



वेस्टर्न कोलफील्ड्स लिमिटेड
Western Coalfields Limited
(मिनिरात्र कंपनी) (A Miniratna Company)
(कोल इंडिया लिमिटेड की अनुषंगी कंपनी)
(A subsidiary of Coal India Limited)



ISO : 9001:2015 & ISO : 14001:2015 & OHSAS : 18001:2007 Certified Company

उपक्षेत्रीय प्रबंधक का कार्यालय

उकनी-जूनाड उपक्षेत्र, वणी नार्थ क्षेत्र

म्.पो. उकनी, तह. वणी, जी. यवतमाल (महाराष्ट्र) पिन 445304

OFFICE OF THE SUB AREA MANAGER

UKNI-JUNAD SUB AREA : WANI NORTH AREA

AT. PO., UKNI, TAH. WANI, DISTT. YAVATMAL, (M.S.) PIN 445 304

संदर्भ क्र. वेकोली/वनाक्षे/उ.क्षे.प्र./उकनी-जूनाड/नागरिकी/2022-23

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दिनांक : 29/11/2022

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, Junad Deep Open cast Mine (0.90 MTPA) for the period from **April 2022 to September 2022**

Dear Sir,

With reference to the above subject matter, please find enclosed herewith Six Monthly Compliance report of Environmental Clearance of M/S WCL, Junad Deep Open cast Mine for the period from **April 2022 to September 2022**.

This is for your kind information please.

Thanking you,

Yours faithfully,

RSP
29/11/22

Sub Area Manager
Ukni - Junad Sub Area

Copy to:-

1. AGM, Wani North Area
2. G.M. (ENV), WCL-HQ, Coal Estate –Nagpur.
3. Regional Officer, MPCB, 1st floor, Udyog Bhawan, Rly. Station road, Chandrapur-442401
4. ANO (ENV)/WNA.
5. Dy. Manager (Civil), Ukni - Junad Sub Area.

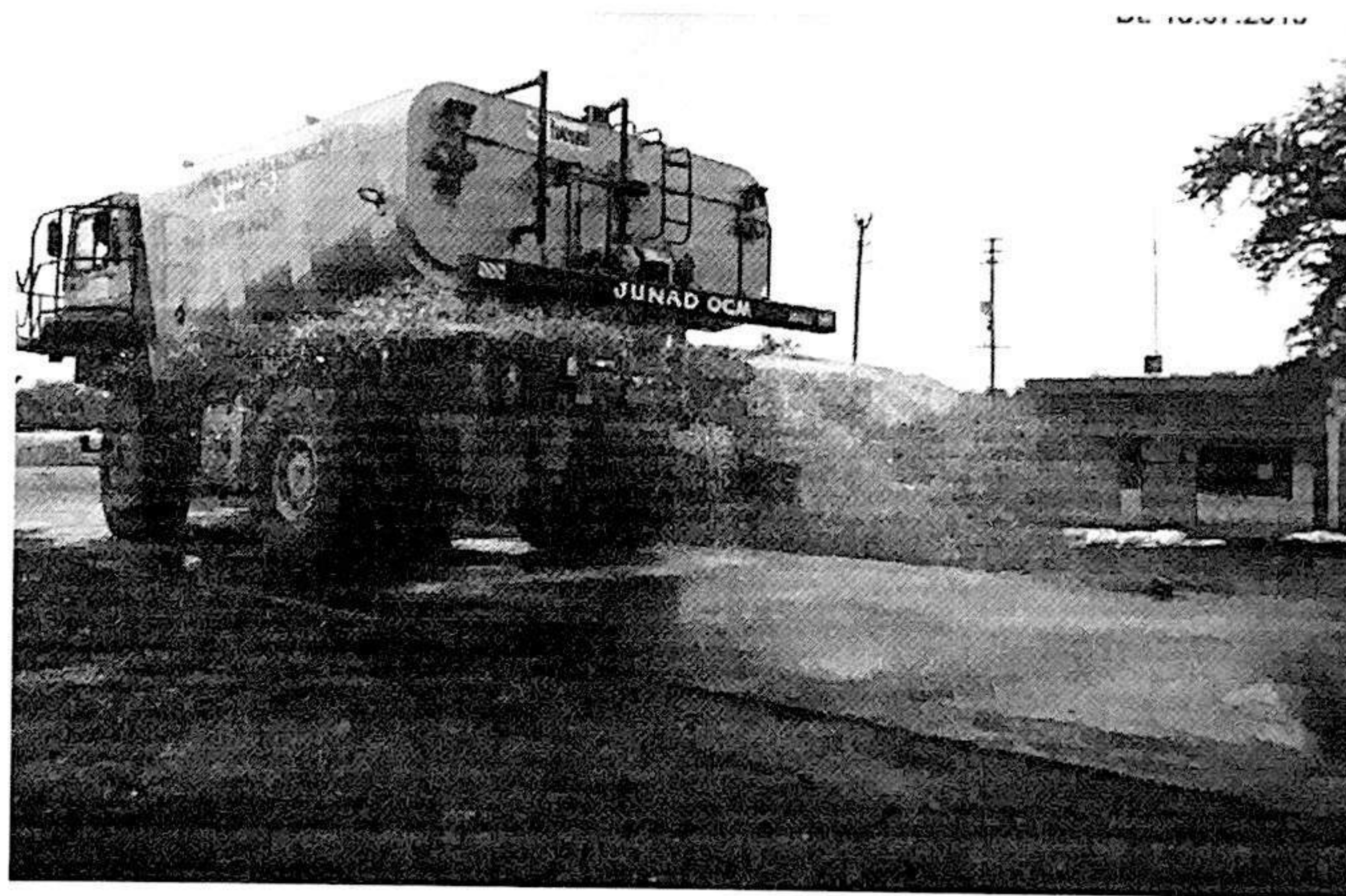
Six Monthly Compliance Report of conditions stipulated in Environmental Clearance

of

Junad Open Cast Mine

(Letter No. J-11015/225/2014-IA-II(M) dtd. 09.09.2015
Capacity enhancement from 0.60 MTPA to 1.50 MTPA &
increase in land Area from 174.28 Ha. to 449.63 Ha.)

April 2022 to September 2022



WESTERN COALFIELDS LIMITED
Wani North Area

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No. J-11015/225/2014 -IA-II (M)
Government of India
Ministry of Environment, Forest & Climate Change
IA-II (Coal Mining) Division

Indira Paryavaran Bhawan,
Jorbagh Road, N Delhi-3

Dated: 9th September, 2015

To,

The General Manager (Environment),
M/s Western Coalfields Ltd.,
Coal Estate, 9th Floor, Civil Lines,
NAGPUR - 440001 (Maharashtra)

Phone: 0712 - 2510151

Email: gmenvironment.wcl@nic.in; wclenv@yahoo.in

Sub: Junad Deep Open Cast Coal Mine Project for Capacity enhancement from 0.60 MTPA to 1.5 MTPA and increase in land area from 174.28 ha to 449.63 ha of M/s Western Coalfields Limited, in Wani North area, located at district Yavatmal (Maharashtra) - Environmental Clearance - reg.

Sir,

This is with reference to letter No.WCL/ENV/HQ/11-C/250 dated 25.07.2014 with the application for Terms of Reference (TOR) and this Ministry's letter dated 21.11.2014 granting TOR. Reference is also invited to the online proposal No. IA/MH/CMIN/26247/2014 dated 28.01.2015 and subsequent letters dated 05.06.2015; 11.06.2015; 01.07.2015; 15.07.2015 and 26.08.2015 for environmental clearance on the above-mentioned subject.

2. The Ministry of Environment, Forest & Climate Change has considered the application. It is noted that the proposal is for grant of Environmental Clearance for **Junad Deep Open Cast Coal Mine Project for Capacity enhancement from 0.60 MTPA to 1.5 MTPA and increase in land area from 174.28 ha to 449.63 ha; Latitude 20° 01' 05" N to 20° 04' 10" N and Longitude 79° 03' 09" E to 79° 05' 00" E of M/s Western Coalfields Limited, in Wani North area, located at district Yavatmal (Maharashtra).**

3. The proposal was considered by the Expert Appraisal Committee (EAC) in the Ministry for Thermal & Coal Mining Projects, in its 37th meeting held on 11th -12th June, 2015 and 39th EAC meeting held on 16th - 17th July, 2015. The details of the project, as per the documents submitted by the project proponent (PP), and also as informed during the above said EAC meetings, are reported to be as under:-

- i. It is the Open Cast Coal Mine to which Ministry had granted EC vide letter no. J-11015/360/2005-IA.II (M) dated 02.06.2006 for 0.6 MTPA.
- ii. The project was accorded ToR vide letter no. J-11015/255/2014-IA.II (M) dated 21.11.2014.
- iii. The latitude and longitude of the project are 20° 01' 05" to N 20° 04' 10" N and 79° 03' 09" to 79° 05' 00" E respectively.
- iv. Joint Venture: There is no joint venture.

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- v. Coal Linkage : Linked to Thermal Power Plants of Mahagenco
- vi. Employment generated: 219 Nos
- vii. Benefits of the project: Production of Coal for generation of electricity contributing towards meeting the need of the nation simultaneously contributing to the society through generation of employment, development of infrastructure and mixing of cultural heritage establishing the fact of unity in diversity.
- viii. Change in land use during mining :

SL. NO.	PARTICULARS	AREA (ha)
1	Quarry area	101.70
2	Ext. OB Dump	175.00
3	Infrastructure including approach road etc.	15.00
4	Embankment	20.00
5	Blasting zone	70.50
6	Rationalisation area	67.43
	Total	449.63

- ix. The land usage of the project will be as follows:

Pre-Mining: The total land requirement for this project is 449.53 ha out of which 174.28 ha has already been acquired in existing Junad OC mine and balance 275.35 ha will have to be acquired.

S.No	LAND USE	Within ML Area (ha)	Outside ML Area (ha)	Total
1	Tenancy land	443.53	Nil	443.53
2	Forest land	Nil	Nil	Nil
3	Govt. land/Waste land	6.10	Nil	6.10
	Total	449.63	Nil	449.63

Post- Mining:

S. No	Land use during mining	Land use (ha)						Total
		Plantation	Water body	Public use	Undisturbed	Grass cover	Reclamation	
1	External OB dump	61.04	-	-	-	113.96	-	175.00
2	Excavation	-	46.70	-	-	-	55.0	101.70
3	Infrastructure	3.00	-	7.00	-	-	-	10.0
4	Green Belt	15.00	-	-	-	-	-	15.0
5	Diversion of Roads including	17.0	-	8.0	-	-	-	25.0

	embankment							
6	Danger zone and Rationalization of area	-	-	-	122.93	-	-	122.93
	Total	96.04	46.70	15.0	122.93	113.96	55.0	449.63

- x. The total geological reserve is 14,581 MT. The mineable reserve 6.13 MT, extractable reserve is 6.13 MT. The per cent of extraction would be 42.045 %.
- xi. The coal grade is GCV 4748 k Cal /kg (Grade G-9). The stripping ratio is 1:8.26 Cum/tonne. The average Gradient is 1 in 2.5 to 1 in 3.5. There will be 1 seam with thickness ranging

Coal seam/ Parting	Thickness range (m)	
	Minimum	Maximum
Composite Seam	14.82	18.83
Parting	0.09	2.21

- xii. The total estimated water requirement is 645 KL/day. The level of ground water ranges from 1.5 m to 12.65 m
- xiii. The **Method of mining** would be opencast with shovel-dumper combination.
- xiv. There is 2 external OB dump with Quantity of 60.95 Mbcm in an area of 175.00 ha with height of 60m above the surface level.
- xv. The final mine void would be in 101.70 Ha with depth 170 m. and the Total quarry area is 101.70 ha. Backfilled quarry area of 0.00 Ha shall be reclaimed with plantation. A void of 101.70 ha with depth 170m which is proposed to be converted into a water body.
- xvi. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- xvii. The life of mine is 11 Years.
- xviii. **Transportation:** Surface to siding by Dumpers and siding to loading by Dumpers and Pay loaders.
- xix. There is **R & R** involved. Only land oustee families to be determined at the time of acquisition.
- xx. **Cost:** Total capital cost of the project is Rs. 57.784 Crores. CSR Cost Rs. 5 per Tonne of coal production. R&R Cost Rs. 8.11 Crore. Environmental Management Cost Capital – Rs 37.16 Lakhs and Revenue- @ Rs 3.85/t.
- xxi. **Water body:** The Wardha River flows near the mine lease boundary of the project at distance 125 m north easterly.
- xxii. **Approvals:** Ground water clearance is not Applicable as it is not falling in critical area as per CGWA. Board's approval obtained on 15.11.2007. Mine Plan/ Mine closure approval from Board for intended capacity for which EC is sought has been obtained on 18.02.2015. Approval of EIA/EEMP for 1.50 MTPA for obtaining EC dated 11.11.2013. Approval of original PR obtained on 17.12.2007.
- xxiii. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xxiv. **Forestry issues:** There is no forest land involved.
- xxv. Total **afforestation** plan shall be implemented covering an area of 210.00 ha at the end of mining. Green Belt over an area of 15.00 ha. Density of tree plantation 2500 trees/ ha of plants.

- xxvi. There are no **court cases**/violation pending with the project proponent.
- xxvii. **Public Hearing:** Public Hearing was held on 05.02.2013 Kamgar Manoranjan Kendra, Bhalar Township, Post Bhalar, Tal. Wani, Dist. Yavatmal Maharashtra. The issues raised in the PH includes Crop compensation; acquisition of balance land; Rehabilitation of Kolar, Pimpri, and Aheri village; Suppression of dust on Nilapur – Brahmni road; Venue of Public Hearing; Tree Plantation; Street lights etc.
- xxviii. **EC Compliance report:** The compliance report of earlier EC has been obtained from MOEF, Regional Office, Bhopal vide its letter no. 3-42/2006(ENV)/2090 letter dated 16/17.12.2013. Action Taken Report on the EC Compliance submitted to MOEF New Delhi & MOEF, Bhopal by PP vide letter no. WCL/ENV/HQ/11-H/304 dated 26.08.2014 was deliberated in the EAC meeting. The Committee has noted that the Action taken for compliance by the PP which inter alia is as follows:

1. No ground water is used for mining operations as such the condition is not applicable. Further this area does not fall under the notified critical area of CGWA. As such separate permission is not required. The piezometer monitoring of the borewell in use is carried out as any adverse impact on ground water level will get immediately noticed.
2. There is a full-fledged Domestic Effluent Treatment Plant (DETP)/ Sewage treatment plant of 0.40 MLD Capacity in operation in the existing colony. There is a Workshop effluent Treatment plant (WETP) in operation. The necessary modification in the WETP has been done and it has been put into operation.
3. The Consent to Operate for enhancement of capacity from 0.324 MTPA (i.e. 27000 tonnes per month) to 0.60 MTPA (i.e. 50,000 tonnes per month) was granted by MPCB vide its order no. BO/Yavatmal- /CC-510 dated 13.06.2006. Therefore, enhancement in capacity has been done only after obtaining EC from MOEF & consent from MPCB. Subsequently the renewal of this consent for 0.60 MTPA (i.e. 50,000 tonnes per month) was granted vide MPCB order no. BO/PCI-II/EIC No.AM-0758-08/R/CC-360 dated 30.04.2008. Further renewal has been applied.
4. NABL accredited 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 equipped with state-of-art instruments such as Atomic Absorption Spectrophotometer (AAS), UV –Visible Spectrophotometer, Microprocessor based Spectrophotometer, Respirable Dust Samplers, Fine dust Samplers. The laboratory is manned skilled and trained workforce (21 nos.) for carrying out environmental monitoring.
5. The schedule of monitoring every fortnight is communicated to SPCB in advance.

xxix. Adequate precautions have been taken for protection of township from safety as well as dust nuisance which can be summarised as below:

- a) Distance of toe of dump to the building is – 200 meters
- b) Height of dump on township side- 15 meters (maximum)
- c) No further heightening proposed towards township nor any extension of dump.
- d) All future dumping is proposed at site- away from township
- e) Adequate green belt cover provided between toe of dump & township on 12 Ha areas through green belt barrier of 200 m.
- f) Covering of slopes towards township with grasses is proposed.

- xxx. Revised reclamation/vegetation plan for OB dump.
- xxxi. The details of green belt: Area covered by green belt = 12 Ha ; Width of green belt = 200 meter; Length of green belt = 600 meter ; Area of green belt= 200 x 600 m². Further about 100 m stretch of OB dump facing the township has been covered with plantation (5750 No.s). In addition grass seeding is also proposed to be taken up.
- xxxii. Appropriate control measures have been installed at the site so as to maintain the dust levels within permissible limit.
- xxxiii. The internal dumping simultaneously with mining activities is not technically feasible due to steep gradient of seam (1 in 3) and quarry width of (250-325 m). Moreover, the stripping ratio is 1:8.26 which requires huge excavation of OB for getting coal. As there is no possibility of internal dumping, hence entire excavated OB is accommodated outside. However, to restrict the degradation of land optimum planning has been done. As directed, the issue of minimizing land degradation due to external OBD has been re-examined and it is concluded that the left out void at the end of mining activities, can be filled up partially by dozing off the external OB lying on the dip side. The substantial area locked up with OB dump thus can be released. The OB proposed to be dozed into the void – only after end of the mining is 27.58 Mm³. This will release 113.96 ha of land and reclaim 55 ha of mined out area. Therefore, the land use pattern at post mining stage will be as follows:

4. The EAC, after detailed deliberations on the proposal in its 39th meeting held on 16th -17th July, 2015, recommended the project for grant of Environmental Clearance. The Ministry of Environment, Forest and Climate Change hereby accords Environmental Clearance to the **Junad Deep Open Cast Coal Mine Project for Capacity enhancement from 0.60 MTPA to 1.5 MTPA and increase in land area from 174.28 ha to 449.63 ha; Latitude 20° 01' 05" N to 20° 04' 10" N and Longitude 79° 03' 09" E to 79° 05' 00" E of M/s Western Coalfields Limited, in Wani North area, located at district Yavatmal (Maharashtra) under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto subject to the compliance of the following terms & conditions and environmental safeguards 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. The validity of the EC is for the life of the Mine or as specified in the EIA Notification, 2006, whichever is earlier.
- iii. Adequate precautions shall be taken for safety of nearby township and minimizing the dust pollution.
- iv. For any forest land covered under the project, forest clearance shall be obtained before operating the coal mine.
- v. The general conditions as applicable for opencast mining project shall strictly adhere to.
- vi. Efforts be made to explore the availability of mechanically covered trucks.
- vii. Coal transportation in pit by Tippers, Surface to Siding by Tippers and siding to loading by Dumpers and pay loaders.
- viii. The production shall be within the same Mining Lease area.
- ix. The OB shall be completely re-handled at the end of the mining.



- x. Final mine void depth will not be more than 40 m. The void area will be converted into water body. The rest of the area will be back filled upto the ground level and covered with about a meter thick top soil and put to use.
- xi. Garland drains be provided.
- xii. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine.
- xiii. The land after mining shall be brought back for agriculture purpose.
- xiv. Mine water should be treated for discharge into the lagoon. The quality of lagoon water shall be regularly monitored and mitigation measures taken.
- xv. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.
- xvi. Everybody in the core area should be provided with mask for protection against fugitive dust emissions.
- xvii. Dust mask to be provided to everyone working in the mining area.
- xviii. The supervisory staff should be held personally responsible for ensuring compulsory regarding wearing of dust mask in the core area.
- xix. People working in the core area should be periodically tested for the lung diseases and the burden of cost on account of working in the coal mine area.
- xx. The mining area should be grounded by green belt having thick closed thick canopy of the tree cover.
- xxi. 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.
- xxii. 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.
- xxiii. OB shall be stacked at two earmarked external OB dumpsite(s) only. The ultimate slope of the dump shall not exceed 28°. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forests & Climate Change and its concerned Regional office on yearly basis.
- xxiv. 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.
- xxv. 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.
- xxvi. 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.
- xxvii. Drills shall be wet operated.
- xxviii. 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.
- xxix. Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.

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- xxx. A Progressive afforestation plan shall be implemented covering an area of 210.00 ha at the end of mining, Green belt (15 Ha) and in township located outside the lease by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. Massive plantation shall be carried out in open spaces in and around the mine and a 3-tier avenue plantation along the main approach roads to the mine.
- xxxi. An estimated total 60.95 Mm³ of OB will be generated during the entire life of the mine. Out of which 60.95 Mm³ of OB will be dumped in two external OB Dumps an earmarked area covering 175 Ha of land. There will be no internal OB dump. The maximum height of external OB dump will 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 MOEFCC and its Regional Office on yearly basis.
- xxxii. The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.
- xxxiii. Compensatory Ecological & Restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land be carried out.
- xxxiv. The mining should be phased out in sustainable manner.
- xxxv. No groundwater shall be used for mining operations.
- xxxvi. The total quarry area of 101.70 ha. The depth of void will be 170 m, which is proposed to be converted into a water body with the maximum depth of 40 m having 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.
- xxxvii. Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment, Forests & Climate Change and to the Central Pollution Control Board quarterly within one month of monitoring.
- xxxviii. 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.
- xxxix. Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.
- xl. 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.
- xli. 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.
- xlii. 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 MOEFCC and its concerned Regional office
- xliii. A detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forests & Climate Change within 6 months of grant of Environmental Clearance.

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- xliv. 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.
- xlvi. Corporate Environment Responsibility:
- The Company shall have a well laid down Environment Policy approved by the Board of Directors.
 - 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.
 - 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.
 - 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:

- No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forest & Climate Change.
- No change in the calendar plan of production for quantum of mineral coal shall be made.
- Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM₁₀, PM_{2.5}, SO₂ and NO_x monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.
- Data on ambient air quality (PM₁₀, PM_{2.5}, SO₂ 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.
- 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.
- 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.
- Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.
- 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.
- 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.

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- 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 & Climate Change 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 PM₁₀, PM_{2.5}, SO₂ and NO_x (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website.
- xvii. The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Office s of CPCB and the SPCB.
- xviii. The Regional Office of this Ministry located in the Region shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the 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 For -V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MoEF&CC by e-mail.

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

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

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

8. The Proponent shall setup an Environment Audit cell with responsibility and accountability to ensure implementation of all the EC Conditions.

9. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

10. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & 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 and any other orders passed by the Hon'ble Supreme Court of India/High Courts and any other Court of Law relating to the subject matter. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

11. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

12. This EC supersedes the earlier EC, vide letter no. J-11015/360/2005-IA.II (M) dated 02.06.2006 for 0.6 MTPA.

S.K.
9/9/2015
(S. K. Srivastava)
Scientist E

Copy to:

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. The Secretary, Department of Environment, Government of Maharashtra, 15th Floor, New Admn. Bldg., Madam Cama Road, MUMBAI – 400 032.
3. The Chief Conservator of Forests, Regional office (EZ), Ministry of Environment, Forest & Climate Change, E-2/240 Arera Colony, Bhopal – 462 016.
4. The Member Secretary, Maharashtra State Pollution Control Board, Kalapataru Point, 3rd & 4th Floors, Sion, Matunga Scheme Road No. 8, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai – 400 002.
5. The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi -110 032.
6. The Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. The Advisor, Coal India Limited, SCOPE Minar, Core-I, 4th Floor, Vikas Marg, Laxmi nagar, New Delhi.
8. The District Collector, **Yavatmal**, Government of Maharashtra.
9. Monitoring File 9. Guard File 10. Record File 11. Notice Board.

S.K.
9/9/2015
(S. K. Srivastava)
Scientist E

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/CC/UAN No.MPCB-
CONSENT-0000125726/CO/2204001617

Date: 24/04/2022

To,
M/s. Western Coalfield Ltd. (WCL)
Junad Deep Open Cast coal Mine Project
118,114,115,116,117,123,124,Near Borgaon village
Wani North Area, Post. Bhallar, Tq. WANI, Dist-
Yavatmal, Maharashtra.



Sub: 1st consent to operate for expansion amalgamation with existing consent to operate under RED/LSI Category

- Ref:**
1. Earlier consent to operate granted vide No. CC/UAN No.103043/CO-2107000218 dtd. 05/07/2021 valid upto 31/03/2023
 2. Consent to establish for expansion granted vide No. CC/UAN No.103037/CE-2107000215 dtd. 05/07/2021.
 3. Environment Clearance granted by Ministry of Environment, Forest & climate Change IA-II(Coal Mining) Division vide No. J-11015/225/2014-IA-II(M) dtd. 09/09/2015.
 4. Application for consent to operate vide UAN No. 125726
 5. Decision of 17th Consent Committee Meeting of the Board for Year 2021-22 held on 08/03/2022

Your application No.MPCB-CONSENT-0000125726 Dated 18.11.2021

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 operate is granted for a period up to 31/03/2023**
2. **The capital investment of the project is Rs.104.7671 Crs. (As per undertaking submitted by pp (Existing consented CI Rs. 32.02 Cr. + expansion CI Rs. 72.74Cr.= Rs. 104.76 Cr))**
3. **Consent is valid for the manufacture of:**

Sr No	Product	Maximum Quantity	UOM
Products			
1	Coal mining on mining lease area 449.63 Ha	900000	Ton/Y

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	3056	As per Schedule-I	Treated effluent after ETP 100% recycle to achieve ZLD and Mine water after treatment maximum reuse for dust suppression in mining area and remaining use for irrigation purpose.
2.	Domestic effluent	11.2	As per Schedule-I	On land for gardening

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

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

6. **Non-Hazardous Wastes:**

Sr No	Type of Waste	Quantity	UoM	Treatment	Disposal
1	Overburden	0	--NA--	Backfilling of mine	Backfilling of mine

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	25	KL/A	Authorized Reprocessor/Recycler	Authorized Reprocessor/Recycler
2	5.2 Wastes or residues containing oil	6	Ton/Y	Incineration	CHWTSDF
3	35.3 Chemical sludge from waste water treatment	30	Ton/Y	Landfill after treatment/ Other	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 Ministry of Environment, Forest & climate Change IA-II(Coal Mining) Division vide No. J-11015/225/2014-IA-II(M) dtd. 09/09/2015.
11. PP shall provide dry deshelling / manual picking of stray material arrangement .
12. PP shall install minimum 3 Continuous Ambient Air Quality Monitoring systems with data loggers within 03 months.

13. PP shall operate Sewage Treatment Plant regularly to achieve BOD limits below 30 mg/l.
14. PP shall convert existing water sprinkling arrangement into chemical fogging arrangement (MgCl2) .
15. PP shall provide tar road in remaining mine area.
16. PP shall carry out over burden dump management as per CPCB guidelines.
17. PP shall carry out plantation as per EC condition before ensuing monsoon.
18. PP shall provide treatment plant for mine water discharge and submit sedimentation tank design details.
19. PP shall comply conditions of CGWA NOC Granted by CGWA Authority vide NOC No. CGWA/NOC/MIN/ORIG/2022/14558 dtd. 15/02/2022 valid upto 14/02/2024.
20. Industry shall obtain prior Environmental Clearance for expansion as per EIA Notification 2006 and as amended.
21. This consent is issued as per the decision of 17th Consent Committee meeting dated 08/03/2022
22. This consent is issued with overriding effect on Earlier consent to operate granted vide No. CC/UAN No.103043/CO-2107000218 dtd. 05/07/2021 valid upto 31/03/2023
23. The applicant shall obtain renewal of Consent to Operate from Maharashtra Pollution Control Board before 60 days of expiry of existing consent



Ashok Shingare

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Signed by: **Ashok Shingare**
Member Secretary
For and on behalf of
Maharashtra Pollution Control Board
ms@mpcb.gov.in
2022-04-24 18:55:23 IST

Received Consent fee of -

Sr.No	Amount(Rs.)	Transaction/DR.No.	Date	Transaction Type
1	240000.00	MPCB-DR-9519	29/12/2021	NEFT

Balance consent fee of 1,94,068/- as per Earlier consent to operate No. CC/UAN No.103043/CO-2107000218 dtd. 05/07/2021 valid upto 31/03/2023 + Rs. 109534/- balance consent fee as per consent to establish granted vide No. CC/UAN No.103037/CE-2107000215 dtd. 05/07/2021 considered in This consent. Total Consent fee i.e Rs. 1,94,068/- + Rs. 1,09,534/-+ Rs. 2,40,000/- = Rs. 5,43,602/- . Now balance consent fee of Rs. 1,03,602/- will be considered during next renewal.

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

SCHEDULE-I

Terms & conditions for compliance of Water Pollution Control:

1. A] As per your application, you have provided Effluent Treatment Plant (ETP) of designed capacity of 0.10 MLD for tread effluent generating from vehicle washing to achieve Zero Liquid Discharge and sedimentation tank of size 20 meter x 8 meter x 3 meter with baffle walls 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 9.0
(2)	Oil & Grease	10
(3)	BOD (3 days 27°C)	30
(4)	COD	250
(5)	Total Suspended solids	100
(6)	Total Dissolved solids	2100

- C] The Industry shall ensure connectivity online monitoring system to the MPCB server including separate energy meter for pollution control system.
 - D] The treated effluent shall be recycled for secondary purposes to the maximum extent and remaining shall be discharged on land for gardening within premise after confirming above standards. In no case, effluent shall find its way for gardening / outside factory premises.
2. A] As per your application, you have provided Sewage Treatment Plant of designed capacity 600 CMD for the treatment of 11.2 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 Solid	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 after confirming above standards. In no case, sewage shall find its way for gardening / 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	400.00
2.	Domestic purpose	14.00
3.	Processing whereby water gets polluted & pollutants are easily biodegradable	3470.00
4.	Processing whereby water gets polluted & pollutants are not easily biodegradable and are toxic	0.00
5.	Gardening	0

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
- Coal handling plant provided with dust collector & automatic water sprinkler shall be operated
 - Scientific spraying of water on all working area, dump area, stock piles with the help of appropriate dust suppression system.
 - Minerals shall be properly covered during transportation.
 - The applicant shall carry out tree plantation along road side, around dumps or compulsory afforestation as per proposal approved by Forest Department. The tree plantation programme shall be taken up well in advance of the actual mining activity, so that green belt of sufficient width & height is developed between mining area/road and surrounding environment.
 - Black topped metal roads provided shall be well maintained to prevent dust formation.
 - Overloading of dumpers shall be avoided to prevent spillages.
 - Correct type & quantity of explosive shall be used to avoid excess dust formation & vibration in the surrounding area.
 - The slope of the over burden shall have slope not more than 28° to the horizontal. The overburden shall be properly covered by vegetation for stabilization.
 - Minerals transportation shall be done by installing conveyors wherever possible & mechanically covered closed trucks shall be used for transportation.

6. Standards for Ambient Air Pollutants:

The Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM), Sulphur dioxide (SO₂) 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, SO₂, NO_x, 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	C to O	Rs. 5.0 Lakh	15 days	Towards O & M of pollution control systems and compliance of consent conditions	Regualr activity	31/07/2023

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

BG Forfeiture History

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

BG Return details

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



SCHEDULE-IV

General Conditions:

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

14. Separate drainage system shall be provided for collection of trade and sewage effluents. Terminal manholes shall be provided at the end of the collection system with arrangement for measuring the flow. No effluent shall be admitted in the pipes/sewers downstream of the terminal manholes. No effluent shall find its way other than in designed and provided collection system.
15. Neither storm water nor discharge from other premises shall be allowed to mix with the effluents from the factory.
16. The applicant shall install a separate meter showing the consumption of energy for operation of domestic and industrial effluent treatment plants and air pollution control system. A register showing consumption of chemicals used for treatment shall be maintained.
17. Conditions for D.G. Set
 - a) Noise from the D.G. Set should be controlled by providing an acoustic enclosure or by treating the room acoustically.
 - b) Industry should provide acoustic enclosure for control of noise. The acoustic enclosure/ acoustic treatment of the room should be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on higher side. A suitable exhaust muffler with insertion loss of 25 dB (A) shall also be provided. The measurement of insertion loss will be done at different points at 0.5 meters from acoustic enclosure/room and then average.
 - c) Industry should make efforts to bring down noise level due to DG set, outside industrial premises, within ambient noise requirements by proper siting and control measures.
 - d) Installation of DG Set must be strictly in compliance with recommendations of DG Set manufacturer.
 - e) A proper routine and preventive maintenance procedure for DG set should be set and followed in consultation with the DG manufacturer which would help to prevent noise levels of DG set from deteriorating with use.
 - f) D.G. Set shall be operated only in case of power failure.
 - g) The applicant should not cause any nuisance in the surrounding area due to operation of D.G. Set.
 - h) The applicant shall comply with the notification of 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. 16.11.2009 as amended.

This certificate is digitally & electronically signed.



Six Monthly Environmental Compliance Report

PART – I

Name of the Project	Junad OC Project
Location and address	Near Aheri Village, Village –Junad , Post -Ukni , Tah-Wani , Dist- Yavatmal , State Maharashtra
Address for correspondence	Near –Aheri Village, Post- Ukni , Tah- Wani , Dist Yavatmal ,State Maharashtra
MOEF Clearance Letter No. & Date	Letter No. J-11015/225/2014-IA-II(M) dtd. 09.09.2015
Period of Status Report	April 2022 to September 2022
Date of commencement of the project Work	10/11/1998

Status of Land

Type of Land	as per EMP (Ha)
Forest	Nil
Agriculture	443.53
Other, Waste land	6.10
Total	449.63

Status of Legal Compliance:

a. Consent under Water (P&CP) Act 1974, Air (P&CP) Act 1981	Earlier consent to operate granted vide No. CC/UAN No.103043/CO-2107000218 dtd. 05/07/2021 valid upto 31/03/2023 1st consent to operate for expansion amalgamation with existing consent to operate under RED/LSI Category RED/L.S.I (R35) No:- Format1.0/CC/UAN No. MPCBCONSENT-0000125726/CO/2204001617 Date: 24/04/2022. The consent to operate is granted for a period up to 31/03/2023
b. Consent under Water (P&CP) Cess Act, 1977	-do-
c.Environment (Protection) Act, 1986	Environmental clearance accorded by MoEF&CC vide letter No. J-11015/225/2014-IA-II(M) dated 09.9.2015. Environment Audit Statement for the year 2021-22 has been submitted.
d. Forest (Conservation) Act, 1980	N.A.

PART-II
Status of Environment

Air Pollution Control:-

a) No. of Ambient air monitoring stations	4 Nos
b) Name of the location	1)SAM Office- (WnJOA1) 2) Bhalar Township (WnJOA2) 3) Ukni village (WnJOA3) 4) Boregaon Village (WnJOA4) Fugitive Dust Monitoring 1.Security Check-Post
c) Ambient air quality status for the parameters prescribed by State Pollution Control Board.	Detailed reports of sampling & analysis of Ambient Air Quality carried out as per statues through CMPDIL, Nagpur for the period April 2022 to September 2022 has been enclosed.

Water Pollution Control:-

a. No. of stations and frequency of monitoring	a. 02 (Two Station); Fortnightly
b. Description of locations	1) Mine Water discharge (WnJOW-1) 2) ETP Water outlet (WnJOW-2)
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 2022 to September 2022 has been enclosed

Noise Pollution Control:-

a) No. of noise monitoring stations	2 No. (Fortnightly)
b) Name of the location	1) Near Manager office (WnJON-1) 2) Colony (Bhalar) (WnJON-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 2022 to September 2022 has been enclosed.

PART-III
Status of Implementation of Provisions of EMP

Land use Status:-

S.N.	Particulars	Current Period April 2022 to September 2022	Progressive Up to 30 th September 2022
1)	Area excavated (Ha.)	--	101.70 Ha
2)	Top soil removed (MM ³)	--	3.86 MM3
3)	OB removed (MM ³)	Nil	58.347 MM3
4)	OB back filled (MM ³)	0.058	0.957 MM3
5)	OB dumped (MM ³)	0.851	58.653 MM3
6)	Area recovered for Reclamation (physical area)	---	Nil
7)	Area reclaimed biologically (tree Plantation on back filled area)	---	Nil

Production: –

Targeted capacity: 0.90 MTY

Actual Production: 0.335 MT upto 30.09.2022 (FY 2022-23)

Year	Coal Production (in Million Tonnes)
2017-18	0.420
2018-19	0.60
2019-20	0.47
2020-21	0.33
2021-22	0.7386
2022 – 23 (up to 30.09.2022)	0.335

Afforestation – (Figures in Nos):-

S. No.	Locations	Current Period	Progressive Up to 30 th Sep. 2022
1)	OB dumps (Embankments)	---	38,000
2)	OB dumps (slope & top)	---	5750
3)	Safety Zones	---	Nil
4)	Vacant land along road	---	21,325
	TOTAL	Nil	65075

Area of plantation (progressive):- 26.03 Ha, 2000 / 2500 no of plants per hectare has been considered.

Species Planted:- Neem , Chickoo, Gulmohar, Cassia , papal, Jamun and Sagwan etc.

Rehabilitation and Resettlement:-

<u>S.N.</u>	<u>Particulars</u>	<u>SC</u>	<u>ST</u>	<u>Others</u>
1.	No. of land outsees-	12	--	186
2.	No .of land outsees rehabilitated-	12	–	186
3.	No. of PAPs/PAFs to be resettled-	17	20	157
4.	No. of PAPs/PAFs resettled-	17	20	157
5.	Area of new site (ha)-	12 ha.		
6.	Status of development-	All development work such as roads drains etc completed.		
7.	Civic amenities provided at new Resettlement site.-	Drinking water, Tar road, community hall, Temple, Panchayat Bhawan, School & Library are provided		
8.	Village shifting -	Borgaon Village.		

Organizational set up at Project Level

Name and designation of the persons:

- (1) G.Rajendra Kumar, SAM, Ukni-Junad Sub Area.
- (2) Shri. S.K.Verma, Colliery Manager, Junad OCM
- (3) Shri Sanjay Sakharwade , Subordinate Engineer (C) / N.O.(Env.), Ukni-Junad Sub Area.
- (4) Shri Alam, Survey I/C, Junad OCM


Expenditure

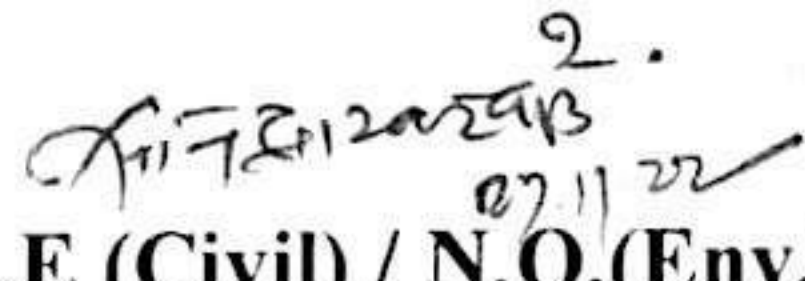
Capital:- (Figure in Rs. Lakhs)

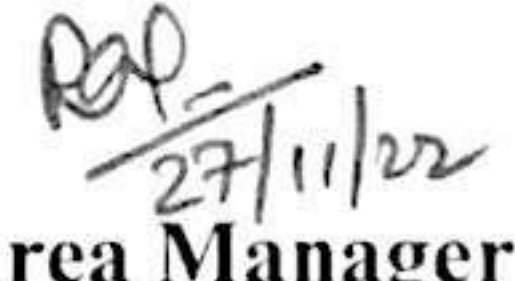
Account Head	FY 2022-23	Progressive Up to 30 th September 2022
Air Pollution Control – Dust Suppression Work	---	15.74
Fixed Sprinkler.	---	10.96
NEW WORK		
Water Pollution Control		
1. Sludge Drying Bed	---	2.90
2. Development of ETP	---	2.00
3. Modification of Existing ETP	---	23.36
4. Sedimentation Tank	---	30.74
TOTAL	----	85.70

Revenue:- (Figure in Rs. Lakhs)

Account Head	Current Period	Progressive Up to 30th September 2022
Afforestation	Nil	14.34
Legal/Statutory expenses	Nil	24.12
Air pollution	Nil	197.38
Water pollution	Nil	29.62
Others	Nil	40.59
TOTAL	Nil	306.05


28/11/22
Colliery Manager
Junad OCM


2
27/11/22
S.O.E (Civil) / N.O.(Env.)
Ukni-Junad Sub Area


27/11/22
Sub Area Manager
Ukni-Junad Sub Area


**Ministry of Environment, Forests & Climate Change,
Regional Office (WCZ), Nagpur**

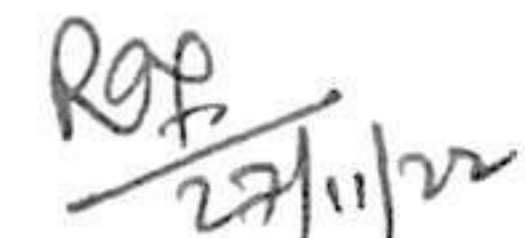
MONITORING PROFORMA

Part – I :DATA SHEET

1.	Project type: River / valley / Mining / Industry/ Thermal / Nuclear / other (specify)	:	Mining
2.	Name of the project	:	Junad Deep Open Cast Coal Mine Project (1.5 MTPA) of M/s WCL at village Aheri, Tehsil Wani, District Yavatmal, Maharashtra
3.	Clearance letter (s)/ OM no. and date	:	J-11015/225/2014-IA.II(M) dt.09.09.2015
4.	Location		
	a) District (s)	:	Yavatmal
	b) State (s)	:	Maharashtra
	c) Latitude / Longitude	:	Lat. N 20°01'05" to N 20°04'10" Log. E 79°03'09" to E 79°05'00"
5.	Address for correspondence		
	a)Address of Concerned Project Chief Engineer (with pin code & telephone / telex / fax numbers)	:	Sub Area Manager, Ukni-Junad Sub Area, Tah. Wani, Dist. Yeotmal, Maharashtra – 445 304
	b)Address of Executive Project Engineer/ Manager (with pin code/fax number)	:	Colliery/Mine Manager, Junad OCM, Ukni-Junad Sub Area, Tah. Wani, Dist. Yeotmal, Maharashtra – 445 304
6.	Salient features		
	a) of the project	:	The project envisaged extractable coal reserves of 6.13 MT. The targeted capacity as per PR is 1.50 MTPA with life of 11 years. The estimated stripping ratio is 1:8.26 cum/tonne at the depth of 170 Mtrs.
	b) of the environmental management plans	:	Capital cost of Env't. Mgmt. – 85.70 Lakhs. Progressive Revenue expenditure–306.05 Lakhs.
7.	Break up of the project area		
	a) Submergence area: forest & non-forest		
		Tenancy Land	As per EMP
		Forest Land	As per Actual
		Govt. Land/Waste Land	
			443.53 Ha
			Nil
			6.10 Ha
			3.13
		Total	449.63 Ha
			440.02 Ha
	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		
			Village shifting -Borgaon Village
			S.N Particulars SC ST Others
	a) SC, ST/Adivasis	:	1. No. of land outsees- 12 -- 186
	b) Others	:	2. No .of land outsees rehabilitated- 12 – 186
	(Please indicate whether these figures are based on any scientific and systematic survey carried out or only provisional figures, if a survey is carried out give details and years of survey).		3. No. of PAPs/PAFs to be resettled- 17 20 157
			4. No. of PAPs/PAFs resettled- 17 20 157
9.	Financial details:		
	a) Project cost as originally planned and subsequent revised estimates and the year of price reference.	:	Rs. 54.7840 Crores (Additional capital – Rs. 38.7577 Crores) as per PR

	b) Allocation made for environmental management plans with item wise and year wise break-up.	:	Capital – Rs. 37.16 lakhs and Revenue - @ Rs 3.85/tas per EMP (1.50 MTPA)
	c) Benefit cost ratio/Internal rate of Return and the year of assessment.	:	NA
	d) Whether (c) includes the cost of environmental management as shown in the above	:	Yes
	e) Actual expenditure incurred on the environmental management plans so far.	:	Capital : Rs. 85.70 lakhs Revenue : Rs.306.05lakhs
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.	Status of construction		
	a) Date of commencement (Actual and/ or planned)	:	This is an expansion project (November 1998)
12.	Reasons for the delay if the project is yet to start.		
		:	N.A.


 Colliery Manager
 Junad OCM


 Sub Area Manager
 Ukni-Junad Sub Area

Six Monthly Status of Compliance of Environmental Clearance Conditions

Junad Deep Open Cast Coal Project (1.50 MTPA), Western Coalfields Limited

(MoEF & CC EC Letter No. J-11015/225/2014-IA.II(M) dtd. 09.09.2015)

Sr. No.	CONDITIONS	COMPLIANCE
A	SPECIFIC CONDITIONS	
i	The Maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC	Coal production will not exceed 1.50 MTPA as prescribed in the Environment Clearance.
ii	The validity of the EC is for the life of the Mine or as specified in the EIA notification, 2006, whichever is earlier.	Agreed and shall be complied
iii	Adequate precautions shall be taken for safety of nearby township and minimizing the dust pollution.	Adequate precautions were taken for safety of the nearby township and for minimizing the dust control; rain guns, mobile water sprinklers etc. are provided.
iv	For any forest land covered under the project, forest clearance shall be obtained before operating the coal mine.	There is no forest land covered under this project.
v	The general conditions as applicable for opencast mining project shall strictly adhere to.	Agreed and the general conditions as applicable for opencast mining project shall be strictly complied.
vi	Efforts be made to explore the availability of mechanically covered trucks.	At present coal transportation trucks are covered by tarpaulins. Efforts will be made to explore the availability of mechanically covered trucks.
vii	Coal transportation in pit by tippers, surface to siding by tippers and siding to loading by dumpers and pay loaders.	Coal is loaded by pay loader to the tippers in pit and transported to siding and loading of coal at siding is also being done by pay loaders.
viii	The production shall be within the same mining lease area.	Coal production will be done within the same mining lease area.
ix	The OB shall be completely re-handled at the end of the mining.	The OB shall be completely re-handled & complied at the final stage of working.
x	Final mine void depth will not be more than 40 m. the void area will be converted into water body. The rest of the area will be back filled upto the ground level and covered with about a meter thick top soil and put to use.	These instructions shall be complied accordingly at the final stage of working.
xi	Garland drains be provided.	Garland drains have already been provided around the OB dump and periphery of the mine.
xii	Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine.	Appropriate embankment has been provided along the side of Wardha river flowing near to mine.
xiii	The land after mining shall be brought back for agriculture purpose.	Agreed, the land after mining shall be brought back for agriculture purpose.

xiv	Mine water should be treated for discharge into the lagoon. The quality of lagoon water shall be regularly monitored and mitigation measures taken.	Mine water is allowed to rest at Mine sump which acts as a pre-sedimentation tank. A suitable Sedimentation tank of size 20m x 8 m x 3m is provided on the surface of the mine. Mine water is being discharged through it after further sedimentation.																
xv	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.																
xvi	Everybody in the core area should be provided with mask for protection against fugitive dust emissions.	All the persons working in core area of mine are being provided with mask for protection against fugitive dust emissions.																
xvii	Dust mask to be provided to everyone working in the mining area.	Dust mask is being provided to everyone working in the mining area.																
xviii	The supervisory staff should be held personally responsible for ensuring compulsory regarding wearing of dust mask in the core area.	Being complied accordingly.																
xix	People working in the core area should be periodically tested for the lung diseases and the burden of cost on account of working in the coal mine area.	Periodical medical examination is being held for all the employees working within core area once in three years.																
xx	The mining area should be grounded by green belt having thick closed thick canopy of the tree cover.	65075 nos. of plants have been planted. Area under plantation is as follows- <table border="1" data-bbox="1149 1315 1875 1648"> <thead> <tr> <th>Sl. No</th> <th>Location</th> <th>Area (Ha)</th> <th>No. of Species Plants</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>OB Dumps</td> <td>17.50</td> <td>43750 nos.</td> </tr> <tr> <td>2</td> <td>Vacant land along road</td> <td>08.53</td> <td>21325 nos</td> </tr> <tr> <td></td> <td>Total</td> <td>26.03</td> <td>65075 nos</td> </tr> </tbody> </table> <p>Species : - Bamboo, siwan, Khair, cassia, gulmohar, Sagwan, sicco, neem, etc. In addition to that green belt will be developed as per given conditions.</p>	Sl. No	Location	Area (Ha)	No. of Species Plants	1	OB Dumps	17.50	43750 nos.	2	Vacant land along road	08.53	21325 nos		Total	26.03	65075 nos
Sl. No	Location	Area (Ha)	No. of Species Plants															
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	Total	26.03	65075 nos															
xxi	The embankment constructed along the river boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river from side and stabilized with plantation so as to withstand the peak water flow and prevent mine inundation.	The embankment of suitable dimensions has been constructed along the mine boundary so as to withstand the peak water flow and prevent mine inundation. The embankment is in a stable condition and it is being inspected time to time and record of the same is maintained.																
xxii	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.	All precautions have been taken to prevent overflow of OB into the river and agriculture fields as per given conditions.																
xxiii	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	OB will be stacked at earmarked external OB dump sites within ML Area. The details of existing external OB dump is follows :- For Dip dumps:- height- 60 mtrs, benches- 05 (Height of each benches -14 mtrs, 13 mtrs, 12																

	<p>submitted to the Ministry of Environment, Forests & Climate change and its concerned Regional Office on yearly basis.</p>	<p>mtrs, 11 mtrs), Width (Top-200 mtrs, Bottom-400 mtrs), slope -28 deg active dump. South dump –Height- 50 mtrs, benches-04 (Ht of each stages 9mtrs, 12 mtrs, 8mtrs, 13 mtrs). Width (Top-150 mtrs , Bottom -300 mtrs) Slope- 22 deg active dump. The present external OB dumps have been placed in the dip side on coal bearing area. This has been done on the basis of economics considering the lead distance for OB dumping as well as to reduce the adverse impacts on Wardha River. At present this OB dump can not be taken up for plantation as these dumps are proposed to be re-handled during the future extension of the mine. The present working edges which are at a depth of about 72 m will be extended further dip side up to about 170 m depth i.e 1:10 coal OB ratio line by re-handling the existing OB dumps and relocating them beyond 1;10 coal OB ratio line.</p>
xxiv	<p>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 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.</p>	<p>Catch drains of appropriate size have been constructed to arrest silt and sediments flowing from OB dumps and drainage has also been provided in OB benches and coal benches to carry silt and sediments into the mine sump provided at the floor of the seam. The catch drains around embankment has already been constructed. The total length is about 4.0 km and the dimensions of the catch drains are approximately 2m x 4m. The sump is of dimension 800 x 60 x 4 m which is adequate to deal with peak sudden rainfall. This sump provides adequate settlement time for suspended particles. Thereafter, the same water is pumped out on surface and fed into surface sedimentation pond of size 20 x 8 x3 m</p>
xxv	<p>Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.</p>	<p>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) for collecting run off and Siltation from OB benches, main sump as detailed out above, is in operation and acts as main settling/Siltation pond. The capacity of this sump has been made to cater the entire peak rainfall in the catchments area (capacity approximately 6.00 lakh Cum). As such, construction of retaining wall at the toe of the dumps and OB benches is not required. Moreover as explained earlier, the existing OB dumps will be re handled during the future extension of the mine as such retaining wall is not practically feasible. From the above it can be seen that all possible measures have been taken to arrest flow of silt</p>

		and sediments from OB dumps and benches. Further, the OB dumps are also partly biologically reclaimed and balance will be taken up in subsequent phases. Moreover, the OB dumps have been placed in the dip side in coal bearing area also to avoid chances of any adverse impact on Wardha river (which is on the opposite side). So there is hardly any chance of flow of silt and sediment from OB dump thereby affecting the natural water courses adversely.																
xxvi	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.	There is no CHP at Junad OC mine. The existing CHP at Pimpalgaon OCM -5.5 Km away from the mine is being used. All precautions including regular water sprinkling and covering with GI sheet has been taken to prevent any dispersion of dust particles																
xxvi i	Drills shall be wet operated.	All the drills working in the mine are having wet drilling arrangements.																
xxvi ii	The project authorities shall undertake regular repairing and tarring of roads used for mineral transportation. A 3-tier green belt comprising of a mix of native species shall be developed all along the major approach roads.	<p>All the internal roads are either cement concreted/WBM/tarred and regular repairing and tarring of these roads shall be carried out as & when required. Plantation is being developed regularly in the mine lease area covering various infrastructures, along haul road (permanent type) coal transportation road embankments & OB dumps with various native species through State Forest Department. The density of the trees is around 2000-2500 plants/ha.</p> <p>Area under plantation is as follows-</p> <table border="1"> <thead> <tr> <th>Sl. No</th> <th>Location</th> <th>Area (Ha)</th> <th>No. of Species Plants</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>OB Dumps</td> <td>17.50</td> <td>43750 nos.</td> </tr> <tr> <td>2</td> <td>Vacant land along road</td> <td>08.53</td> <td>21325 nos</td> </tr> <tr> <td></td> <td>Total</td> <td>26.03</td> <td>65075 nos</td> </tr> </tbody> </table> <p>Species : - Bamboo, siwan, Khair, cassia, gulmohar, Sagwan, sicco, neem, etc.</p>	Sl. No	Location	Area (Ha)	No. of Species Plants	1	OB Dumps	17.50	43750 nos.	2	Vacant land along road	08.53	21325 nos		Total	26.03	65075 nos
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xxix	Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.	Controlled blasting is being done using delay detonator and only in daytime. All mitigative measures for control of ground vibrations & to arrest the fly-rocks are undertaken.																
xxx	A progressive afforestation plan shall be implemented covering an area of 210.00 Ha at the end of mining, Green belt (15Ha) and in township located outside the lease by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per Ha. Massive plantation shall be carried out in open	<p>Progressive afforestation as per given condition will be complied. Total 65075 plants have been already planted in and around the mine till date.</p> <p>The plantation is entirely carried out through State Forest Agencies viz. Forest Development Corporation of Maharashtra/M.P. Rajya Van Vikas Nigam</p>																

	spaces in and around the mine and a 3-tier avenue plantation along the main approach roads to the mine.	with 5 years maintenance contract and planting of native species. The density of plantation is maintained at 2500 plants/ha.
xxxii	An estimated total 60.95 Mm ³ of OB will be generated during the entire life of the mine. Out of which 60.95 Mm ³ of OB will be dumped in two external OB dumps an earmarked area covering 175 Ha of land. There will be no internal OB dump. The maximum height of external OB dump will not exceed 60m. 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&CC and its Regional Office on yearly basis.	OB will be stacked at earmarked external OB dump sites within ML Area. The details of existing external OB dump is follows :-- For Dip dumps:- height- 60 mtrs, benches- 05 (Height of each benches -14 mtrs, 13 mtrs, 12 mtrs, 11 mtrs), Width (Top-200 mtrs, Bottom-400 mtrs), slope -28 deg active dump. South dump –Height- 50 mtrs, benches-04 (Ht of each stages 9mtrs, 12 mtrs, 8mtrs, 13 mtrs). Width (Top-150 mtrs , Bottom -300 mtrs) Slope- 22 deg active dump. The present external OB dumps have been placed in the dip side on coal bearing area. This has been done on the basis of economics considering the lead distance for OB dumping as well as to reduce the adverse impacts on Wardha River. At present this OB dump can not be taken up for plantation as these dumps are proposed to be re-handled during the future extension of the mine. The present working edges which are at a depth of about 72 m will be extended further dip side up to about 170 m depth i.e 1:10 coal OB ratio line by re-handling the existing OB dumps and relocating them beyond 1;10 coal OB ratio line.
xxxii i	The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.	The restoration and reclamation plan for the degraded area shall be prepared and the land shall be used in a productive and sustainable manner.
xxxii ii	Compensatory Ecological & restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land be carried out.	Compensatory Ecological & restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land will be carried out.
xxxii v	The mining should be phased out in sustainable manner.	It will be ensured that the mining shall be phased out in sustainable manner.
xxxv	No groundwater shall be used for mining operations.	No groundwater is being/shall be used for mining operations.
xxxv i	The total quarry area of 101.70 Ha. The depth of void will be 170 m, which is proposed to be converted into a water body with the maximum depth of 40m having gently sloped and the upper benches shall be terraced and stabilized with plantation/afforestation by planting native plant species in consultation with the local DFO/Agriculture department. The density of the trees shall be around 2500 plants per ha.	These instructions shall be complied accordingly.
xxxv ii	Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity	Regular ground Water Level and Quality Monitoring is being done by 3 rd party agency. The reports are being submitted along with six monthly EC compliance report.(copy

	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 & Climate change and to the central Pollution control board quarterly within one month of monitoring.	enclosed)
xxxv iii	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.	An old pond of size 25m x 10m x 2.50m situated at the resettled Borgaon village near the mine has been de-silted. This pond is now acting as a water reservoir for augmenting the ground water resources in the vicinity and providing source of water for the village cattle. It is further been proposed to take up rain water harvesting projects in permanent structures of the villages in a phased manner with due consent from the gram panchayat.
xxxix x	Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.	Sewage treatment plant of 0.6 MLD has been installed in the Bhalar Township. ETP (Effluent Treatment Plant) has been provided for treatment of Workshop effluent with oil & grease trapper.
xli	Besides carrying out regular periodic health check-up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through an specialized agency/institution within the District/state and the results reported to this ministry and to DGMS.	Periodical medical examination including occupational diseases and hearing impairment, if any, is being held for all the employees working within core area once in three years.
xlii	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 to land oustees are provided as per Coal India Limited's policy.
xliii	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 MOEFCC and its concerned Regional Office.	Complied with. An updated report of land use maps, based on satellite imagery for monitoring land use pattern is regularly uploaded on the WCL's website www.westerncoal.in. The same is also submitted along with the Six-monthly EC compliance report
xliiii	A detailed final mine closure plan along with details of corpus fund shall be submitted to the ministry of Environment, Forests & Climate change within 6 months of grant of Environmental clearance.	The Mine Closure Plan has been prepared as per the guideline of Ministry of Coal, and the same is approved by WCL Board on 03.02.2015 . Escrow Account has been opened with the corpus. Details are as below: Escrow A/C no.: 0897107600001160 Balance as on 31.03.22 :- Rs. 428461478/-
xliv	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.	It is already under implementation by the WCL and shall be complied in future also.

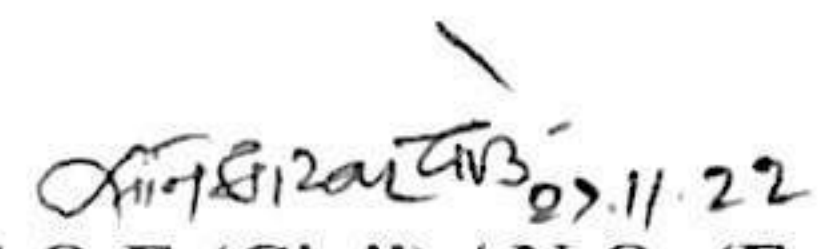
xlv	Corporate Environment Responsibility : a) The company shall have a well laid down Environment Policy approved by the Board of Directors.	Corporate Environment Policy of Coal India Limited, approved by Board of Directors already exists.
	b) The Environment Policy shall prescribe for standard operation process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.	The Environment Policy of the Company shall be strictly complied as per norms.
	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.	Environmental Management Cell is headed by Sub Area Manager and is assisted directly by Nodal Officer (Environment)/ Sr. Manager (Civil) at project level. AGM of the Area heads the cell assisted by Area Nodal Officer (Environment) at Area level. GM (Environment) heads the Environment Department at HQ /Corporate level with a multidisciplinary team of qualified and trained Engineers.
	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.	The company already has a system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and proper checks and balances are in place.
B	General Conditions :	
i	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forest & Climate change.	No change in mining technology as well as scope will be made without prior approval of the MoEF & CC.
ii	No change in the calendar plan of production for quantum of mineral coal shall be made.	No change in the calendar plan will be made without prior approval.
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 NO _x monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the state pollution control board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.	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 meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the state pollution control board as under: (1) SAM Office (WnJOA1) (2) Bhalar Township (WnJOA2) (3) Near Substation (WnJOA3) . (4) Borgaon village (WnJOA4) For Fugitive Emission (1) Security Check Post
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	Data on ambient air is regularly being submitted to the Ministry including Regional Office, and also to Pollution Control Board. Monitoring of environmental quality parameters are being done by CMPDIL, Regional Institute - IV, Nagpur. The reports

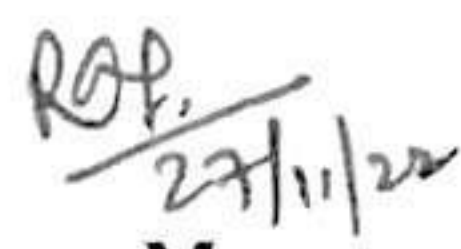
	control board once in six months. Random verification of samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report.	are attached along with the compliance report.
v	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.	Ear plugs are provided to employees working near HEMM, blasting, drilling operation etc. In addition to that thick plantation has been planted to reduce the noise level. Further in order to reduce excessive noise during operations, regular maintenance of all HEMM done.
vi	Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 th May 1993 and 31 st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.	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, Industrial waste water from Workshop is being properly collected & treated in ETP fitted with Oil Skimmer 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 and the entire treated water is recycled for dumper washing.
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.	Vehicular emission is under control. Vehicles used for transporting the mineral outside the mine lease area by road are being covered with tarpaulins and is 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 analyzed through a laboratory recognized under EPA rules, 1986.	Monitoring of environmental quality parameters is being done by CMPDIL, Regional Institute - IV, Nagpur (an ISO certified consultant), which is having a NABL accredited Centralized Environmental Laboratory,
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.	All personnel working in dusty areas are supplied with and they are being provided with adequate training and information on safety and health aspects in continuous manner.
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 conducted once in three years for every employee of the mine.
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.	Environmental Management Cell is headed by Sub Area Manager and is assisted directly by Nodal Officer (Environment)/ Sr. Manager (Civil) at project level. AGM of the Area heads the cell assisted by Area Nodal Officer (Environment) at Area level. 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.	Being complied.
xiii	The project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the state pollution control board and may also be seen at the website of the ministry of Environment, forest & climate change at http://envfor.nic.in	The information that this project has been accorded Environmental Clearance along with a copy of the EC letter has been posted at the website of MoEF & CC. It has also been advertised in two local newspaper of Marathi language. Advertisement was published in the newspaper (Marathi – Dainik Yuvarashtra Darshan dated 20.09.2015 and Vidarbha Matdar dated 20.09.2015).
xiv	A copy of the environmental clearance letter shall be marked to concern Panchayat/Zilaparishad, 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.	A copy of the environmental clearance letter had been given to Sarpanch, Pimpalgaon-Junada-Boregaon Gut-Gram Panchayat vide letter no.829 dtd.20.11.15. Copy of the clearance letter has been displayed on Western Coalfields Limited website : www.westerncoal.gov.in
xv	A copy of the environmental clearance letter 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.	Copy of the clearance letter has been displayed on WCL's website : www.westerncoal.in
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 mine office and in corporate office and on company's website.	The clearance letter has been uploaded on the WCL's website www.westerncoal.in . The updated compliance status of the stipulated EC condition is regularly uploaded.
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 email) to the respective Regional Office of the Ministry, respective zonal office of CPCB and the SPCB.	Six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions are regularly being submitted to the Regional Office, MoEF&CC and RO, MPCB.
xviii	The regional office of this ministry located in the region shall monitor compliance of the stipulated conditions. The project authorities	The project authorities will ensure & extend full cooperation to the office(s) of the Regional Office by furnishing the requisite

	shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/ monitoring reports.	data/ information/ monitoring reports.
xix	The environmental statement for each financial year ending 31 st 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 & CC by email.	The Environment Audit Statement for the year 2021-22 has been submitted (Copy enclosed)


 27/11/22
Colliery Manager
Junad OCM


 27/11/22
S.O.E (Civil) / N.O. (Env.)
Ukni-Junad Sub Area


 27/11/22
Sub Area Manager
Ukni-Junad Sub Area

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ENVIRONMENTAL MONITORING REPORT

JUNAD OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4634420034



APRIL 2022

Environment Laboratory

CMPDI

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report
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TEST REPORT NO.	RIN/TR/APRIL-21/42	DATE OF ISSUE	31.05.2022
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
CUSTOMER LETTER REFERENCE NO.	WCL/ HQ/ Environment/ 14-I/206-220 , Dt. 25.03.2022		
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, NO ₂ : IS 5182 Part-06:2006(2017), SO ₂ :IS 5182 Part-2:2001(RA 2017)		
NAME OF AREA	WANI NORTH	SAMPLING PLAN : LQR 47	
NAME OF PROJECT	JUNAD OC		
SAMPLE DESCRIPTION	Air sample		
SAMPLING METHOD : LSOP 4			

SAM OFFICE WNJOA1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m ³)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
11.04.2022	12.04.2022	254	156	58	22	14	Clear Sky / Lightbreeze
23.04.2022	24.04.2022	260	172	66	24	18	Cloudy Sky / Lightbreeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

BORGAON VILLAGE WNJOA2							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m ³)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
11.04.2022	12.04.2022	108	62	34	16	12	Clear Sky / Lightbreeze
23.04.2022	24.04.2022	113	63	36	12	BDL	Cloudy Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	

BHALAR TOWNSHIP WNUOA3							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m ³)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
06.04.2022	07.04.2022	113	57	30	16	10	Clear Sky / Lightbreeze
23.04.2022	24.04.2022	132	78	43	14	10	Cloudy Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	

UKNI VILLAGE WNUOA4							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m ³)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
06.04.2022	07.04.2022	110	60	36	12	BDL	Clear Sky / Lightbreeze
23.04.2022	24.04.2022	117	67	38	16	BDL	Cloudy Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	

J. Sahu

Analysed by

Deepanshu sahu

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SAMPLE DESCRIPTION	Water sample
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O
SAMPLING METHOD	LSOP 5

MINE WATER DISCHARGE: WNJOW1				
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
11.04.2022	7.4	34	44	BDL
23.04.2022	7.6	32	60	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE: WNJOW2				
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
11.04.2022	7.2	28	48	BDL
23.04.2022	7.40	26	52	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



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NOISE LEVEL MONITORING DATA

MANAGER OFFICE: WNJON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
APRIL'22	09.04.2022	56.7	55.3
APRIL'22	25.04.2022	57.3	56.5
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY: WNJON2			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
APRIL'22	09.04.2022	45.4	44.2
APRIL'22	25.04.2022	46.7	45.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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ENVIRONMENTAL MONITORING REPORT

JUNAD OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4634420034



MAY 2022


Environment Laboratory

NABL ACCREDITED VIDE NO TC-7102 UP TO 28.06.2022

CMPDI

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

AN ISO 9001:2015 COMPANY

Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	 TC-7102
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TEST REPORT NO.	RIN/TR/MAY-22/42	DATE OF ISSUE	25-06-2022
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
CUSTOMER LETTER REFERENCE NO.	WCL/ HQ/ Environment/ 14-I/206-220 , Dt. 25.03.2022		
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, NO ₂ : IS 5182 Part-06:2006(2017), SO ₂ :IS 5182 Part-2:2001(RA 2017)		
NAME OF AREA	WANI NORTH	SAMPLING PLAN : LQR 47	
NAME OF PROJECT	JUNAD OC		
SAMPLE DESCRIPTION	Air sample		
SAMPLING METHOD : LSOP 4			

SAM OFFICE WNJOA1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m ³)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
14-05-2022	15-05-2022	256	160	59	22	16	Cloudy Sky / Lightbreeze
25-05-2022	26-05-2022	258	165	65	20	14	Cloudy Sky / Lightbreeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

BORGAON VILLAGE WNJOA2							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m ³)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
14-05-2022	15-05-2022	109	60	32	12	10	Cloudy Sky / Lightbreeze
25-05-2022	26-05-2022	112	65	36	14	10	Cloudy Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	

BHALAR TOWNSHIP WNUO3							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m ³)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
09-05-2022	10-05-2022	114	60	32	16	10	Clear Sky / L.BREEZE
20-05-2022	21-05-2022	126	72	38	12	10	Clear Sky / L.BREEZE
NAAQS, 2009		-	100	60	80	80	

UKNI VILLAGE WNUO4							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m ³)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
FROM	TO	5	5	2	6	10	
08-05-2022	09-05-2022	108	58	32	10	BDL	Clear Sky / L.BREEZE
20-05-2022	21-05-2022	116	64	34	12	10	Clear Sky / L.BREEZE
NAAQS, 2009		-	100	60	80	80	



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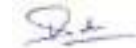
FUGITIVE DUST MONITORING

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

DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)			ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	
14-05-2022	15-05-2022	280	178	42	Cloudy / L.Breeze



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SAMPLE DESCRIPTION	Water sample
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O
SAMPLING METHOD	LSOP 5

MINE WATER DISCHARGE: WNJOW1				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
09-05-2022	7.62	28	44	BDL
25-05-2022	7.73	30	60	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE: WNJOW2				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
09-05-2022	7.47	24	36	BDL
25-05-2022	7.35	34	48	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



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NOISE LEVEL MONITORING DATA

MANAGER OFFICE: WNJON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAY'22	11.05.2022	55.4	54.4
MAY'22	25.05.2022	56.4	55.2
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY: WNJON2			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAY'22	11.05.2022	46.7	45.4
MAY'22	25.05.2022	45.4	44.3
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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ENVIRONMENTAL MONITORING REPORT

JUNAD OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4634420034




JUNE - 2022

Environment Laboratory

CMPDI

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

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	 TC-7182
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TEST REPORT NO.	RIN/TR/JUN-22/42	DATE OF ISSUE	28.07.2022
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
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, NO ₂ : IS 5182 Part-06:2006(2017), SO ₂ :IS 5182 Part-2:2001(RA 2017)		
NAME OF AREA	WANI NORTH	SAMPLING PLAN : LQR 47	
NAME OF PROJECT	JUNAD OC		
SAMPLE DESCRIPTION	Air sample		
SAMPLING METHOD : LSOP 4			

SAM OFFICE WNJOA1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
09.06.2022	10.06.2022	260	162	60	24	16	Clear Sky / Lightbreeze
24.06.2022	25.06.2022	252	160	62	24	18	Clear Sky / Lightbreeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

BORGAON VILLAGE WNJOA2							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
09.06.2022	10.06.2022	110	56	40	14	BDL	Clear Sky / Lightbreeze
24.06.2022	25.06.2022	114	68	42	10	BDL	Clear Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	

BHALAR TOWNSHIP WNUOA3							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04.06.2022	05.06.2022	120	58	30	12	10	Clear Sky / Lightbreeze
19.06.2022	20.06.2022	128	70	40	10	10	Clear Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	

UKNI VILLAGE WNUOA4							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04.06.2022	05.06.2022	110	56	30	10	BDL	Clear Sky / Lightbreeze
19.06.2022	20.06.2022	120	62	34	12	BDL	Clear Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	



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

MINE WATER DISCHARGE: WNJOW1				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
09.06.2022	7.82	28	40	BDL
23.06.2022	7.77	26	48	BDL
STANDARDS FOR COAL MINE, GSR	5.5 - 9.0	100	250	10

ETP DISCHARGE: WNJOW2				
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
05.06.2022	7.76	22	32	BDL
23.06.2022	7.73	32	44	BDL
STANDARDS FOR COAL MINE, GSR	5.5 - 9.0	100	250	10



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NOISE LEVEL MONITORING DATA

MANAGER OFFICE: WNJON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JUN'22	10.06.2022	56.4	54.1
JUN'22	25.06.2022	56.4	54.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY: WNJON2			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JUN'22	10.06.2022	45.5	43.9
JUN'22	25.06.2022	45.9	43.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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ENVIRONMENTAL MONITORING REPORT

JUNAD OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4634420034




JULY - 2022

Environment Laboratory

CMPDI

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

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	 TC-7182
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TEST REPORT NO.	RIN/TR/JULY-22/42	DATE OF ISSUE	30.08.2022
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
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, NO ₂ : IS 5182 Part-06:2006(2017), SO ₂ :IS 5182 Part-2:2001(RA 2017)		
NAME OF AREA	WANI NORTH	SAMPLING PLAN : LQR 47	
NAME OF PROJECT	JUNAD OC		
SAMPLE DESCRIPTION	Air sample		
SAMPLING METHOD : LSOP 4			

SAM OFFICE WNJOA1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
11.07.2022	12.07.2022	200	108	60	18	14	Cloudy Sky / Lightbreeze
24.07.2022	25.07.2022	228	122	66	22	18	Cloudy Sky / Lightbreeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

BORGAON VILLAGE WNJOA2							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
11.07.2022	12.07.2022	126	70	34	12	10	Cloudy Sky / Lightbreeze
24.07.2022	25.07.2022	120	62	32	12	BDL	Cloudy Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	

BHALAR TOWNSHIP WNUOA3							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
05.07.2022	06.07.2022	120	70	38	16	12	Rainy Sky / Lightbreeze
19.07.2022	20.07.2022	116	70	36	16	BDL	Rainy Sky / Calm
NAAQS, 2009		-	100	60	80	80	

UKNI VILLAGE WNUOA4							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
05.07.2022	06.07.2022	114	68	30	14	12	Rainy Sky / Lightbreeze
19.07.2022	20.07.2022	116	76	32	14	10	Rainy Sky / Calm
NAAQS, 2009		-	100	60	80	80	



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FUGITIVE DUST MONITORING

TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017) & PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016
SAMPLE DESCRIPTION	Air sample(Fugitive)
SAMPLING METHOD : LSOP 4	

DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)			ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	
12.07.2022	13.07.2022	288	186	68	Cloudy / Rainy



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

MINE WATER DISCHARGE: WNJOW1				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
12.07.2022	7.34	24	40	BDL
25.07.2022	7.45	18	24	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE: WNJOW2				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
12.07.2022	7.72	28	44	BDL
25.07.2022	8.68	50	88	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



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NOISE LEVEL MONITORING DATA

MANAGER OFFICE: WNJON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JULY'22	12.07.2022	54.5	52.1
JULY'22	27.07.2022	54.6	52.3
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY: WNJON2			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
JULY'22	12.07.2022	45.2	43.4
JULY'22	27.07.2022	44.7	42.1
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

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ENVIRONMENTAL MONITORING REPORT

JUNAD OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4634420034




AUG - 2022

Environment Laboratory

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REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	 TC-7102
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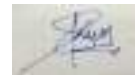
TEST REPORT NO.	RIN/TR/AUG-22/24	DATE OF ISSUE	30.09.2022
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO ₂ : IS 5182 Part-06:2006(2017), SO ₂ :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:		15/07/22 TO 13/08/22

SAM OFFICE WNJOA1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
		5	5	2	6	10	
07-08-2022	08-08-2022	208	118	45	14	12	Rainy Sky / Moderate Breeze
23-08-2022	24-08-2022	126	98	68	16	14	Clear Sky / Calm
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	

BORGAON VILLAGE WNJOA2							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
		5	5	2	6	10	
07-08-2022	08-08-2022	120	67	49	12	10	Rainy Sky / Moderate Breeze
23-08-2022	24-08-2022	116	70	30	10	BDL	Clear Sky / Calm
NAAQS, 2009		-	100	60	80	80	

BHALAR TOWNSHIP WNJOA3							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
		5	5	2	6	10	
04-08-2022	05-08-2022	120	76	26	14	12	Clear Sky / Calm
19-08-2022	20-08-2022	124	68	36	16	14	Clear Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	

UKNI VILLAGE WNJOA4							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
		5	5	2	6	10	
04-08-2022	05-08-2022	102	56	24	18	16	Clear Sky / Calm
19-08-2022	20-08-2022	113	70	28	16	12	Clear Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	



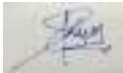
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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	 TC-7102
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SAMPLE DESCRIPTION	Water sample		
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)		
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES :	15.07.2022 TO 13.08.2022

MINE WATER DISCHARGE: WNJOW1				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
07-08-2022	7.74	22	48	BDL
23-08-2022	7.27	26	40	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE: WNJOW2				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
07-08-2022	8.71	20	40	BDL
23-08-2022	8.21	34	36	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



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NOISE LEVEL MONITORING DATA

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

MANAGER OFFICE: WNJON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
AUG'22	08-08-2022	56.5	54.5
AUG'22	24-08-2022	56.7	54.1
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY: WNJON2			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
AUG'22	08-08-2022	45.5	43.3
AUG'22	24-08-2022	45.9	42.7
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45



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ENVIRONMENTAL MONITORING REPORT

JUNAD OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4634420034




SEP - 2022

Environment Laboratory

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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	 TC-7102
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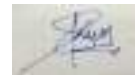
TEST REPORT NO.	RIN/TR/SEP-22/24	DATE OF ISSUE	28.10.2022
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 Part-4:1999(RA 2019), PM-10: IS-5182 Part 23:2006(RA 2017), PM2.5: USEPA Quality Assurance guidance document volume-II (part-II)-2.12:2016, NO ₂ : IS 5182 Part-06:2006(2017), SO ₂ :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:		15/09/22 TO 15/10/22

SAM OFFICE WNJOA1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
05-09-2022	06-09-2022	190	108	72	14	12	Cloudy Sky / Moderate Breeze
25-09-2022	26-09-2022	158	100	80	20	14	Cloudy Sky / Lightbreeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 TH September 2000		600	300	-	120	120	


BORGAON VILLAGE WNJOA2							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
05-09-2022	06-09-2022	140	82	40	10	BDL	Cloudy Sky / Moderate Breeze
25-09-2022	26-09-2022	114	76	46	10	BDL	Cloudy Sky / Lightbreeze
NAAQS, 2009		-	100	60	80	80	

BHALAR TOWNSHIP WNJOA3							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04-09-2022	05-09-2022	128	70	32	14	12	Clear Sky / Calm
21-09-2022	22-09-2022	108	60	30	12	10	Clear Sky / Calm
NAAQS, 2009		-	100	60	80	80	

UKNI VILLAGE WNJOA4							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$)					ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	SPM	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	
04-09-2022	05-09-2022	116	64	30	16	12	Clear Sky / Calm
21-09-2022	22-09-2022	118	76	32	14	12	Clear Sky / Calm
NAAQS, 2009		-	100	60	80	80	




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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	 TC-7102
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SAMPLE DESCRIPTION	Water sample		
Test Required	pH: IS 3025 -Part 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O &G: IS 3025-Part 39:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019)		
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES :	15.09.2022 TO 15.10.2022

MINE WATER DISCHARGE: WNJOW1				
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
05-09-2022	7.56	28	44	BDL
26-09-2022	7.7	22	40	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP DISCHARGE: WNJOW2				
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
05-09-2022	7.94	60	32	BDL
26-09-2022	7.54	26	32	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report	 TC:7102
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NOISE LEVEL MONITORING DATA


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

MANAGER OFFICE: WNJON1			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
		DETECTION LIMIT	20
SEP'22	09-09-2022	54.6	52.6
SEP'22	16-09-2022	55.5	52.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

BHALAR COLONY: WNJON2			
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
		DETECTION LIMIT	20
SEP'22	09-09-2022	44.6	43
SEP'22	16-09-2022	43.6	42
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45



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

WESTERN COALFIELDS LTD.



APRIL 2022 TO JUNE 2022

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

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REGIONAL INSTITUTE-IV, KASTURBA NAGAR,
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Environment Laboratory CMPDI RI-IV, NAGPUR	Test Report Ambient Air quality monitoring data for heavy metals	 TC-7102
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TEST REPORT NO.	RIN/TR/JUNE /HM70	DATE OF ISSUE	27-08-2022
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
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	EXPN - JUNAD OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	SAM OFFICE	WNJOA-1	15-05-2022
2	BORGAON VILLAGE	WNJOA-2	15-05-2022

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

BDL: BELOW DETECTION LIMIT



SCIENTIFIC ASSISTANT


DEEPANSHU SAHU
AUTHORIZED SIGNATORY

- | | |
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**REPORT ON
MONITORING OF GROUND WATER LEVEL AND GROUND WATER
QUALITY ANALYSIS FOR COAL MINES OF WCL**

**IN
WANI NORTH AREA
(MAHARASHTRA)**

WESTERN COALFIELDS LTD.



PERIOD – NOVEMBER 2021 TO OCTOBER 2022



M/s Anacon Laboratories Pvt. Ltd., Nagpur

**MoEF&CC (GOI) and NABL Recognized Laboratory
ISO 9001:2015, ISO 14001:2015, ISO 45001:2018**

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MIDC, Butibori, Nagpur – 441122**

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Website: www.anaconlaboratories.com

Report No. ANqr /PD/20A/2022/291

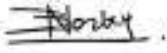
2021-22

Certificate

The Ground water Level monitoring and water quality analysis has been carried out with due diligence. The Monitoring of Ground Water Level of all observation well Reports have been prepared as per the scope of work order no. वेकोलि/मुख्यालय/पर्यावरण/14-L/83 on date: 03.11.2021.

The report encompasses the Monitoring of Ground water level of observation wells and ground water quality analysis results pertaining to the 07 mines of the Wani North area of Western Coalfields Limited situated at Yeotmal District, M.S.

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



Sangharakshit. N. Borkar
(Geologist)



Gyanchand Bohra
NABET Accredited EIA Expert
for Hydrogeology & Geology



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

Nagpur.

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INTRODUCTION

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

M/s Anacon Laboratories Pvt. Ltd. has been awarded the Work of "Groundwater level Monitoring (i.e. bore well / piezometer Water levels) and Water quality analysis (as per IS10500) for 82 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/83 on date: 03.11.2021.

This Ground Water Level Monitoring report is prepared for Ghonsa-OC-Expansion, Junad-Deep- Extension OC, Ukni-Deep-OC, Kolar-Pimpri-Expansion OC, Rajur UG, Pimpalgaon-OC-Expansion, Kumbarkhani-UG-Expansion mines of Wani North area of WCL for 4 seasons i.e. November 2021 (Post-Monsoon), January 2022 (winter), April-May 2022 (Pre-Monsoon) & August 2022 (Monsoon).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

Achaean, 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 Vindhyan, Limestone's 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 Limestone's 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.

JUNAD-DEEP-EXPANSION OC MINE

WANI NORTH AREA

WESTERN COALFIELDS LTD.

PERIOD- NOVEMBER 2021 TO OCTOBER 2022

Table-III A: Groundwater level monitoring data of dug wells in core and buffer zone of Junad Deep Expansion OC, Wani North Area , WCL

Well No.	Name of village	Well location	Lat		Long		R.L.	Well dia (m)	Well depth in m bgl	Height of measuring point in m agl	Depth to water level (m bgl)				Utility / Owner	Formation Tapped	Remarks	
			Deg	Min	Deg	Min					NOV-DEC 2021	JAN-FEB 2022	APRIL MAY 2022	AUG-22				
WN6	Nilapur	About 800 m W of village, adjacent to Wani road	20	3	47.20	79	0	1.45	197	4.95	3.80	0.34	0.14	0.20	0.30	0.14	IRRIGATION	SHELLY LIMESTONE
MN7A	Kandoli 1	N of village, near Hanuman Mandir	20	8	30.86	79	5	0.82	212	2.56	11.68	0.54	0.14	0.20	0.30	3.25	DOMESTIC	
WN8a	Bhalar	Near bus stop. Well of Sri. Arun Maruti Goble	20.0	1.0	56.00	79	0.0	51.0	215	1.55	8.60	0.73	7.08	8.60	9.00	6.48	DOMESTIC	BASALT
WN13	Kesurli	N of village, near Hanuman Mandir	20	0	32.39	79	0	4.79	198	2.80	8.50	0.33	3.38	3.78	4.21	3.12	IRRIGATION	SHELLY LIMESTONE
WN13 A	Kesurli 2	G.P	20	0	32.40	79	0	4.80	198	2.80	7.50	0.40	1.58	4.15	5.11	2.14	IRRIGATION	SHELLY LIMESTONE
M14b	Majri	SE of village, near GP office adjacent road	20	8	12.46	79	2	36.6	217	3.11	6.95	0.30	2.00	4.40	5.10	2.15	IRRIGATION	SHELLY LIMESTONE
M17b	Kandoli 2	N of village, near Hanuman Mandir	20	8	30.86	79	5	0.82	213	3.04	9.91	0.70	6.95	7.10	11.76	5.57	IRRIGATION	BASALT
M21	Manora	W of village, 60 m S of Mangli road	20	7	46.21	79	7	7.85	214	2.35	7.35	0.33	7.80	8.50	9.21	6.40	IRRIGATION	SHELLY LIMESTONE
M23	Bhadra ti Camp (GSI Drilling camp)	N of village (outside), about 70 m E of Kesurli road after G.S.I drilling camp	20	6	48.68	79	6	24.3	221	2.68	12.25	0.82	1.83	1.90	6.24	2.12	DOMESTIC	BASALT
M23A	Bhadra ti killa word	Vivekanand Madhyamik vidhalaya	20	6	31.39	79	6	42.0	224	2.49	17.74	0.54	5.34	5.45	8.12	4.12	DOMESTIC	SHELLY LIMESTONE
M26	Gaurala	C of village, near	20.0	5.0	25.73	79.	6.0	47.6	202	2.59	8.81	0.51	7.35	7.40	9.12	6.14	IRRIGATION	SHELLY

GROUND WATER ANALYSIS

REPORTS



Anacon Laboratories Pvt. Ltd.

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Test Report

Test Report No. : ALPL/12052022/21-6

dated 12.05.2022

Page 1 of 2

Issued To : Western Coalfields Limited, Nagpur Patala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ. (M.S.) - 440001		Sample Inward No. ALPL/03052022/W-6/30-6	Analysis Start 03.05.2022
		Inward Date 03.05.2022	Analysis End 12.05.2022
		Reference wcl-bq-env-e01-2021-22, Dt.-28.07.2021	
		Inv. No. -	Sample Category Water
Sample Name Ground Water	Sample Particulars / Details Sample ID - WN-6, [Wani North Area]		Purpose of Analysis Ground Water Quality
Sample Collected By Anacon Lab Representative Mr. Mahesh Mahurle		Sampling Date : 19.04.2022 Sampling Time : 17:00pm	Quantity Received 1L
Tests Required : Chemical Testing.			
TEST RESULTS			

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Ground Water Quality Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
1 Chemical Testing I. Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	129
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	107.10
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	64.9
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 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	21.95
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL (DL - 0.2)
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	6.58 @ 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	55.98
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	482
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	86.85

☞ Please refer last Page for Note and Remarks.

Verified By

 Shubhangi Armarkar
 Technical Manager

Authorized Signatories

Dr. (Mrs.) S.D. Gaway
 Quality Manager



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Test Report

Test Report No. : ALPL/12052022/21-6

dated 12.05.2022

Page 2 of 2

Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ, (M.S.) - 440001		Sample Inward No. ALPL/03052022/W-6/30-6	Analysis Start 03.05.2022
		Inward Date 03.05.2022	Analysis End 12.05.2022
		Reference wcl-hq-env-e01-2021-22, DL-28.07.2021	
		Inv. No. -	Sample Category Water
Sample Name Ground Water	Sample Particulars / Details Sample ID - WN-6, [Wani North Area]		Purpose of Analysis Ground Water Quality
			Quantity Received 1L
Sample Collected By Anacon Lab Representative Mr. Mahesh Mahurde		Sampling Date : 19.04.2022	Sampling Location Nilapur
		Sampling Time : 12.00pm	
Tests Required : Chemical Testing.			

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Ground Water Quality Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing 2. Residues In Water					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	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 - 0.01)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

Verified By

 Shashikant Satdeve
 Sr. Chemist

Authorized Signatory

 Dr. (Mrs.) S.D. Garway
 Quality Manager

—————END OF REPORT—————

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Test Report

Test Report No. : ALPL/12052022/21-7

dated 12.05.2022

Page 1 of 2

Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ, (M.S.) - 440001		Sample Inward No. ALPL/03052022/W-6/30-7 Inward Date 03.05.2022 Reference wcl-hq-env-e01-2021-22, Dt.-28.07.2021 Inv. No. -	Analysis Start 03.05.2022 Analysis End 12.05.2022 Sample Category Water
Sample Name Ground Water	Sample Particulars / Details Sample ID – WN-8a, [Wani North Area]	Purpose of Analysis Ground Water Quality	Quantity Received 1L
Sample Collected By Anacon Lab Representative Mr. Mahesh Maharje		Sampling Date : 19.04.2022 Sampling Time : 12.00pm	Sampling Location Bhalar
Tests Required : Chemical Testing.			

TEST RESULTS

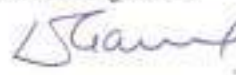
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Ground Water Quality Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing I. Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	172.80
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	96.18
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	46.08
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.32
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	7.63
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	5.80
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	6.68 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	28.75
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	428
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	BDL (DL - 0.1)
14	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	53.71

☐ Please refer last Page for Note and Remarks.

Verified By

 Shobhangi Armarkar
 Technical Manager

Authorized Signatories


 Dr. (Mrs.) S.D. Garway
 Quality Manager



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Test Report

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		Inward Date 03.05.2022	Analysis End 12.05.2022
		Reference wcl-hq-env-e01-2021-22, Dt.-28.07.2021	
		Inv. No. -	Sample Category Water
Sample Name Ground Water	Sample Particulars / Details Sample ID – WN-Sa, [Wani North Area]		Quantity Received 1L
Sample Collected By Anacon Lab Representative Mr. Mahesh Maluric		Sampling Date : 19.04.2022 Sampling Time : 12.00pm	Sampling Location Bhala
Tests Required : Chemical Testing.			

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Ground Water Quality Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing					
	2. Residues In Water					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	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 - 0.01)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

Verified By

 Shashikant Satdeve
 Sr. Chemist

Authorized Signatory

 Dr. (Mrs.) S.D. Garway
 Quality Manager

—END OF REPORT—



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Test Report

Test Report No. : ALPL/12052022/21-13

dated 12.05.2022

Page 1 of 2

Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL, HQ, (M.S.) - 440001.		Sample Inward No. ALPL/03052022/W-6/30-13	Analysis Start 03.05.2022
		Inward Date 03.05.2022	Analysis End 12.05.2022
		Reference wcl-hq-env-e01-2021-22, Dt-28.07.2021	
		Inv. No. -	Sample Category Water
Sample Name Ground Water	Sample Particulars / Details Sample ID - WN-14, [Wani North Area]	Purpose of Analysis Ground Water Quality	Quantity Received 1L
Sample Collected By Anacon Lab Representative Mr. Mahesh Mahurle		Sampling Date : 18.04.2022 Sampling Time : 12.00pm	Sampling Location Kesurli
Tests Required : Chemical Testing.			

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Ground Water Quality Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
1	Chemical Testing I. Water					
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	174.3
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	122.58
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	43.5
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.32
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	14.32
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	40.9
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	6.77 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	21.04
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	471
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	57.82

☐ Please refer last Page for Note and Remarks.

Verified By

 Shubhangi Armarkar
 Technical Manager

Authorized Signatories

 Dr. (Mrs.) S.D. Garway
 Quality Manager





Test Report

Test Report No. : ALPL/12052022/21-13

dated 12.05.2022

Page 2 of 2

Issued To : Western Coalfields Limited, Nagpur Patala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ. (M.S.) - 440001		Sample Inward No. ALPL/03052022/W-6/30-13	Analysis Start 03.05.2022
		Inward Date 03.05.2022	Analysis End 12.05.2022
		Reference wcl-hq-env-e01-2021-22, Dt.-28.07.2021	
		Inv. No. -	Sample Category Water
Sample Name Ground Water	Sample Particulars / Details Sample ID - WN-14, [Wani North Area]		Purpose of Analysis Ground Water Quality
			Quantity Received 1L
Sample Collected By Anacon Lab Representative Mr. Mahesh Mallurle		Sampling Date : 19.04.2022 Sampling Time : 12.00pm	Sampling Location Kesulri
Tests Required : Chemical Testing.			

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Ground Water Quality Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing					
	2. Residues In Water					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	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 - 0.01)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

Verified By

 Shashikant Satdeve
 Sr. Chemist

Authorized Signatory

 Dr. (Mrs.) S.D. Garway
 Quality Manager

—————END OF REPORT—————

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Test Report

Test Report No. : ALPL/06062022/07-8

Dated 06.06.2022

Page 1 of 1

Issued To : Western Coalfields Limited, Nagpur Fuzils Road, Coal Estate, Civil Lines, Nagpur, WCL HQ. (M.S.) - 440001		Sample Inward No. ALPL/28052022/W-1/35-8 Inward Date 28.05.2022 Reference Letter Wcl-hq-env-e01-2021 22/Dt:28.07.2021 Inv. No. -		Analysis Start 28.05.2022 Analysis End 06.06.2022 Sample Category Water	
Sample Name Ground water		Sample Particulars / Details WELL ID: M-14A (MAJRI AREA)		Purpose of analysis Ground Water Quality	
Sample Collected By Anacon Lab Representative Mr. Mahesh Maturle		Sampling Date 12.05.2022 Sampling Time 10.30am		Quantity Received 1 L Sampling Location MAJRI	
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. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing 1, Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	158
2	Colour	Hazen units	IS 3025 (Part 4) : 2001	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	105.61
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	45
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min 0.2	1	BDL (DL-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.54
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	16.56
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	30
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.24 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	36.06
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	376
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	61.56
II Chemical Testing 2, Residues In Water						
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL (DL - 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

Verified By

 Shubhang Amarkar
 Technical Manager

Shashikant Sasdeve
 Sr. Chemist

Authorized Signatory

 Dr. (Mrs.) S.D. Garwey
 Quality Manager

—END OF REPORT—



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Test Report

Test Report No. : ALPL/00062022/07-9

Dated 06/06/2022

Page 1 of 1

Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ, (M.S.) - 480001		Sample Inward No. ALPL/28052022/W-1/35-0	Analysis Start 28.05.2022
		Inward Date 28.05.2022	Analysis End 06.06.2022
		Reference Letter Wcl-hq-env-e01-2021	
		Inv. No. Z2,DI:28.07.2021	Sample Category Water
Sample Name Ground water	Sample Particulars / Details WELL ID: M-14B (MAJRI AREA)		Purpose of analysis Ground Water Quality
Sample Collected By Anacon Lab Representative Mr. Mahesh Mahale		Sampling Date 12.05.2022	Quantity Received 7 L
		Sampling Time 11.30am	Sampling Location MAJRI
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. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing 1. Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	132
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	107.50
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	48
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2031	Min 0.2	1	BDL (DL-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2028	1.0	1.5	0.53
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	10.71
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	47.70
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.24 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	41.58
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	349
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	58.71
II Chemical Testing 2. Residues in Water						
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 53) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL (DL - 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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Verified By

 Shubhangi Amarkar
 Technical Manager

Shashikant Satdeve
 Sr. Chemist

Authorized Signatory

 Dr. (Mrs.) S.D. Garway
 Quality Manager

END OF REPORT



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Test Report

Test Report No. : ALPL/06062022/7-15

Dated 06.06.2022

Page 1 of 1

Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HD. (M.S.) - 440001		Sample Inward No. ALPL/28052022/W-1/35-15		Analysis Start 28.05.2022	
		Inward Date 28.05.2022		Analysis End 06.06.2022	
		Reference Letter WCL-HQ-ENV-e01-2021 22, Dt: 28.07.2021			
		Ins. No. -		Sample Category Water	
Sample Name Ground water		Sample Particulars / Details WELL ID: M-23 [MAJRI AREA]		Purpose of analysis Ground Water Quality	
				Quantity Received 1 L.	
Sample Collected By Anacon Lab Representative Mr. Mahesh Maharle		Sampling Date 14.05.2022		Sampling Location BHADRAWATI	
		Sampling Time 01.30pm			

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. 2		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing 1. Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	173
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	109.38
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	66.1
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 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	13.64
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	47.63
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.10 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	40.96
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	412
13	Turbidity	NTU	IS 3075 (Part 19) : 1984	1	5	0.2
14	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	79.7
II Chemical Testing 2. Residues In Water						
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL (DL - 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS 10500 test specifications, for tests conducted, following that it is fit for drinking purpose with respect to tested parameters.

for Just
 Shubhangi Arankar
 Technical Manager

Verified By

Shashikant
 Shashikant Satdive
 Sr. Chemist

Authorized Signatory

Dr. (Mrs.) S.D. Garway
 Dr. (Mrs.) S.D. Garway
 Quality Manager

—END OF REPORT—



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Test Report

Test Report No. : ALPL/06/06/2022/07-16

Dated 06.06.2022

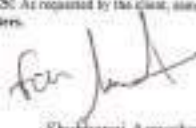
Page 1 of 1


Issued To : Western Coalfields Limited, Nagpur Panola Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.) - 440001		Sample Inward No. ALPL/28052022/W-1/35-16 Inward Date 28.05.2022 Reference Letter: Wd-hq-env-e01-2021 32/Dt:28.07.2021 Inv. No. -		Analysis Start 28.05.2022 Analysis End 06.06.2022	
Sample Name Ground water		Sample Particulars / Details WELL ID: M-25A [MAJRI AREA]		Purpose of analysis Ground Water Quality	
Sample Collected By Anacon Lab Representative Mr. Mahesh Maharle		Sampling Date 15.05.2022 Sampling Time 10.35am		Sample Category Water Quantity Received 1 L	
Sampling Location BHADRAWATI		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. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing 1. Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	167
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3035 (Part 32) : 1988	250	1000	113.16
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	66.0
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.3	1	BDL (DL-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.53
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	46.63
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.00 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	38.50
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	410
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	80.6
II Chemical Testing 2. Residues In Water						
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
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 stated sample(s) and applicable to stated parameter only.
 • This report shall not be reproduced except in full in their print version approval of Anacon Labs. • Liability of Anacon Labs is limited to analytical aspect only. • Non-permissible and permissible sample(s) shall be dependent after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • If permissible limit is absence of an alternate source for drinking water. • "mg/l" is equivalent to "ppm". • "µg/l" is equivalent to "ppb". • BDL- Below Detection Limit. • DL- DL, indicates detection limit of instrument/ method and shall be considered as "absent", failed to establish safety concerns.
REMARKS: As requested by the client, sample was tested for above parameter only. Sample complies with IS 10500:2012 specification, for tests conducted, indicating that it is fit for drinking purpose with respect to stated parameters.

Verified By 
 Shubhangi Arankar
 Technical Manager


 Shashikant Satdave
 Sr. Chemist

Authorized Signatory

 Dr. (Mrs) S.D. Garway
 Quality Manager

— END OF REPORT —



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Test Report

Test Report No. : ALPL/06062022/07-20

Dated 06/06/2022

Page 1 of 1

Issued To : Western Coalfields Limited, Nagpur Funda Road, Coal Estate, Civil Lines, Nagpur, WCL HQ. (M.S.) - 440001		Sample Inward No. ALPL/28052022/W-1/35-20	Analysis Start 28.05.2022
		Inward Date 28.05.2022	Analysis End 06.06.2022
		Reference Letter Wcl-hq-env-e01-2021	
		Inv. No. 22,Dr.28.07.2021	Sample Category Water
Sample Name Ground water	Sample Particulars / Details WELL ID: M-27 / MAJRI AREA]		Purpose of analysis Ground Water Quality
Sample Collected By Anacon Lab Representative Mr. Mahesh Mahale		Sampling Date 16.05.2022	Quantity Received 1L
		Sampling Time 12.55pm	Sampling Location SUMTHANA
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. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I	Chemical Testing 1. Water					
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 25) : 1986	200	500	147
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	115.04
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	69.2
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.54
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.69
8	Nitrate (as NO ₃)	mg/l	APHA method 23ml edition, 2017	45	No relaxation	32.85
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.13 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	47.10
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	393
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	80.9
II	Chemical Testing 2. Residues in Water					
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL (DL - 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

Subhangi Arankar
 Verified By
 Subhangi Arankar
 Technical Manager

Shushikant Satdave
 Shushikant Satdave
 Sr. Chemist

Dr. (Mrs.) S.D. Ganay
 Authorized Signatory
 Dr. (Mrs.) S.D. Ganay
 Quality Manager

—END OF REPORT—



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Test Report

Test Report No.: ALPL0606202207-21

Dated 06.06.2022

Page 1 of 1

Issued To: Western Coalfields Limited, Nagpur Funda Road, Coal Estate, Civil Lines, Nagpur, WCL, HQ (M.S.) - 440001		Sample Inward No. ALPL/28052022/W-1/35-21	Analysis Start 28.05.2022
		Inward Date 28.05.2022	Analysis End 06.06.2022
		Reference Letter WCL-hq-ens-c01-2021 21.Dr.28.07.2021	
		Inv. No. -	Sample Category Water
Sample Name Ground water	Sample Particulars / Details WELL ID: M-31 MAJRI AREA		Quantity Received 1 L
Sample Collected By Anacon Lab Representative Mr. Mahesh Mahale		Sampling Date 16.05.2022	Sampling Location CHIRADEVI
		Sampling Time 03:20pm	
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. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing 1. Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	145
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	111.27
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	71.4
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min 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	20.45
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	46.88
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.14 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	38.76
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	398
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	97.95
II Chemical Testing 2. Residues in Water						
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 53) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
18	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
19	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
20	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	BDL (DL - 0.01)
21	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

Shubhang Amarkar
 Verified By
 Shubhang Amarkar
 Technical Manager

Shashikant Satdeve
 Verified By
 Shashikant Satdeve
 Sr. Chemist

Authorized Signatory
S.D. Garway
 Dr. (Mrs.) S.D. Garway
 Quality Manager

—END OF REPORT—



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Test Report

Test Report No. : ALPL/06062022/07-22

Dated 06.06.2022

Page 1 of 1

Issued To : Western Coalfields Limited, Nagpur Puzina Road, Coal Estate, Civil Lines, Nagpur, WCL HQ. (M.S.) - 440001		Sample Inward No. ALPL/28052022/W-1/35-22 Inward Date 28.05.2022 Reference Letter Wcl-hq-env-e01-2021 22;Dt:28.07.2021 Inv. No. -	Analysis Start 28.05.2022 Analysis End 06.06.2022 Sample Category Water
Sample Name Ground water	Sample Particulars / Details WELL ID: M-52B (MAJRI AREA)		Purpose of analysis Ground Water Quality
Sample Collected By Anacon Lab Representative Mr. Mahesh Mahale		Sampling Date 17.05.2022 Sampling Time 10.30am	Quantity Received 1 L Sampling Location DHORWASA
Tests Required: Chemical Testing.			

TEST RESULTS

SN.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing 1. Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	620	126
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	120.70
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	22.61
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min 0.2	1	BDL (DL-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.34
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	18.51
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	40
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.13 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	41.34
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	417
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	41.12
II Chemical Testing 2. Residues in Water						
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.05	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
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 - 0.05)
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 authenticate authenticity of this report. * Results shall be related 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 invited consent only. * Non-permissible and permissible sample(s) shall be disposed off after 30 days and 11 days respectively from the date of issue of Test Report, unless specified otherwise. * Permissible limit is absolute of an alternate source for drinking water. * "mg/l" is equivalent to "ppm". * "µg/l" is equivalent to "ppb". * BDL - Below detection limit. * DL - DL indicates detection limit of instrument used and shall be considered as "absent", failed to establish safety concerns.

REMARKS: As requested by the client, sample retained for above parameters only. Sample samples with IS:10500:2012 Specifications, for tests conducted, following that it is fit for drinking purpose with respect to listed parameters.

Shubhangi Armarkar
 Shubhangi Armarkar
 Technical Manager

Verified By

Shashikant Saideve
 Shashikant Saideve
 Sr. Chemist

Authorized Signatory

Dr. (Mrs.) S.D. Garway
 Dr. (Mrs.) S.D. Garway
 Quality Manager

— END OF REPORT —



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Test Report

Test Report No. : ALPL06062022/07-25

Dated 06.06.2022

Page 1 of 1

Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.) - 440001		Sample Inward No. ALPL/28052022/W-1/35-25	Analysis Start 28.05.2022
		Inward Date 28.05.2022	Analysis End 06.06.2022
		Reference Letter Wcl-bq-env-e01-2021	
		Inv. No. 22.Dr.28.07.2021	Sample Category Water
Sample Name Ground water	Sample Particulars / Details WELL ID: M-35 [MAJRI AREA]	Purpose of analysis Ground Water Quality	Quantity Received 1 L.
Sample Collected By Anacon Lab Representative Mr. Mahesh Mahurle		Sampling Date 18.05.2022	Sampling Location PIPRI
Tests Required: Chemical Testing.		Sampling Time 12.30pm	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing 1, Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	150
2	Colour	Plum units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	126.36
4	Calcium (as Ca)	mg/l	IS 3025 (Part 49) : 1991	75	200	69.58
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.54
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1904	30	100	BDL (DL-2)
8	Nitrite (as NO ₂)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	40
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.13 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	42.97
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	459
13	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
14	Total hardness (as CaCO ₃)	mg/l	IS 3025 (Part 21) : 2009	200	600	69.68
II Chemical Testing 2, Residues In Water						
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
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 in tested sample(s) and applicable in tested parameter(s) only.
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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS 10500:2012 Specification, for uses indicated, indicating that it is fit for drinking purpose with respect to tested parameters.

Verified By

 Shubhangi Armarkar
 Technical Manager

Shashikant Soldeve
 Sr. Chemist

Authorized Signatory

 Dr. (Mrs.) S.D. Gorway
 Quality Manager

— END OF REPORT —



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Test Report

Test Report No. : ALPL/06062022/07-26

Dated 06.06.2022

Page 1 of 1

Issued To : Western Coalfields Limited, Nagpur Fuzala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.) - 440001		Sample Inward No. ALPL/28052022/W-1/35-26	Analysis Start 28.05.2022
		Inward Date 28.05.2022	Analysis End 06.06.2022
		Reference Letter Wcl-hq-env-e01-2021 22/Oct/28.07.2021	
		Inv. No. -	Sample Category Water
Sample Name Ground water	Sample Particulars / Details WELL ID: M-36 (MAJRI AREA)		Purpose of analysis Ground Water Quality
Sample Collected By Anacon Lab Representative Mr. Mahesh Maharle		Sampling Date 19.05.2022	Quantity Received 1 L
		Sampling Time 10:30am	Sampling Location GORAJA
Tests Required: Chemical Testing.			

TEST RESULTS

SN.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing 1. Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 23) : 1986	200	600	152
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	124.47
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	68.12
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.53
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	2.61
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition, 2017	45	No relaxation	40
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.10 @ 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	41.41
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	500
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	70.73
II Chemical Testing 2. Residues in Water						
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
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	0.03	No relaxation	BDL (DL - 0.001)
22	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
23	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2019	0.02	No relaxation	BDL (DL - 0.01)
24	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
25	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
26	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)

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

(Signature)
 Shubhangi Armerkar
 Technical Manager

Verified By

(Signature)
 Shashikant Satdeve
 Sr. Chemist

Authorized Signatory

(Signature)
 Dr. (Mrs.) S.D. Gorway
 Quality Manager

— END OF REPORT —

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Test Report

Test Report No. : ALPL0606202207-30

Dated 06.06.2022

Page 1 of 1

Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.) - 440001		Sample Inward No. ALPL/28052022/W-1/35-30	Analysis Start 28.05.2022
		Inward Date 28.05.2022	Analysis End 06.06.2022
		Reference Letter WCL-hq-env-e01-2021	
		Inv. No. 22-DL-28.07.2021	
Sample Name Ground water		Sample Particulars / Details WELL ID: M-41 [MAJRI AREA]	Sample Category Water
Sample Collected By Anacon Lab Representative Mr. Mahesh Mahale		Sampling Date 21.05.2022	Quantity Received 1 L
		Sampling Time 10.30am	Sampling Location 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. 3		Test Result
				Acceptable Limit	Permissible Limit #	
I Chemical Testing 1. Water						
1	Alkalinity (as CaCO ₃)	mg/l	IS 3025 (Part 25) : 1986	200	600	136
2	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	115.16
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	60.32
5	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min 0.3	1	BDL (DL - 0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.54
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.3
8	Nitrate (as NO ₃)	mg/l	APHA method 23rd edition: 2017	45	No relaxation	40
9	Odour	-	IS 3025 (Part 5) : 1983	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11) : 1983	6.5 to 8.5	No relaxation	7.14 at 25°C
11	Sulphate (as SO ₄)	mg/l	IS 3025 (Part 24) : 1986	200	400	39.93
12	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	454
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	72.12
II Chemical Testing 2. Residues in Water						
15	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 1988	0.01	No relaxation	BDL (DL - 0.01)
16	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019 / IS 3025 (Part 55) : 2003	0.03	0.2	BDL (DL - 0.01)
17	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.01)
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 3) : 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 internally "Original Test Report" to confirm the authenticity of this report. Results shall be relevant to listed sample(s) and applicable to listed parameters only. This report shall not be reproduced except in full without prior written approval of Anacon Labs. Liability of Anacon Labs is limited to invited samples only. Non-portable and portable 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', failed to establish safety concerns.

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

Shubhangi Amarkar
 Shubhangi Amarkar
 Technical Manager

Verified By *Shashikant Satleve*
 Shashikant Satleve
 Sr. Chemist

Authorised Signatory *Dr. (Mrs.) S.D. Gursory*
 Dr. (Mrs.) S.D. Gursory
 Quality Manager

— END OF REPORT —



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



Submitted to
WESTERN COALFIELDS LIMITED



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

March-2021



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

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Executive Summary

1.0 Project

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

2.0 Objective

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

3.0 Salient Findings

- Total 15 nos of OC projects has been considered for monitoring the status of land reclamation in the year 2020-21 as compared to 14 nos of OC projects in the year 2017-18 . Adasa UG to OC project is included for land reclamation in the year 2020-21 on request of WCL.
- Out of 15 OC projects, leasehold boundary of Kolgaon , Ballarpur Junad Extn ,Bhatadi , Gondegaon and Kolarpimpri OC projects have been updated as per latest EC boundary. While Bellora – Naigaon and Gauri deep OC projects has been updated as per keyplan/shapfile sent by area.
- Out of the total mine leasehold area of 7759.95 Hectare of the 15 projects Viz.Kolegaon, Bellora-Naigaon, Ghonsa, Ballarpur, JunadExtn, Urdhan, Telwasa, GauriExpn(A),Bhatadi, Gondegaon ,Kolarpimpri, Chhinda ,Gauri deep and Juna kunada and Adasa UG to OC considered for monitoring during year2020-21; total excavated area is only 1466.24 Ha (18.89%) out of which 68.11Ha area (4.65%) has been planted on backfill (Biologically Reclaimed) and 485.02 Ha area (33.08%) is under backfilling (Technically Reclaimed) and 913.11 hectares(62.27%) area is under active mining.. It is evident from the analysis that 553.13 hectares (37.72%) area of the 15 OC projects taken for study for the year 2020-21 is under reclamation and balance 913.11 Ha (62.27%) area is under active mining. Project wise details are given in Table-1 & bar chart Fig-1.

- On comparing the status of land reclamation carried out for 15 nos of OC projects in year 2020-21 with respect to previous cycle study done for the 14nos of OC projects in WCL, It is evident from analysis that area under land reclamation has increased from 397.66 Hectares (Yr 2017-18) to 553.13 Hectares which includes both planation on backfill (Biological Reclamation) and area under backfilling (Technical Reclamation) .This increase of 155.47 Hectares area of land reclamation in period of three year is the result of the efforts made by WCL towards land reclamation. Year wise comparison in land reclamation in different OC projects is given in Table-1.
- Overall , total area under plantation (green cover) carried out on backfill, and barren OB dump and plantation under social forestry has gone up from 993.35 Hectares in the year 2017-18 to 1230.65 Hectares in the year 2020-21.

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

(Area in Ha)

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

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

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

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

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

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

- 1 Area under Biological Reclamation includes area under plantation done on backfilled area only.
- 2 Area under Technical Reclamation includes areas under barren backfill only.
- 3 Area under Active Mining includes coal quarry, advance quarry & quarry filled with water etc.
- 4 Social forestry and plantation on external OB dump are not included in biological reclamation and are put under other plantation.
- 5 % calculated in respect to total excavated area except for "Total area under plantation" where % has been calculated in terms of leasehold area.

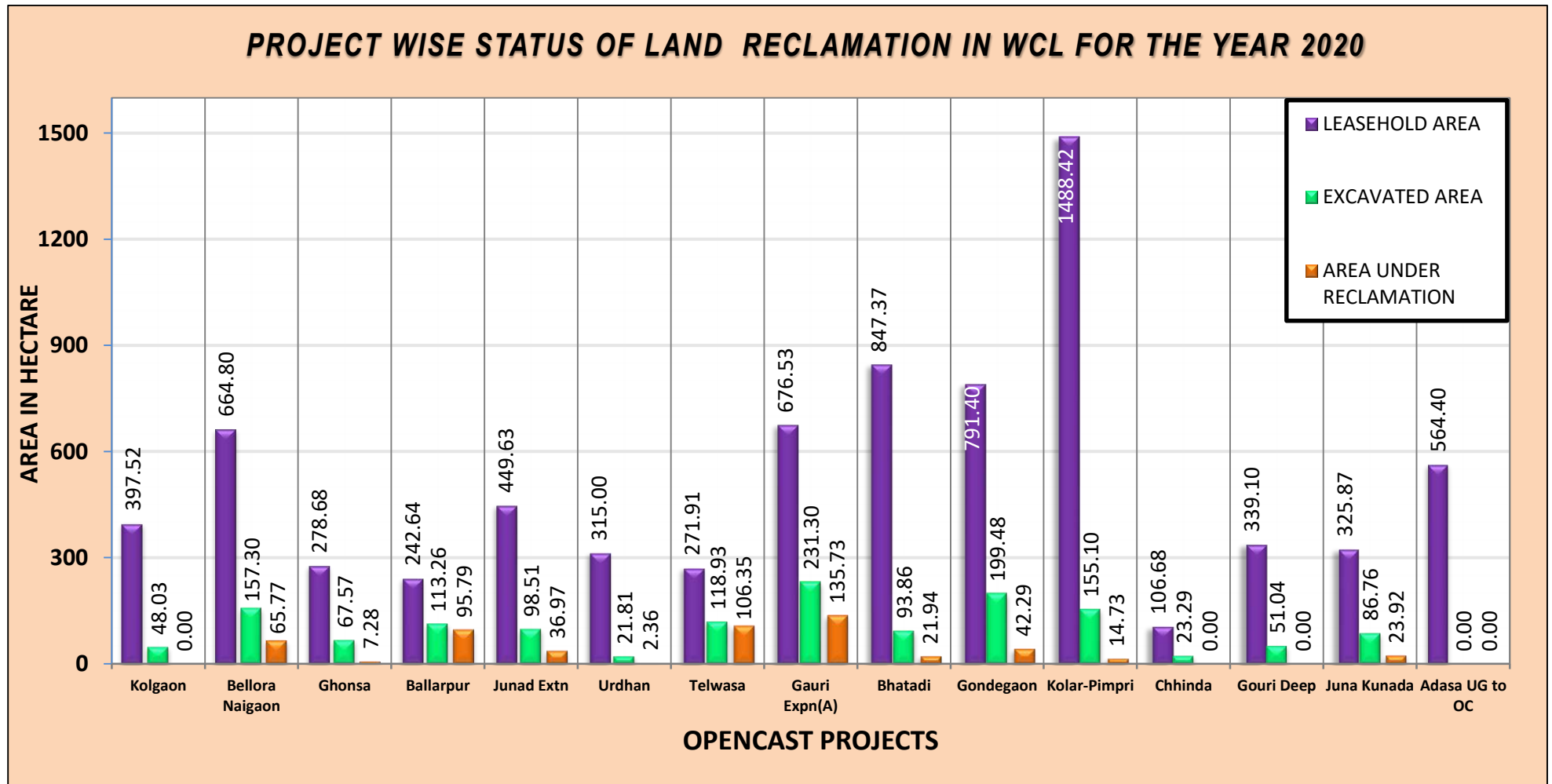


Fig.1: Land Reclamation Status in OC projects producing less than 5mcm (Coal +OB) of WCL in the Year 2020

1.0 Background

- 1.1** Land is the most important natural resource which embodies soil, water, flora fauna and total ecosystem. All human activities are based on the land which is the most scarce natural resource in our country. Mining is a site specific industry and it could not be shifted anywhere else from the location where mineral occurs. It is a fact that surface mining activities do effect the land environment due to ground breaking. Therefore, there is an urgent need to reclaim and restore the mined out land for its productive use for sustainable development of mining. This will not only mitigate environmental degradation, but would also help in creating a more congenial environment for land acquisition by coal companies in future.
- 1.2** Keeping above in view, Coal India Ltd. (CIL) issued a work order vide letter no. CIL/WBP/Env/2009/2478 dated 29.12.2009 to Central Mine Planning & Design Institute (CMPDI), Ranchi, for monitoring land reclamation status of all the opencast coal mines having production of less than 5 million m³ per annum (coal + OB taken together per annum) based on remote sensing satellite data regularly on annual basis and less than 5 million m³ per annum (coal + OB taken together per annum) at interval of three years based on remote sensing satellite data, for sustainable development of mining. Further a revised work order was issued vide letter no.CIL /WBP/Env/2011/4706 dated 12.10.2012 from Coal India Ltd for the period 2012-13 to 2016-2017.which was subsequently followed by another work order vide letter no: CIL /WBP/Env/2017/DP/8477 dated 21.09.2017from coal India ltd for period 2017—18 to 2021-22. The result of land reclamation status of all such mines to be put on the website of CIL, (www.coalindia.in), CMPDI (www.cmpdi.co.in) and the concerned coal companies in public domain. Detail report to be submitted to Coal India and respective subsidiaries.
- 1.3** Land reclamation monitoring of all opencast coal mining projects would also comply the statutory requirements of Ministry of Environment & Forest (MoEF).Such

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

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

2.0 Objective

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

3.0 Methodology

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

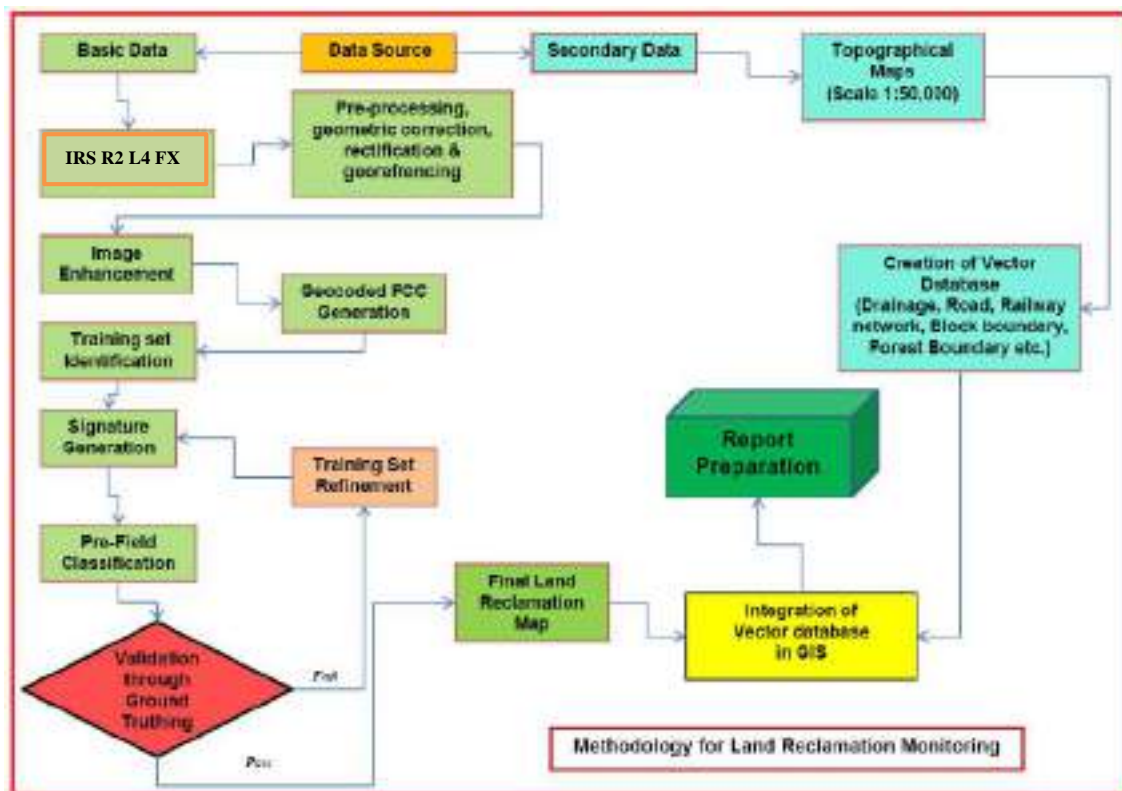


Figure :2 Methodology for Land Reclamation Monitoring

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

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

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

- **Image enhancement:**

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

- **Training set selection**

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

- **Classification and Accuracy assessment**

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

- **Area calculation**

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

- **Overlay of Vector data base**

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

- **Pre-field map preparation**

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

3.3 Ground Truthing:

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

3.4 Land reclamation database on GIS:

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

4.0 Land Reclamation Status in Western Coalfields Ltd.

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

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

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

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

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

- 4.4** From analysis it is revealed that total vegetated area (Biological Reclamation) within leasehold of above projects has increased to 68.11 Ha (4.65%) in the year 2020-21 as compared to 60.35 Ha (4.73%) in the year 2017 and area under technical reclamation (area under backfilling) has also increased from 337.31 Ha(26.45%) in the year 2017 to 485.02 Ha (33.08%) area in the year 2020. This increase of 147.71 Ha area in technical reclamation during span of three year is due to major increase in area under backfilling from 44.61 Ha (Yr2017) to 101.67 Ha (2020) in Telwasa OC
- 4.5** It is observed that overall marginal decrease of 0.08% in Biological reclamation in the year 2020 as compared to year 2017 is due to overall increase in excavated area from 1275.29 Ha (Yr.2017) to 1466.24Ha(Yr.2020) as such calculation for percentage of Biological reclamation has been carried out with respect to total excavated area.
- 4.6** Study indicates that overall the projects of WCL considered for this study indicate increase or static trend in biological reclamation (Plantation on backfill) as well as area under backfilling (Technical reclamation).
- 4.7** It is observed that backfilling process in Kolgaon OC project as well as Gauri deep OC could not be started till date due to its high gradient. At present Chhinda and Urdhan OC project are not in operation. Hence minor change in area of active mining is observed as indicated in Table-1.

- 4.8** After analyzing the satellite data of year 2017 vs. 2020 it is evident that total area under plantation (Green cover) carried out on backfilled area, OB dumps as well as under social forestry in above OC mines of WCL has increased from 993.35 Hectare (Yr.2017) to 1230.65 Hectare (Yr.2020) in the span of three year. This increase of 237.30 Hectare area under total plantation in three year time is due to the sincere efforts made by WCL towards generation of green cover in leasehold area of 15 opencast projects considered for land reclamation in the year 2020-21.
- 4.9** Total leasehold area of 15 OC project has increased from 7289.16 Ha(Yr.2017) to 7759.95 Ha (Yr.2020) mainly due to addition of Adasa UG to OC mine which has been considered for land reclamation in the year 2020. Technical and Biological reclamation in this mine has not started till date as conversion of Adasa underground mine into opencast mine is under process. The data generated with respect to land reclamation monitoring of above mine will be used for comparison during cycle of three year.
- 4.10** Decrease in leasehold area of Ballarpur OCP from 549.64Ha (Yr.2017) to 242.64 Ha (Yr.2020) has resulted in decrease of area under Social Forestry from 14.03 Ha(Yr.2017) to 9.74 Ha (Yr.2020) in Ballarpur OCP whereas area under Social Forestry has decreased from 84.03 Ha (Yr.2017) to 62.15 Ha (Yr.2020) in Gondegaon OCP .This decrease of 21.88 Hectare area under social forestry is due to increase in active mining area and decrease in area as well as change in shape of leasehold hold boundary.
- 4.11** Out of 15 projects of WCL , maximum land reclamation has been carried out in Telwasa OCP (89.42%) followed by Ballarpur OCP (84.58%) ,Gauri Expn(A) (58.68%) and Bellora –Naigaon OCP (41.81%).

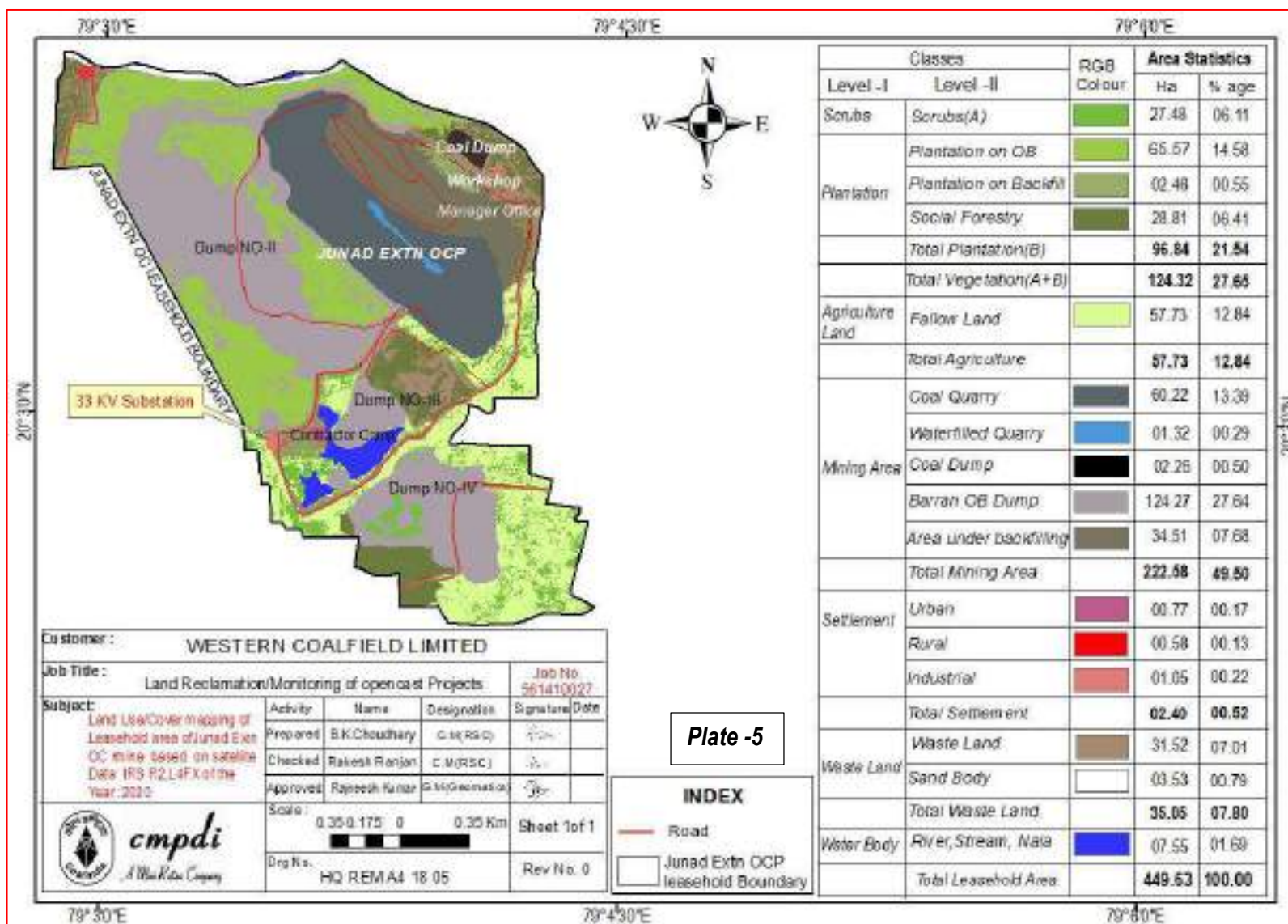


Plate -5

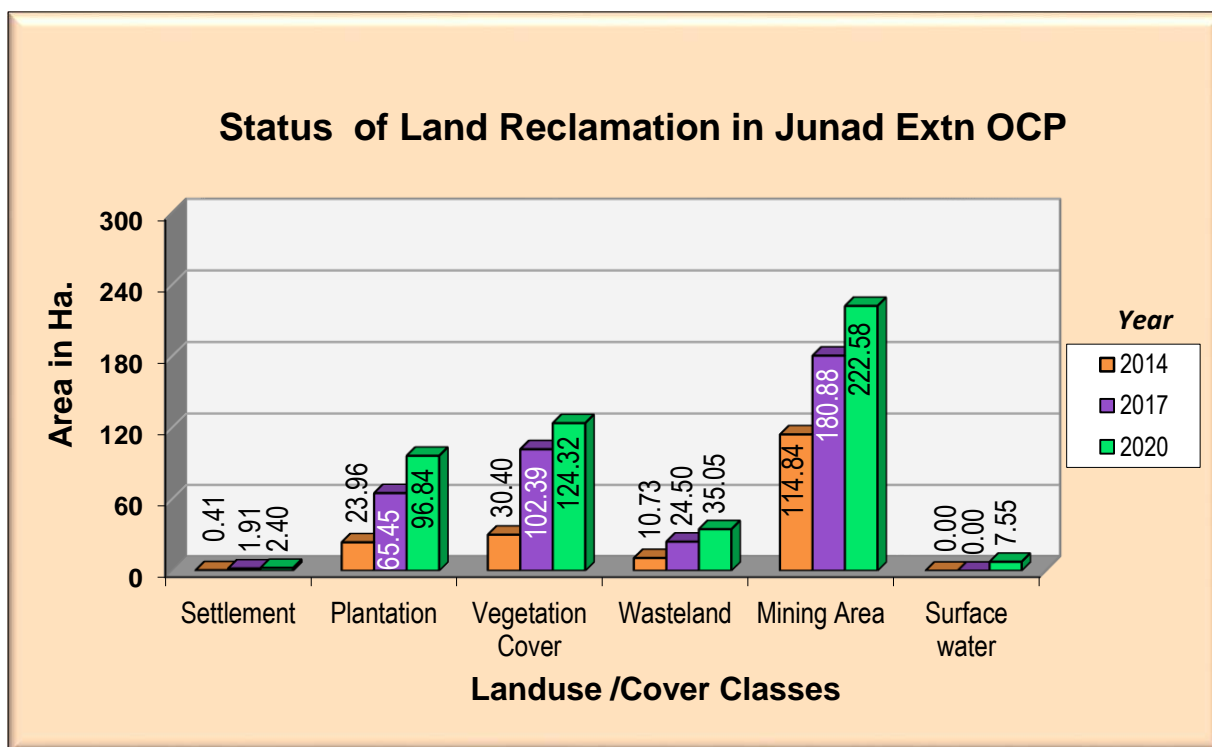


Figure-7

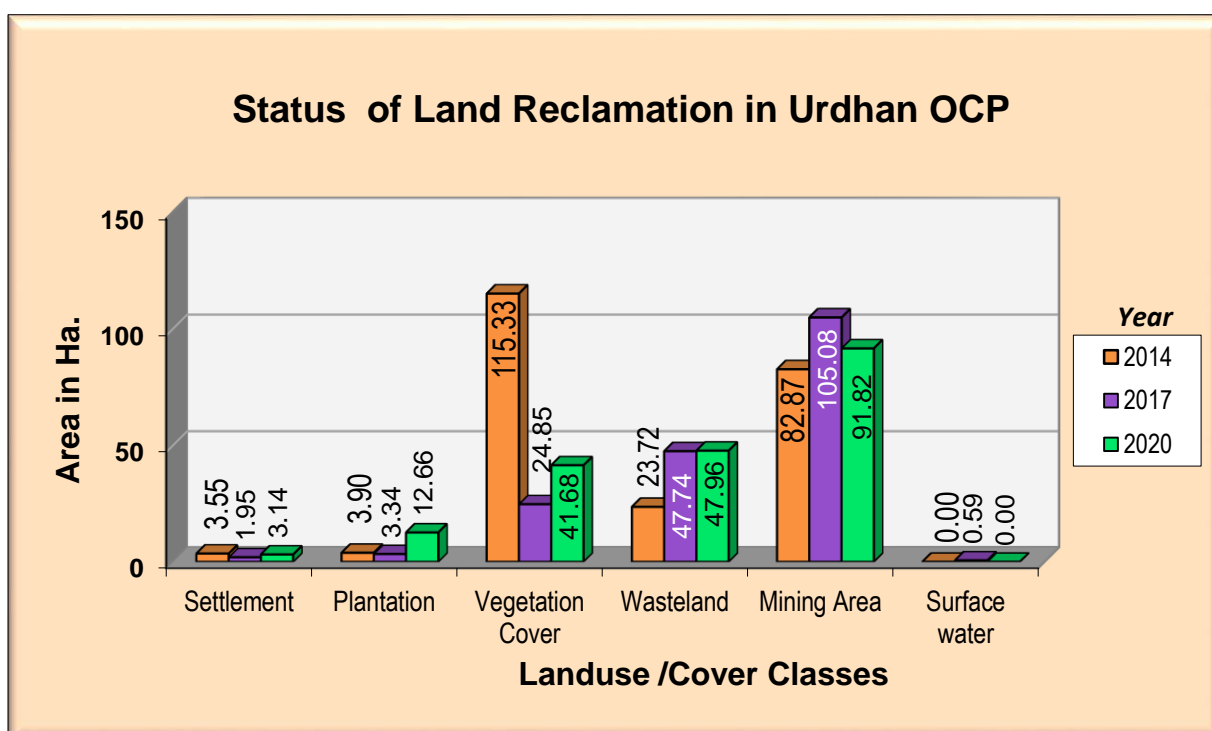


Figure-8



Photograph 1: Plantation on Barren OB in Gondegaon OCP



Photograph 2: Plantation on Barren OB in Junad Extn 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 2022

Unique Application Number

MPCB-ENVIRONMENT_STATEMENT-0000049936

Submitted Date

30-09-2022

PART A

Company Information

Company Name

Western Coalfields Limited, Junad Deep Open -
Cast coal Mine Project

Application UAN number

Address

Office of the Sub Area Manager, Ukni-Junad
Sub Area, Po. - Ukni, Tal.- Wani, Distt. -
Yavatmal

Plot no

118,114,115,116,117,123,124

Taluka

Wani

Village

Ukni

Capital Investment (In lakhs)

10243.8

Scale

L.S.I.

City

WANI

Pincode

445304

Person Name

G Rajendra Kumar

Designation

Sub Area Manager, Ukni-Junad
Sub Area

Telephone Number

9607922288

Fax Number

07239241357

Email

wclsamujsa@gmail.com

Region

SRO-Chandrapur

Industry Category

Red

Industry Type

R35 Mining and ore
beneficiation

Last Environmental statement submitted online

yes

Consent Number

Format1.0/CC/UAN
No.MPCBCONSENT-0000125726/CO/2204001617

Consent Issue Date

2022-04-24

Consent Valid Upto

2023-03-31

Establishment Year

1998

Date of last environment statement submitted

Sep 21 2021 12:00:00:000AM

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

Product Information

Product Name

Coal

Consent Quantity

0.9

Actual Quantity

0.739

UOM

MT/A

By-product Information

By Product Name

-

Consent Quantity

0

Actual Quantity

0

UOM

MT/A

Part-B (Water & Raw Material Consumption)

1) Water Consumption in m3/day

Water Consumption for Process	Consent Quantity in m3/day	Actual Quantity in m3/day
Cooling	400.00	400.00
Domestic	0.00	0.00
All others	14.00	14.00
Total	0.00	0.00
	414.00	414.00

2) Effluent Generation in CMD / MLD

Particulars	Consent Quantity	Actual Quantity	UOM
TRADE EFFLUENT (Mine Discharge)	3056	2300	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 (Cubic Meter/Tonne)	0.45	0.20	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 (Kg/Tonne)	2.34	4.21	Kg/Annum

4) Fuel Consumption

Fuel Name	Consent quantity	Actual Quantity	UOM
High Speed Diesel	0	986.00	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) Quantity	Concentration of Pollutants discharged(Mg/Lit) Except PH,Temp,Colour Concentration	Percentage of variation from prescribed standards with reasons %variation	Standard	Reason
-	0	0	-	-	-

[B] Air (Stack)

Pollutants Detail	Quantity of Pollutants discharged (kL/day) Quantity	Concentration of Pollutants discharged(Mg/NM3) Concentration	Percentage of variation from prescribed standards with reasons %variation	Standard	Reason
-	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	4.83	8.63	KL/A
5.2 Wastes or residues containing oil	0	2.5	Ton/Y
35.3 Chemical sludge from waste water treatment	0	10	Ton/Y

2) From Pollution Control Facilities

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
0	0	0	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	Ton/Y

2) From Pollution Control Facilities

Non Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
-	0	0	Ton/Y

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	Ton/Y

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	8.63	KL/A	-
5.2 Wastes or residues containing oil	2.5	Ton/Y	-
35.3 Chemical sludge from waste water treatment	10	Ton/Y	-

2) Solid Waste

Type of Solid Waste Generated	Qty of Solid Waste	UOM	Concentration of Solid Waste
-	0	Ton/Y	-

Part-G

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

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

Part-H

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

[A] Investment made during the period of Environmental Statement

<i>Detail of measures for Environmental Protection</i>	<i>Environmental Protection Measures</i>	<i>Capital Investment (Lacks)</i>
Revenue expenditure	Operation & maintenance of ETP at Junad Extension ocm under ukni-junad Sub Area	1.8
Revenue expenditure	Making arrangement for dust suppression through operation of rainguns at Junad ocm under Ukni-junad Sub Area	1.7
Revenue expenditure	Annual cleaning of W/B platform & premises of W/B of pimpalgaon under Junad extension ocm & ukni-junad Sub Area	1.8

[B] Investment Proposed for next Year

<i>Detail of measures for Environmental Protection</i>	<i>Environmental Protection Measures</i>	<i>Capital Investment (Lacks)</i>
Revenue Expenditure	Plantation	150
Capital Expenditure	Truck mounted fogging machine	20

Part-I

Any other particulars for improving the quality of the environment.

Particulars

-

Name & Designation

G. Rajendra Kumar, Sub Area Manager, Ukni-Junad Sub Area

UAN No:

MPCB-ENVIRONMENT_STATEMENT-0000049936

Submitted On:

30-09-2022