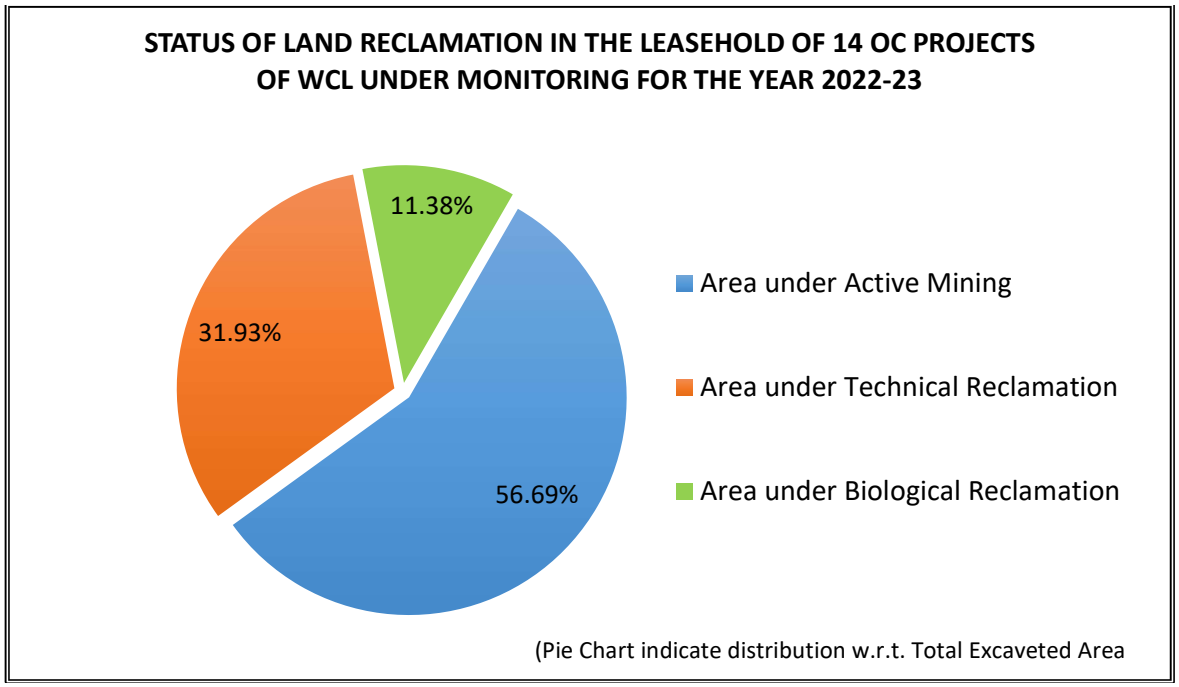


Fig.1: Pie Chart indicating distribution (%) of reclamation activities in 14 OC Mines of WCL

Table-1

Projectwise Land Reclamation Status in Opencast Projects of WCL

(>5 Million Cubic Metre Coal+OB) based on Satellite Data of the year 2022

(Area in Sq. Kms.)

Sl. No.	Project	Total Leasehold Area		Technical Reclamation		Plantation: Biological Reclamation		Plantation: Other Plantations				Area under Active Mining		Total Excavated Area		Total Area under Plantation (% Green Cover Generated in Leasehold)		Total Area under Reclamation	
				Area under Backfilling		Plantation on Excavated / Backfilled Area		Plantation on External Over Burden Dumps		Social Forestry, Avanue Plantation Etc.									
1	*2*	*3*		*4*		*5*		*6*		*7*		*8*		*9 (=4+5+8)*		*10 (=5+6+7)*		*11(=4+5)*	
		2021	*2022*	*2021*	*2022*	*2021*	*2022*	*2021*	*2022*	*2021*	*2022*	*2021*	*2022*	*2021*	*2022*	*2021*	*2022*	*2021*	*2022*
1	Sasti	9.20	9.20	2.46	2.62	0.79	0.83	1.70	1.70	0.65	0.67	0.55	0.35	3.80	3.80	3.14	3.20	3.25	3.45
				64.74%	68.95%	20.79%	21.84%					14.47%	9.21%			34.13%	34.78%	85.53%	90.79%
2	Padmapur	8.29	8.29	0.61	0.59	0.20	0.28	1.95	2.14	0.81	0.83	1.22	1.18	2.03	2.05	2.96	3.25	0.81	0.87
				30.05%	28.78%	9.85%	13.66%					60.10%	57.56%			35.71%	39.20%	39.90%	42.44%
3	Durgapur	15.50	15.50	0.85	1.17	0.84	0.93	2.59	2.72	1.19	1.19	2.93	2.53	4.62	4.63	4.62	4.84	1.69	2.10
				18.40%	25.27%	18.18%	20.09%					63.42%	54.64%			29.81%	31.23%	36.58%	45.36%
4	Mugoli	12.55	12.55	1.34	1.46	0.14	0.14	1.71	1.81	0.47	0.56	1.88	1.85	3.36	3.45	2.32	2.51	1.48	1.60
				39.88%	42.32%	4.17%	4.06%					55.95%	53.62%			18.49%	20.00%	44.05%	46.38%
5	Umrer	9.45	9.45	1.68	1.50	1.40	1.58	1.58	1.45	2.31	2.31	1.71	1.72	4.79	4.80	5.29	5.34	3.08	3.08
				35.07%	31.25%	29.23%	32.92%					35.70%	35.83%			55.98%	56.51%	64.30%	64.17%
6	Ukni	12.85	12.85	0.48	0.52	0.00	0.00	1.64	1.66	0.72	0.86	1.97	1.94	2.45	2.46	2.36	2.52	0.48	0.52
				19.59%	21.14%	0.00%	0.00%					80.41%	78.86%			18.37%	19.61%	19.59%	21.14%
7	Niljai	17.61	17.61	1.34	1.44	0.11	0.11	1.65	2.04	1.23	1.23	2.94	2.84	4.39	4.39	2.99	3.38	1.45	1.55
				30.52%	32.80%	2.51%	2.51%					66.97%	64.69%			16.98%	19.19%	33.03%	35.31%
8	New Majri	7.74	7.74	1.13	1.52	0.36	0.36	1.32	1.24	1.47	1.47	2.28	2.10	3.77	3.98	3.15	3.07	1.49	1.88
				29.97%	38.19%	9.55%	9.05%					60.48%	52.76%			40.70%	39.66%	39.52%	47.24%
9	MKD-III	9.23	9.23	0.31	0.37	0.00	0.00	0.00	0.00	0.07	0.07	1.02	1.01	1.33	1.38	0.07	0.07	0.31	0.37
				23.31%	26.81%	0.00%	0.00%					76.69%	73.19%			0.76%	0.76%	23.31%	26.81%
10	Penganga	7.63	7.63	0.33	0.67	0.00	0.00	0.00	0.00	0.39	0.49	1.00	0.90	1.33	1.57	0.39	0.49	0.33	0.67
				24.81%	42.68%	0.00%	0.00%					75.19%	57.32%			5.11%	6.42%	24.81%	42.68%
11	Yekona-I&II(Amal)	16.79	16.79	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.03	0.54	1.11	0.54	1.12	0.03	0.03	0.00	0.01
				-	0.89%	-	0.00%					-	99.11%			0.18%	0.18%	0.00%	0.89%
12	New Majri UG to OC	7.06	7.06	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.37	0.75	1.03	0.75	1.03	0.33	0.37	0.00	0.00
				-	0.00%	-	0.00%					-	100.00%			4.67%	5.24%	0.00%	0.00%
13	Pauni -II (Expn)	10.95	10.95	0.00	0.00	0.00	0.00	0.19	0.13	0.08	0.18	0.87	1.17	0.87	1.17	0.27	0.31	0.00	0.00
				-	0.00%	-	0.00%					-	100.00%			2.47%	2.83%	0.00%	0.00%
14	MKD -1 (Expn) OC	6.14	6.14	0.00	0.00	0.00	0.00	0.04	0.10	0.00	0.00	0.97	1.34	0.97	1.34	0.04	0.10	0.00	0.00
				-	0.00%	-	0.00%					-	100.00%			0.65%	1.63%	0.00%	0.00%
	Total	**150.99**	**150.99**	**10.53**	**11.87**	**3.84**	**4.23**	**14.37**	**14.99**	**9.75**	**10.26**	**20.63**	**21.07**	**35.00**	**37.17**	**27.96**	**29.48**	**14.37**	**16.10**
				30.09%	31.93%	10.97%	11.38%					58.94%	56.69%			18.52%	19.52%	41.06%	43.31%

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.

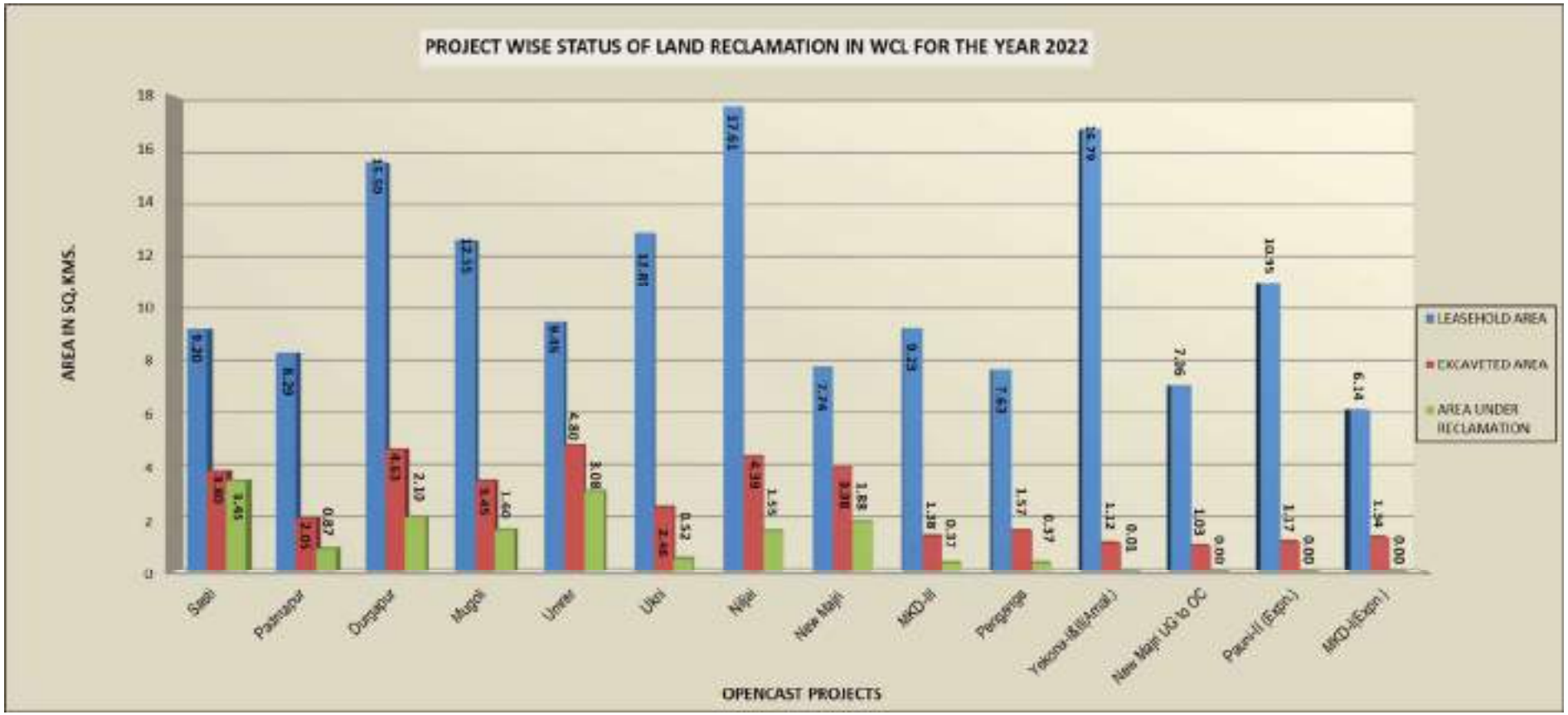


Fig.2: Land reclamation status in 14 OC projects of WCL for the year 2022

1.0 Background

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

1.2 Keeping above in view, Coal India Ltd. (CIL) issued a work order vide letter no. CIL/WBP/Env/2009/2428 dated 29.12.2009 to Central Mine Planning & Design Institute (CMPDI), Ranchi, for monitoring land reclamation. status of all the opencast coal mines having production of 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./2011 dated23/08/11 was 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/2011/4706 dated 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. 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 2022 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. 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 Fig 2. Following steps are involved in land reclamation /restoration monitoring:

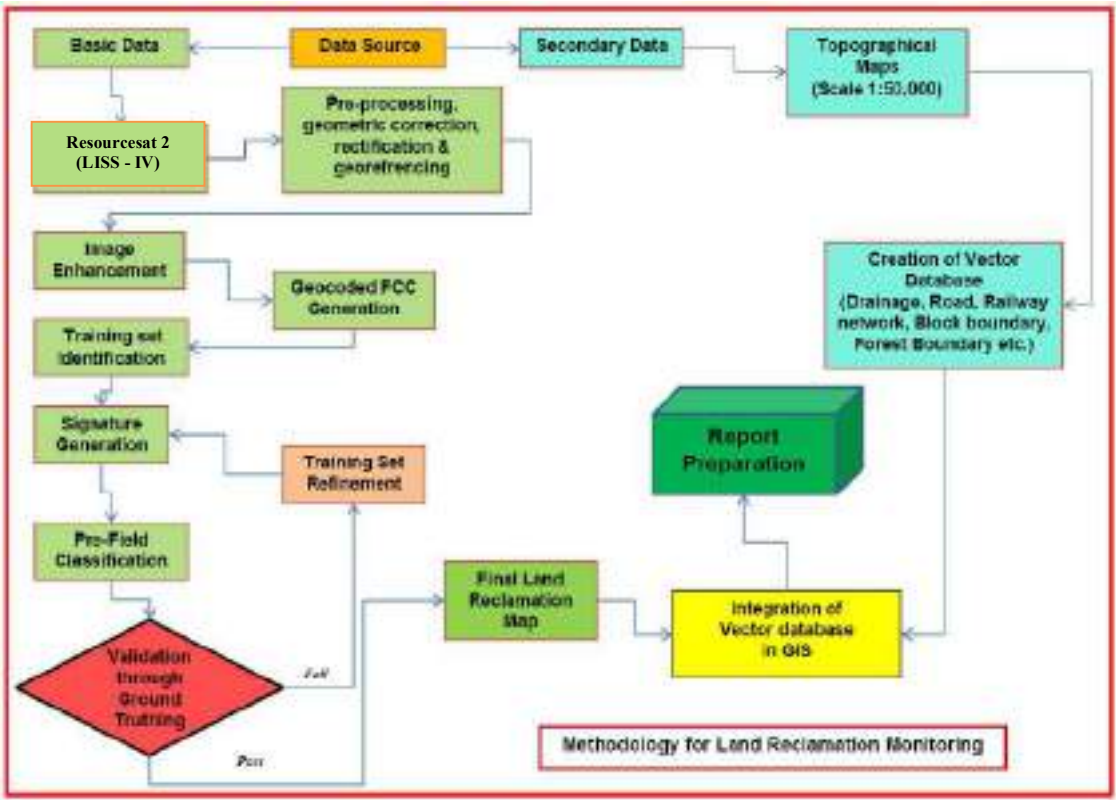


Figure: 3 - ***Methodology for Land Reclamation Monitoring***

3.1 Data Procurement: After browsing the data quality and date of pass on internet, supply order for data is placed to NRSC. 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 2014 digital image processing s/w. Methodology involves the following major steps:

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

- **Image enhancement:**

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

- **Training set selection**

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

- **Classification and Accuracy assessment**

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

- **Area calculation**

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

- **Overlay of Vector data base**

  Vector data base created based on secondary data. Vector layer like drainage, railway line, leasehold boundary, forest boundary etc. are superimposed on the image as vector layer in the Arc GIS 10.2 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

Fourteen opencast projects of WCL producing more than 5 million cubic m. (Coal + OB together) have been taken up for land reclamation/ restoration monitoring in 2022-23, based on the Resoursesat-2/2A(L-IV) Satellite data, using ERDAS Imaging digital image processing s/w and ArcGIS 10.2 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 14 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 2022:

- Sasti
- Padmapur
- Durgapur
- Mugoli
- Umrer
- Ukni
- Niljai
- New Majri
- MKD-III
- Penganga
- Yekona-I & II (Amal.)
- New Majri UG to OC
- Pauni-II (Expn.)
- MKD-I(Expn.)

5.2 Project wise Land Reclamation status in WCL for the year 2022 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 2022 are shown in the Table 2. It is important to mention here that leasehold boundaries of Yekona-I & II (Amal), New Majri UG to OC and MKD-I (Expn.) projects have been modified as per latest EC. Land use maps derived from satellite data are shown in Plate 1-14. Year wise changes in the different land use classes based on satellite data are depicted in Bar Charts in Fig. 4–17 for the last three years only.

5.3 Study reveals that 16.10 Km^2 (43.31%) of excavated area has been under reclamation in the above mentioned mines of WCL out of which 4.23 Km^2 (11.38%) area has been revegetated and 11.87 Km^2 (31.93%) area is under backfilling. There is an overall increase of 1.73 Km^2 in area under reclamation in WCL in the year 2022 with respect to the year 2021, out of which there is an increase of 1.34 Km^2 in area under technical reclamation (Barren Backfilling) and an increase of 0.39 Km^2 in area under biological reclamation (Plantation on Backfilled Areas) (Refer Table-1). In New Majri OC project plantation on OB has been reduced by 0.08 Km^2 on account of tree felling for the purpose of coal mining. In Umrer OC plantation on OB dump has been reduced 0.13 Km^2 on account of OB dumping on vegetated OB dump area due to constraint of dumping space.

5.4 Analysis of satellite data also indicates that total area under active mining has increased from 20.63 Km^2 (Yr.2021) to 21.07 Km^2 (Yr.2022). In some OC project area under active mining has reduced due to increase in area under backfilling.

5.5 After comparing the satellite data of year 2022 vs. 2021, study also reveals that area under backfilling has increased from 10.53 Km^2 (Yr. 2021) to 11.87 Km^2 (Yr. 2022).

5.6 Total area under biological reclamation has increased from 3.84 Km^2 (Yr. 2021) to 4.23 Km^2 (Yr. 2022). There is no biological reclamation in Yekona-I & II (Amal.), New Majri UG to OC, Pauni-II (Expn.), MKD-I and MKD-III OC & Penganga OC.

5.7 Analysis of satellite data also indicates that total area under plantation (Green Cover) has increased from 27.96 Km^2 (Yr. 2021) to 29.48 Km^2 (Yr. 2022). The increase of 1.52 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 2022 vs. 2021, it is evident that total area under plantation (Green Cover) in Sasti, Padmapur, Durgapur, Mugoli, Niljai, Umrer, Ukni, Niljai, Makardhokra-III and Penganga 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 2022 with respect to the year 2021 in different projects, it is evident that the total area under reclamation has increased from 14.37 Km^2 (Yr. 2021) to 16.10 Km^2 (Yr. 2022).

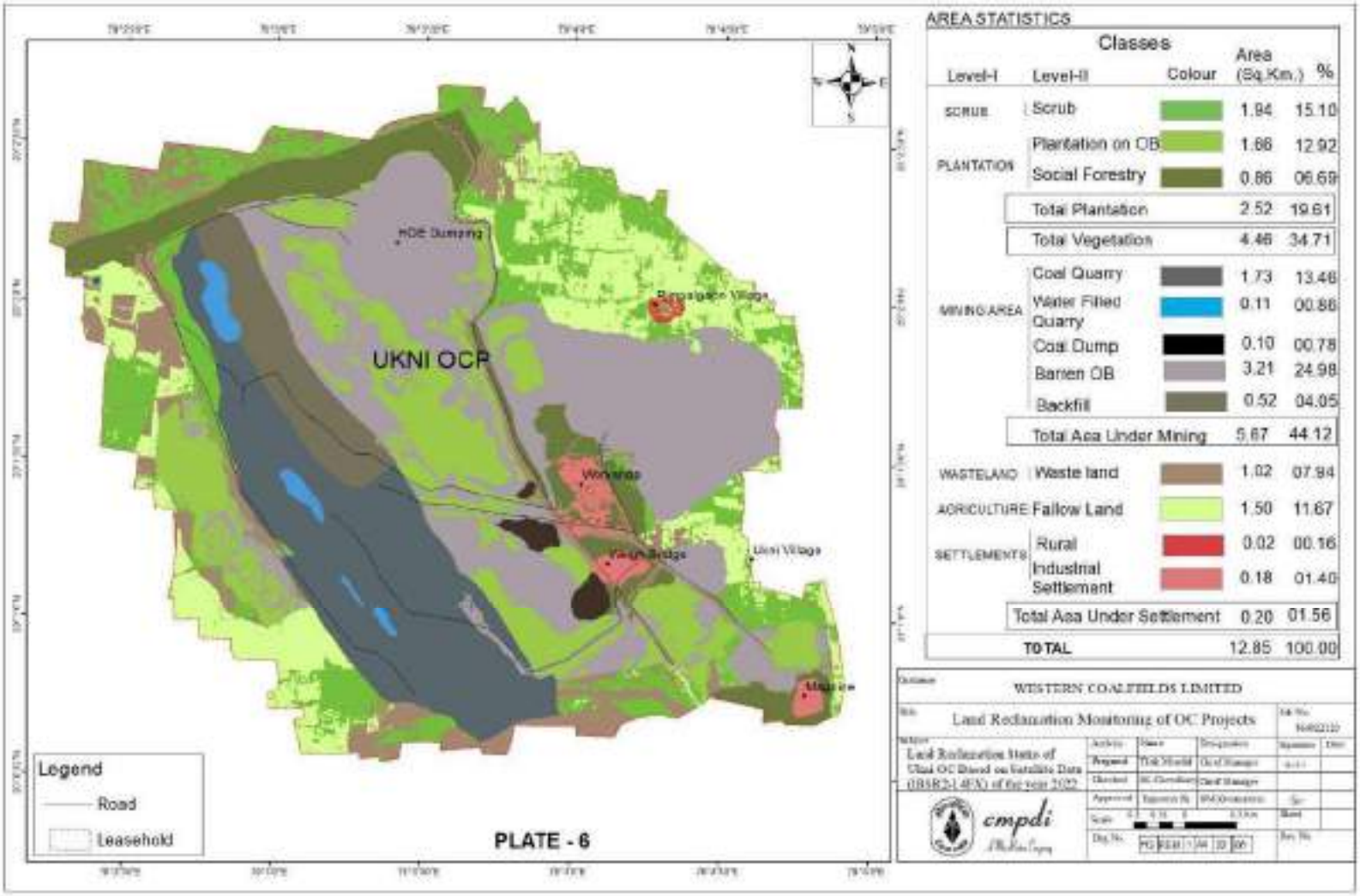
5.10 Out of 14 projects of WCL, maximum area under reclamation is in Sasti Opencast Project (90.79%) followed by Umrer OC (64.17%) and New Majri OC (47.24%).

TABLE - 2

Status of Land Use / Reclamation in OC Mines(>5mcu.m) of Western Coalfields Ltd based on Satellite data of the Year 2022

(Area in Sq.Km)

		Sasti		Padmapur		Durgapur		Mugoli		Umrer		Ukni		Niljai		New Majri		MKD-III		Penganga		Yekona-I&II (Amal)		MKD-I (Expn.)		New Majri Ug to OC		Pauni -II (Expn)		Total	
		Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
FORESTS	Dense Forest	0.00	0.00	0.00	0.00	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	0.84
	Open Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Forest	0.00	0.00	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**	**0.84**
SCRUBS	Scrubs	**0.66**	**7.17**	**0.69**	**8.32**	**0.57**	**3.68**	**1.94**	**15.46**	**0.00**	**0.00**	**1.94**	**15.10**	**1.56**	**8.86**	**0.05**	**0.65**	**0.56**	**6.07**	**1.22**	**15.99**	**2.58**	**15.37**	**0.82**	**13.36**	**0.85**	**12.04**	**1.07**	**9.77**	**14.51**	**9.61**
PLANTATION	Social Forestry	0.67	7.28	0.83	10.01	1.19	7.68	0.56	4.46	2.31	24.44	0.86	6.69	1.23	6.98	1.47	18.99	0.07	0.76	0.49	6.42	0.03	0.18	0.00	0.00	0.37	5.24	0.18	1.64	10.26	6.80
	Plantation on OB Dump	1.70	18.48	2.14	25.81	2.72	17.55	1.81	14.42	1.45	15.34	1.66	12.92	2.04	11.58	1.24	16.02	0.00	0.00	0.00	0.00	0.00	0.00	0.10	1.63	0.00	0.00	0.13	1.19	14.99	9.93
	Plantation on Backfill	0.83	9.02	0.28	3.38	0.93	6.00	0.14	1.12	1.58	16.72	0.00	0.00	0.11	0.62	0.36	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.23	2.80
	Total Plantation *(Biological Reclamation)*	**3.20**	**34.78**	**3.25**	**39.20**	**4.84**	**31.23**	**2.51**	**20.00**	**5.34**	**56.51**	**2.52**	**19.61**	**3.38**	**19.19**	**3.07**	**39.66**	**0.07**	**0.76**	**0.49**	**6.42**	**0.03**	**0.18**	**0.10**	**1.63**	**0.37**	**5.24**	**0.31**	**2.83**	**29.48**	**19.53**
	Total Vegetation	**3.86**	**41.96**	**3.94**	**47.53**	**6.68**	**43.10**	**4.45**	**35.46**	**5.34**	**56.51**	**4.46**	**34.71**	**4.94**	**28.05**	**3.12**	**40.31**	**0.63**	**6.83**	**1.71**	**22.41**	**2.61**	**15.54**	**0.92**	**14.98**	**1.22**	**17.28**	**1.38**	**12.60**	**45.26**	**29.98**
ACTIVE MINING	Coal Quarry	0.35	3.80	0.97	11.70	2.03	13.10	1.85	14.74	1.60	16.93	1.73	13.46	2.52	14.31	1.98	25.58	1.01	10.94	0.90	11.80	0.94	5.60	1.30	21.17	1.03	14.59	0.84	7.67	19.05	12.62
	Coal Dump	0.00	0.00	0.00	0.00	0.05	0.32	0.00	0.00	0.12	1.27	0.10	0.78	0.11	0.62	0.00	0.00	0.00	0.00	0.23	3.01	0.17	1.01	0.00	0.00	0.03	0.42	0.16	1.46	0.97	0.64
	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	0.16	1.46	0.16	0.11
	Quarry Filled With Water	0.00	0.00	0.21	2.53	0.45	2.90	0.00	0.00	0.01	0.11	0.11	0.86	0.21	1.19	0.12	1.55	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.65	0.00	0.00	0.01	0.09	1.16	0.77
	Total Area under *Active Mining*	**0.35**	**3.80**	**1.18**	**14.23**	**2.53**	**16.32**	**1.85**	**14.74**	**1.73**	**18.31**	**1.94**	**15.10**	**2.84**	**16.13**	**2.10**	**27.13**	**1.01**	**10.94**	**1.13**	**14.81**	**1.11**	**6.61**	**1.34**	**21.82**	**1.06**	**15.01**	**1.17**	**10.68**	**21.34**	**14.13**
RECLAIMED	Barren OB Dump	0.78	8.48	1.75	21.11	1.50	9.68	2.24	17.85	0.15	1.59	3.21	24.98	3.80	21.58	0.47	6.07	2.58	27.95	1.66	21.76	0.84	5.00	0.24	3.91	1.02	14.45	2.64	24.11	22.88	15.15
	Barren Backfilled Area (Technical Reclamation)	2.62	28.48	0.59	7.12	1.17	7.55	1.46	11.63	1.50	15.87	0.52	4.05	1.44	8.18	1.52	19.64	0.37	4.01	0.67	8.78	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.00	11.87	7.86
	Total Area	**3.40**	**36.96**	**2.34**	**28.23**	**2.67**	**17.23**	**3.70**	**29.48**	**1.65**	**17.46**	**3.73**	**29.03**	**5.24**	**29.76**	**1.99**	**25.71**	**2.95**	**31.96**	2.33	30.54	0.85	5.06	0.24	3.91	1.02	14.45	2.64	24.11	34.75	23.02
	Total Area Under Mine Operation	**3.75**	**40.76**	**3.52**	**42.46**	**5.20**	**33.55**	**5.55**	**44.22**	**3.38**	**35.77**	**5.67**	**44.12**	**8.08**	**45.88**	**4.09**	**52.84**	**3.96**	**42.90**	**3.46**	**45.35**	**1.96**	**11.67**	**1.58**	**25.73**	**2.08**	**29.46**	**3.81**	**34.79**	**56.09**	**37.15**
WASTELANDS	Waste Lands	0.92	10.00	0.42	5.07	1.39	8.97	0.30	2.39	0.27	2.86	1.02	7.94	1.55	8.80	0.14	1.81	0.70	7.58	1.54	20.18	1.21	7.21	0.33	5.37	0.41	5.81	0.46	4.20	10.66	7.06
	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	0.00	0.00	0.06	0.98	0.05	0.71	0.15	1.37	0.26	0.17
	Total Wasteland	**0.91**	**10.00**	**0.42**	**5.07**	**1.39**	**8.97**	**0.30**	**2.39**	**0.27**	**2.86**	**1.02**	**7.94**	**1.55**	**8.80**	**0.14**	**1.81**	**0.70**	**7.58**	**1.54**	**20.18**	**1.21**	**7.21**	**0.39**	**6.35**	**0.46**	**6.52**	**0.61**	**5.57**	**10.91**	**7.23**
WATERBODIES	Reservoir, nallah, ponds	0.06	0.65	0.12	1.45	0.05	0.32	0.00	0.00	0.20	2.12	0.00	0.00	0.03	0.17	0.01	0.13	0.03	0.33	0.11	1.44	0.12	0.71	0.04	0.65	0.03	0.42	0.33	3.01	1.13	0.75
	Total Waterbodies	**0.06**	**0.65**	**0.12**	**1.45**	**0.05**	**0.32**	**0.00**	**0.00**	**0.20**	**2.12**	**0.00**	**0.00**	**0.03**	**0.17**	**0.01**	**0.13**	**0.03**	**0.33**	**0.11**	**1.44**	**0.12**	**0.71**	**0.04**	**0.65**	**0.03**	**0.42**	0.33	3.01	1.13	0.75
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	0.00	0.00	0.85	9.21	0.00	0.00	4.76	28.35	0.68	11.07	0.94	13.31	0.51	4.66	7.74	5.13
	Fallow Lands	0.00	0.00	0.00	0.00	1.59	10.26	1.92	15.30	0.00	0.00	1.50	11.67	1.98	11.24	0.00	0.00	2.85	30.88	0.66	8.65	6.08	36.21	2.52	41.04	2.25	31.87	4.22	38.54	25.57	16.94
	Total Agriculture	**0.00**	**0.00**	**0.00**	**0.00**	**1.59**	**10.26**	**1.92**	**15.30**	**0.00**	**0.00**	**1.50**	**11.67**	**1.98**	**11.24**	**0.00**	**0.00**	**3.70**	**40.09**	**0.66**	**8.65**	**10.84**	**64.56**	**3.20**	**52.12**	**3.19**	**45.18**	**4.73**	**43.20**	**33.31**	**22.06**
SETTLEMENTS	Urban Settlement	0.09	0.98	0.00	0.00	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	0.01	0.16	0.07	0.99	0.02	0.18	1.54	1.02
	Rural Settlement	0.00	0.00	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	0.24
	Industrial Settlement	0.52	5.65	0.29	3.50	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	0.00	0.00	0.01	0.14	0.07	0.64	2.38	1.58
	Total Settlement	**0.61**	**6.63**	**0.29**	**3.50**	**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**	**0.01**	**0.16**	0.08	**1.13**	0.09	0.82	4.28	2.83
	Grand Total	**9.20**	**100.00**	**8.29**	**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**	**6.14**	**100.00**	**7.06**	**100.00**	**10.95**	**100.00**	**150.98**	**100.00**


UKNI OCP
Legend
Road
Leasehold
PLATE - 6
AREA STATISTICS
Classes
Level-I
Level-II
Colour
Area (Sq.Km.)
%
SCRUB
Scrub 1.94 15.10
PLANTATION
Plantation on OB 1.66 12.92
Social Forestry 0.86 06.69
Total Plantation 2.52 19.61
Total Vegetation 4.46 34.71
MINING AREA
Coal Quarry 1.73 13.46
Water Filled Quarry 0.11 00.86
Coal Dump 0.10 00.78
Barren OB 3.21 24.98
Backfill 0.52 04.05
Total Aea Under Mining 5.67 44.12
WASTELAND
Waste land 1.02 07.94
AGRICULTURE
Fallow Land 1.50 11.67
SETTLEMENTS
Rural 0.02 00.16
Industrial Settlement 0.18 01.40
Total Aea Under Settlement 0.20 01.56
TOTAL 12.85 100.00
WESTERN COALFIELDS LIMITED
Land Reclamation Monitoring of OC Projects
cmpdi

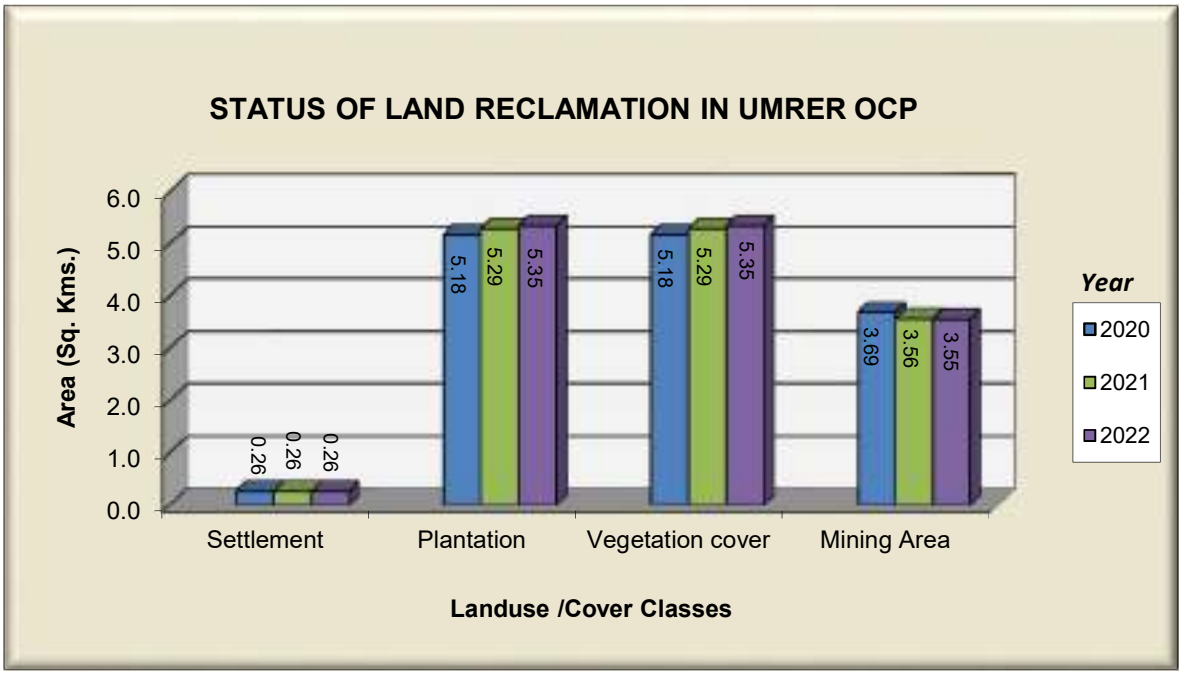


Figure 8

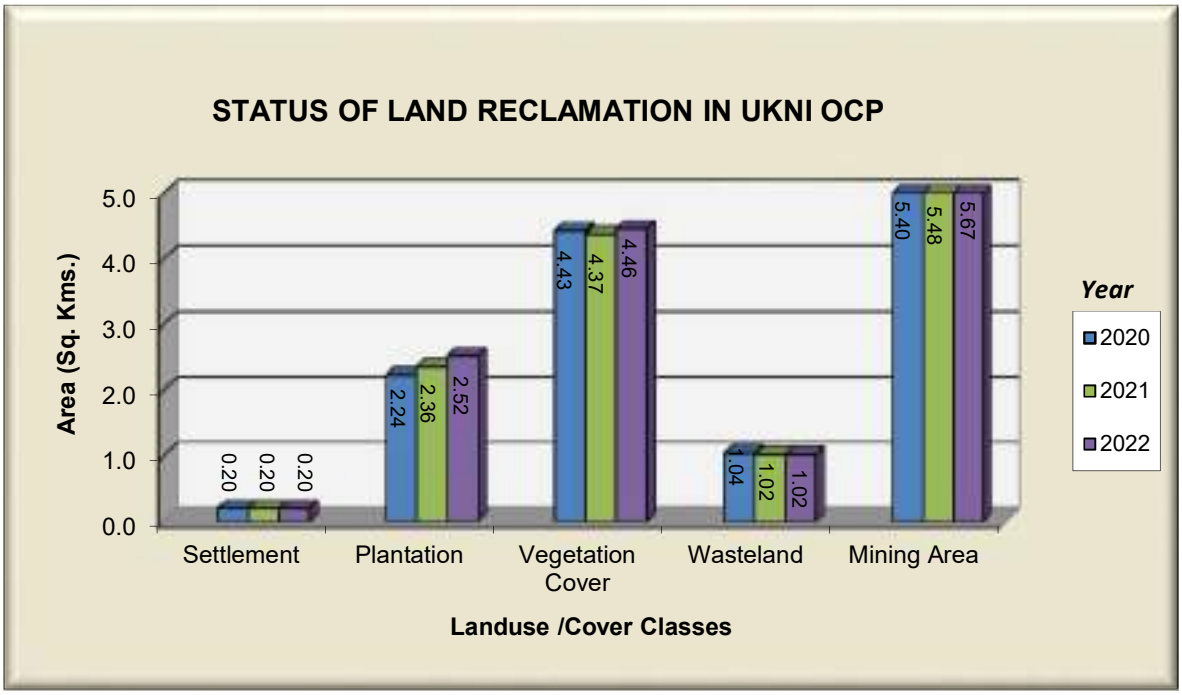


Figure 9

Photograph-5: Plantation on Internal OB dump (Umrer OCP)

Photograph-6: Plantation on External OB dump (Ukni OCP)

Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

FORM V

(See Rule 14)

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

Unique Application Number	Submitted Date
MPCB-ENVIRONMENT_STATEMENT-0000058307	19-09-2023

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**
32706.52	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-0000106999/CR/2211000601	2022-11-09
Consent Valid Upto	**Establishment Year**	**Date of last environment statement submitted**
2023-03-31	1993	Sep 25 2022 12:00:00:000AM

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

Product Information

Product Name	Consent Quantity	Actual Quantity	UOM
COAL	2.2	1.756	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	0.123	0.1068	CMD

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

Name of Raw Materials	During the Previous financial Year	During the current Financial year	UOM
Explosives	2.93	2.0569	Kg/Annum

4) Fuel Consumption

Fuel Name	Consent quantity	Actual Quantity	UOM
Diesel	0	4293.00	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
Water quality monitoring reports have been 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	48.035	50.752	KL/A
5.2 Wastes or residues containing oil	2	2.2	Ton/Y

2) From Pollution Control Facilities

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
34.2 Sludge from treatment of waste water arising out of cleaning / disposal of barrels / containers	15	5	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	50.752	KL/A	-
5.2 Wastes or residues containing oil	2.2	Ton/Y	-
34.2 Sludge from treatment of waste water arising out of cleaning / disposal of barrels / containers	5	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	0.7808	798000	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	-	8.75

[B] Investment Proposed for next Year

Detail of measures for Environmental Protection	***Environmental Protection Measures***	***Capital Investment (Lacks)***
CAAQMS	-	88

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-0000058307

Submitted On:

19-09-2023