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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, Sub Area Manager Ukni - Junad Sub Area

Copy to:-

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

Six Monthly Compliance Report of conditions stipulated in Environmental Clearance

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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, <u>NAGPUR</u> – 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^o 01' 05" N to 20^o 04' 10" N and Longitude 79^o 03' 09" E to 79^o 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:-

- 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 | t |
| 2 | Forest land | Nil | Nil | Nil | |
| 3 | Govt. land/Waste land | 6.10 | Nil | 6.10 | 1 |
| | Total | 449.63 | Nil | 449.63 | |

Post- Mining:

| S. | Land use | Land use (ha) | | | | | | |
|----|------------------------------------|---------------|---------------|---------------|-----------------|----------------|--------------|--------|
| No | during mining | Plantation | Water body | Public use | Undist urbed | Grass cover | Reclam ation | Total |
| 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 | 100 | - | - | 10 | | 15.0 |
| 5 | Diversion of Roads including | 17.0 | | 8.0 | - | - | 1 | 25.0 |

| 1 | embankment | | | | | | | |
|---|---|-------|-------|------|------------|--------|------|--------|
| 6 | Danger zone and Rationalizatio n of area | - | | - | 122.9 3 | | | 122.93 |
| | Total | 96.04 | 46.70 | 15.0 | 122.9 3 | 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) | | |
|--------------------|---------------------|---------|--|
| 2. S | 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/EMP 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.

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- 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:
 - 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.
 - 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
 - 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 miningis 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^o 01' 05" N to 20^o 04' 10" N and Longitude 79^o 03' 09" E to 79^o 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:

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

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- 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 peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment, Forests & Climate Change and tot eh 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.
- xlv. Corporate Environment Responsibility:
 - a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.
 - b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
 - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.
 - d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

B. General Conditions:

- No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forest & Climate Change.
- ii. No change in the calendar plan of production for quantum of mineral coal shall be made.
- iii. Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM₁₀, PM_{2.5}, SO₂ and NOx monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.
- iv. Data on ambient air quality (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.
- vi. Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.
- vii. Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.
- viii. Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EPA Rules, 1986.
- 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.

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.

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

 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. Srivastava) Scientist E

Copy to:

- 1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
- The Secretary, Department of Environment, Government of Maharashtra, 15th Floor, New Admn. Bldg., Madam Cama Road, MUMBAI – 400 032.
- The Chief Conservator of Forests, Regional office (EZ), Ministry of Environment, Forest & Climate Change, E-2/240 Arera Colony, Bhopal – 462 016.
- 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.
- The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi -110 032.
- 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, 4t 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.

919/2015 (S. K. Srivastava) Scientist E

Junad Deep Expansion OCP_EC by M/s WCL

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

Date: 24/04/2022

RED/L.S.I (R35) No:- Format1.0/CC/UAN No.MPCB-CONSENT-0000125726/CO/2204001617

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 | υом | | |
|----------|---|---------------------|-----|--|--|
| Prod | ucts | | | | |
| 1 | 1 Coal mining on mining lease area 449.63 Ha 900000 Tor | | | | |

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-l | On land for gardening |

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

| Sr | Stack | Description of stack | Number of | Standards to be |
|-----|-------|----------------------|-----------|---------------------|
| No. | No. | / source | Stack | 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 Authoritty 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



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:

- 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) | рН | 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 (I | 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/pro posed | Stack Height(in mtr) | Type of Fuel | Sulphur Content(in %) | Pollutant | Standard |
|--------------|--------|-------------------------------------|----------------------------|--------------------|-----------------------------|-----------|----------|
| 0 | 0 | | 0.00 | 0 0 NA | - | 0 | - |

- 2. The Applicant shall provide Specific Air Pollution control equipments as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance / CREP guidelines.
- 3. The Applicant shall obtain necessary prior permission for providing additional control equipment with necessary specifications and operation thereof or alteration or replacement/alteration well before its life come to an end or erection of new pollution control equipment.
- 4. The Board reserves its rights to vary all or any of the condition in the consent, if due to any technological improvement or otherwise such variation (including the change of any control equipment, other in whole or in part is necessary).
- 5. Control Equipments
 - a. Coal handling plant provided with dust collector & automatic water sprinkler shall be operated
 - b. Scientific spraying of water on all working area, dump area, stock piles with the help of appropriate dust suppression system.
 - c. Minerals shall be properly covered during transportation.
 - d. The applicant shall carry out tree plantation along road side, around dumps or compulsory afforestation as per proposal approved by Forest Department. The tree plantation programme shall be taken up well in advance of the actual mining activity, so that green belt of sufficient width & height is developed between mining area/road and surrounding environment.
 - e. Black topped metal roads provided shall be well maintained to prevent dust formation.
 - f. Overloading of dumpers shall be avoided to prevent spillages.
 - g. Correct type & quantity of explosive shall be used to avoid excess dust formation & vibration in the surrounding area.
 - h. 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.
 - i. 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 | Annual Average | 360 μg/m³ |
| (SPM) | 24 hours | 500 μg/m³ |
| Respirable Particulate Matter | Annual Average | 180 μg/m³ |
| (size less than 10 μm) (RPM) | 24 hours | 250 μg/m³ |
| Sulphur Dioxido (SO) | Annual Average | 80 μg/m³ |
| | 24 hours | 120 μg/m³ |
| Ovides of Nitrogen as NO | Annual Average | 80 μg/m³ |
| Oxides of Microgen as NO _x | 24 hours | 120 μg/m³ |

- 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, NOx, HC, CO etc. The Annual Arithmetic Mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval shall conform to the National Ambient Air Quality Standards prescribed under Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986. The records of results of monitoring done shall be made available for inspection to the officers of the Board.

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

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

8. Other conditions:

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

SCHEDULE-III Details of Bank Guarantees:

| Sr. No | Consent (C2E/ C2O /C2R) | Amt of BG Imposed | Submission Period | Purpose of BG | Compliance Period | Validity Date |
|-----------|----------------------------------|----------------------|----------------------|---|----------------------|------------------|
| 1 | 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 sitting and control measures.
 - d) Installation of DG Set must be strictly in compliance with recommendations of DG Set manufacturer.
 - e) A proper routine and preventive maintenance procedure for DG set should be set and followed in consultation with the DG manufacturer which would help to prevent noise levels of DG set from deteriorating with use.
 - f) D.G. Set shall be operated only in case of power failure.
 - g) The applicant should not cause any nuisance in the surrounding area due to operation of D.G. Set.
 - h) The applicant shall comply with the notification of MoEFCC, India on Environment (Protection) second Amendment Rules vide GSR 371(E) dated 17.05.2002 and its amendments regarding noise limit for generator sets run with diesel.
- 18. The industry should not cause any nuisance in surrounding area.
- 19. The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standard in respect of noise to less than 75 dB (A) during day time and 70 dB (A) during night time. Day time is reckoned in between 6 a.m. and 10 p.m. and night time is reckoned between 10 p.m. and 6 a.m.
- 20. The applicant shall maintain good housekeeping.
- 21. The applicant shall bring minimum 33% of the available open land under green coverage/ plantation. The applicant shall submit a yearly statement by 30th September every year on available open plot area, number of trees surviving as on 31st March of the year and number of trees planted by September end
- 22. The non-hazardous solid waste arising in the factory premises, sweepings, etc. be disposed of scientifically so as not to cause any nuisance / pollution. The applicant shall take necessary permissions from civic authorities for disposal of solid waste.
- 23. The applicant shall not change or alter the quantity, quality, the rate of discharge, temperature or the mode of the effluent/emissions or hazardous wastes or control equipment provided for without previous written permission of the Board. The industry will not carry out any activity, for which this consent has not been granted/without prior consent of the Board.

- 24. The industry shall ensure that fugitive emissions from the activity are controlled so as to maintain clean and safe environment in and around the factory premises
- 25. The industry shall submit official e-mail address and any change will be duly informed to the MPCB.
- 26. The industry shall achieve the National Ambient Air Quality standards prescribed vide Government of India, Notification dtd. 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 | Near – Aheri Village, Post- Ukni, Tah- Wani, |
| correspondence | Dist Yavatmal, State Maharashtra |
| MOEF Clearance Letter | Letter No. J-11015/225/2014-IA-II(M) dtd. 09.09.2015 |
| No. & Date | |
| Period of Status Report | April 2022 to September 2022 |
| Date of commencement | 10/11/1998 |
| of the project Work | |

Status of Land

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| Forest | Nil | |
|-------------------|--------|--|
| Agriculture | 443.53 | |
| Other, Waste land | 6.10 | |
| Total | 449.63 | |

Status of Legal Compliance:

| a. Consent under Water | Earlier consent to operate granted vide No. CC/UAN |
|------------------------|--|
| (P&CP) Act 1974, Air | No.103043/CO-2107000218 dtd. 05/07/2021 valid upto 31/03/2023 |
| (P&CP) Act 1981 | 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 | Environmental clearance accorded by MoEF&CC vide letter No. |
| (Protection) Act, 1986 | J-11015/225/2014-IA-II(M) dated 09.9.2015. |
| | |

| | Environment Audit Statement for the year 2021-22 has bee submitted. |
|---------------------------------------|---|
| d. Forest (Conservation) Act, 1980 | N.A. |

PART-II Status of Environment

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Air Pollution Control:-

| a) No. of Ambient air monitoring stations | 4 Nos |
|--|--|
| b) Name of the location | SAM Office- (WnJOA1) Bhalar Township (WnJOA2) Ukni village (WnJOA3) Boregaon Village (WnJOA4) |
| c) Ambient air quality status for the parameters prescribed by State Pollution Control Board. | Fugitive Dust Monitoring 1.Security Check-Post 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 | Mine Water discharge (WnJOW-1) 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 | Pol | lution | Control:- |
|--|-------|-----|--------|------------------|
|--|-------|-----|--------|------------------|

| a) No. of noise monitoring stations | 2 No. (Fortnightly) |
|---|---|
| b) Name of the location | Near Manager office (WnJON-1) 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:-

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| 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: –

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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.</u>] | N. Particulars | SC | ST | <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. | | |
| | | | | |

Night of dovelopment

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- 6. Status of development-
- 7. Civic amenities provided at new Resettlement site.-
- All development work such as roads drains etc completed.

Drinking water, Tar road, community hall, Temple, Panchayat Bhawan, School & Library are provided

Borgaon Village.

8. Village shifting -

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)

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| Account Head | FY 2022-23 | Progressive Up to 30 th September 2022 |
|------------------------------|------------|---|
| Air Pollution Control – Dust | | 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 | | 23.36 |
| ETP | | |
| 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 | | |

S.O.E (Civil) / N.O.(Env.) Colliery Manager

11/22

Sub Area Manager **Ukni-Junad Sub Area**

Junad OCM

Ukni-Junad Sub Area

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

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MONITORING PROFORMA

Part – I :DATA SHEET

| 1. | Project type: River Industry/Thermal/N | / valley / Mining / | 1 : | Mining | | |
|----|---|--------------------------|---------------------------|--|---------------------------|-----------------|
| 2. | Name of the project | uclear / other (specify) | | | | |
| | and or the project | | 1: | Junad Deep Open Cast | Coal Mine | Project (1.5 |
| | | | | MIPA) of M/s WCL a | t village Ahe | eri, |
| 3. | Clearance letter (s)/ O | M no. and data | - | Tensil Wani, District Y | avatmal, Ma | aharashtra |
| 4. | Location | ivi no. and date | | J-11015/225/2014-IA.I | I(M) dt.09.0 | 9.2015 |
| | a) District (s) | | | V | | |
| | b) State (s) | | ÷ | Yavatmal | | |
| | c) Latitude / Longitud | e | ÷ | Maharashtra | | |
| | Bund | ~ | 1 | Lat. N $20^{\circ}01^{\circ}05^{\circ}$ to N | 20°04'10'' | |
| 5. | Address for correspon | dence | | LUG. E 79 03 09 to E | 79°05°00 | |
| 1 | a)Address of Conce | erned Project Chief | 1. | Sub Area Manager II | kni lunad C | uh Auss Tal |
| | Engineer (with pin coo | le & telephone / telex / | | Wani Dist Veotmal M | Antonachtro | 445,204 |
| | fax numbers) | | | in an, Dist. reotinal, iv | ianai asini a - | - 445 504 |
| | b)Address of Executi | ive Project Engineer/ | : | Colliery/Mine Man | ager Iu | nad OCM |
| | Manager (with pin cod | le/fax number) | | Ukni-Junad Sub Area, | Tah. Wani. | iad OCIVI, |
| 6 | | | | Dist. Yeotmal, Maharas | htra – 445 3 | 04 |
| 0. | Salient features | | | | | |
| | a) of the project | | : | The project envisaged e | extractable co | oal reserves of |
| | | | | 6.13 MT. The targeted | per PR is 1.50 | |
| | | | | MTPA with life of | 11 years. T | he estimated |
| | | | stripping ratio is 1:8.26 | | cum/tonne at the depth of | |
| | b) of the environments | Imanagamant | | 170 Mtrs. | | Vice - |
| | ») of the chynoninenta | : management plans | | Capital cost of Envt. Mg | gmt. – 85.70 | Lakhs. |
| 7. | Break up of the | of the | | Progressive Revenue ex | penditure-30 | 06.05 Lakhs. |
| | project area | | | As per EMP | As pe | r Actual |
| | a) Submergence area: | Tenancy Land | | 443 53 Ha | | 06.00 |
| | forest & non-forest | Forest Land | | Nil | 43 | 56.89 |
| | | Govt. Land/Waste Land | d | 6.10 Ha | | NI |
| | | Total | | 440 (2) 11 | | 5.13 |
| | h) Others | TOtal | | 449.63 Ha | 440. | .02 Ha |
| 8 | Breakup of the project | affected population | | | | |
| 0. | enumeration of those | losing houses/dwoll | ith | Village shifting | -Borgaon V | illage |
| | units only agricultural | land only both dwelli | ing | S.N Particulars S | C ST | Others |
| | units & agricultural la | nd & landless labourer | s / | Real Procession | 5. | Others |
| | artisan | a de landiess labourer | 37 | 1. No. of land outsees- 1. | 2 | 186 |
| | a) SC, ST/Adivasis | | : | 2 No Cl. 1 | | |
| | b) Others | | : | 2. NO .OF land outsees | | |
| | (Please indicate wheth | er these figures are | - | Tenaonnateu- | | 186 |
| | based on any scient | ific and systematic | | 3. No. of PAPs/PAFs | | |
| | survey carried out o | or only provisional | | to be resettled- 17 | 20 | 157 |
| | figures, if a survey is ca | rried out give details | | | | |
| | and years of survey). | | | 4. No. of PAPs/PAFs | | |
| | | | | resettled- 17 | 20 | 157 |
| 9. | Financial details: | | | | | |
| | a) Project cost as orig | vinally planned and | | Re 51 7940 C | 1 1 | |
| | subsequent revised estin | nates and the year of | • | 38 7577 Crores (A | Additional c | apital – Rs. |
| | price reference. | and the year of | | 56.7577 Crores) as per P | ĸ | |
| | | | | | | |

| | 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 | : | Capital : Rs. 85.70 lakhs | | |
| | environmental management plans so far. | | 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

22/11/22

Sub Area Manager Ukni-Junad Sub Area

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Six Monthly Status of Compliance of Environmental Clearance Conditions

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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. | CONDITIONS | COMPLIANCE | | | |
|------|---|--|--|--|--|
| A | SPECIFIC CONDITIONS | COMPLIANCE | | | |
| 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 | | | |
| 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 whic suita x 3m Mine after | e water is allow h acts as a pr ble Sedimentation is provided or water is bein further sedimen | red to restricted to restricted to restricted to restrict the surface of the surf | st at Mine sump entation tank. A f size 20m x 8 m face of the mine. arged through it |
|---|-------|---|--|---|--|--|
| | 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. shoul be allocated based on 2% of the average ne profit of the Company for the three immediat preceding financial years or Rs 2.00 per tonn of coal production of previous yea whichever is higher | | CSR policy of the C.S.R. should the average net three immediate s 2.00 per tonne previous year, | |
| | xvi | Everybody in the core area should be provided with mask for protection against fugitive dust emissions. | All the are by again | he persons work being provided w ist fugitive dust of | ting in co with mas emission | ore area of mine k for protection s. |
| | xvii | Dust mask to be provided to everyone working in the mining area | Dust | mask is being | g provid g area. | ed to everyone |
| | xviii | The supervisory staff should be held personally responsible for ensuring compulsory regarding wearing of dust mask in the core area. | Being | g complied acco | rdingly. | |
| | 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. | | on is being held ing within core | |
| | XX | The mining area should be grounded by green belt having thick closed thick canopy of the tree | green 65075 nos. of plants have | | have bee follows- | en planted. Area |
| | | cover. | SI. No | Location | Area (Ha) | No. of Species Plants |
| | | | 1 | OB Dumps | 17.50 | 43750 nos. |
| | | | | along road | 08.53 | 21325 nos |
| | | | | Total | 26.03 | 65075 nos |
| | | | Speci Bamb Sagw In a devel | ies : - boo, siwan, Kl an, sicco, neem, addition to that oped as per give | hair, cas etc. at green n conditi | ssia, gulmohar, belt will be ons. |
| | xxi | The embankment constructed along the river boundary shall be of suitable dimensions and | e river The embankment of su response and been constructed along | | | dimensions has |
| | | critical patches shall be strengthened by stone | as to withstand the peak water flow and | | | |
| | | pitching on the river from side and stabilized with plantation so as to withstand the peak water flow and prevent mine inundation. | 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 w | vill be stacked a | t earmark | ked external OB |
| | | OB dumpsite (s) only. The ultimate slope of the dump shall not exceed 28°. Monitoring and | dump The d | esites within ML details of existing | Area. | al OB dump is |
| | | management of avisting real simod dumpsitos | C 11 | | o entern | and ob aump is |
| | | management of existing reclaimed dumpsites | follov | WS : | 558 D.M. | |
| | | sustaining Compliance status shall be | For E | vs : Dip dumps:- heig tht of each bencl | ht- 60 m | trs, benches- 05 |

| | submitted to the Ministry of Environment | mater 11 mater) Wildel (Ten 200 mater Detter |
|-----|---|--|
| | submitted to the Ministry of Environment, Forests & Climate change and its concerned Regional Office on yearly basis. | 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 |
| xxi | 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. | 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 $2m \times 4m$. The sump is of dimension $800 \times 60 \times 4m$ 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 $20 \times 8 \times 3m$ |
| | Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to | As indicated above, the run off from the OB dumps are collected in the catch drains made |

check run-off and siltation shall be based on the rainfall data.

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

| | | 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 minoral | All the internal roads are either cement |

transportation. A 3-tier green belt comprising of a mix of native species shall be developed all along the major approach roads.

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.

Area under plantation is as follows-

| | , | | | | | |
|------|---|--|---------------------------|--------------|-----------------------------|--|
| | | SI. 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 | |
| | | Spec | ies : - | | | |
| | | Baml | boo, siwan, k | Khair, ca | ssia, gulmohar | |
| | | Sagw | an, sicco, neem | n, etc. | | |
| xxix | Controlled blasting shall be practiced with use | Controlled blasting is being done using delay | | | | |
| | of delay detonators and only during daytime. | detonator and only in daytime. All mitigative | | | | |
| | The mitigative measures for control of ground | meas | ures for contro | ol of grou | nd vibrations & | |
| | vibrations and to arrest the fly rocks and | to arr | est the fly-rock | s are unde | ertaken. | |
| | boulders shall be implemented. | | | | | |
| XXX | A progressive afforestation plan shall be | Prog | ressive affore | estation | as per given | |
| | implemented covering an area of 210.00 Ha at | condition will be complied. Total 65075 plants | | | | |
| | the end of mining, Green belt (15Ha) and in | have been already planted in and around the | | | | |
| | township located outside the lease by planting | mine | till date. | | | |
| | native species in consultation with the local | The plantation is entirely carried out through | | | | |
| | DFO/Agriculture Department. The density of | State | Forest A | Agencies | viz. Fores | |
| | the trees shall be around 2500 plants per Ha. | Deve | elopment | Corpor | ration c | |
| | Massive plantation shall be carried out in open | Maha | arashtra/M.P. I | Rajya Va | n Vikas Nigar | |

| | | 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. |
|---|------------|---|--|
| | xxxi | 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 |
| | xxxi 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. |
| | xxxi 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. |
| | xxxi | The mining should be phased out in sustainable | It will be ensured that the mining shall be |
| | V | manner. | phased out in sustainable manner. |
| 2 | XXXV | operations | No groundwater is being/shall be used for mining opportions. |
| > | XXXV | The total guarry area of 101.70 Ha. The depth | These instructions shall be used |
| | i | of void will be 170 m, which is proposed to be | accordingly. |
| | | converted into a water body with the maximum | |
| | | depth of 40m having gently sloped and the | |
| | | with plantation/afforestation by planting nation | |
| | | plant species in consultation with the local | |
| | | DFO/Agriculture department. The density of | |
| | | the trees shall be around 2500 plants per ha. | |
| X | XXV | Regular monitoring of groundwater level and | Regular ground Water Level and Quality |
| | ii | quality shall be carried out by establishing a | Monitoring is being done by 3 rd party agency. |
| | | network of existing wells and construction of | The reports are being submitted along with |
| | | new plezometers. The monitoring for quantity | six monthly EC compliance report.(copy |
| shall be done four times a year in pre-monsoon | encl |
|--|------|

| • | | 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 tot eh 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. | | |
| xxxi 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. ETI (Effluent Treatment Plant) has been provided for treatment of Workshop effluent with oil & grease trapper. | | |
| | 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 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. | | |
| | 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. | Compensation to land oustees are provided as per Coal India Limited's policy. | | |
| | 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 nay 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 | | |
| | 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. | 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/ | 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 ₂₅ , 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) |
| iv | Data on ambient air quality (PM_{10} , PM_{25} , 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 | (1) Security Check Post 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 |

| 4 | | 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. | | | | |
| | Χ | 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. |
| The funds earmarked for environmental | Being complied. |
| protection measures shall be kept in separate | |
| account and shall not be diverted for other | |
| purpose. Year-wise expenditure shall be | |
| reported to this ministry and its concerned | |
| Regional Office. | |
| The project authorities shall advertise at least in | The information that this project has been |
| two local newspapers widely circulated around | accorded Environmental Clearance along with |
| the project, one of which shall be in the | a copy of the EC letter has been posted at the |
| vernacular language of the locality concerned | website of MoEF & CC. It has also been |
| within seven days of the clearance letter | advertised in two local newspaper of Marathi |
| informing that the project has been accorded | language. Advertisement was published in the |

xii

xiii

environmental clearance and a copy of the newspaper (Marathi – Dainik Yuvarashtra clearance letter is available with the state Darshan dated 20.09.2015 and Vidarbha pollution control board and may also be seen at Matdar dated 20.09.2015).

| | the website of the ministry of Environment | Watta atta 20.07.2015). |
|-------|--|--|
| | forest & climate change at http://envfor.nio.in | |
| xv | forest & climate change at http://envfor.nic.inA copy of the environmental clearance lettershallbemarkedtoconcernPanchayat/Zilaparishad, Municipal corporationor Urban local body and local NGO, if any fromwhom any suggestion/representation has beenreceived while processing the proposal. A copyof the clearance letter shall also be displayed oncompany's website.A copy of the environmental clearance lettershall also be displayed on the website of theconcerned state pollution control board. The ECletter shall also be displayed at the RegionalOffice, District industry sector and collector'sOffice/Tehsildar's Office for 30 days | 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 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) |

29 **Colliery Manager** Junad OCM

Ang G1201 AVS 0> 1/ 22 S.O.E (Civil) / N.O. (Env.) Ukni-Junad Sub Area

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

SAMPLE DESCRIPTION

SAMPLING METHOD : LSOP 4

Air sample

| Environment Laboratory CMPDI RI- IV, NAGPUR | | Test I | Report | | | |
|--|---------------|--------------------------------|---|---|-----------------------|--|
| TEST REPORT NO. | | RIN/TR/APRIL-21/42 DATE OF ISS | | ATE OF ISSUE | 31.05.2022 | |
| NAME OF CUSTOM | ER | 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 2019), or example of the second document volume-II (part-II)-2.12:2016, NO ₂ : IS 5182 Part-06:2006(2017) | | | :2006(RA 2017), PN)6:2006(2017), SO ₂ :I | 12.5: USEPA Quality Assur S 5182 Part-2:2001(RA 20 | ance guidance)17) | |
| NAME OF AREA | | WANI NORTH | | SAMPLING PLAN : LQR 47 | | |
| NAME OF PROJECT | | JUNAD OC | | | _ | |

| SAM OFFICE WNIGA1 | | | | | | | |
|--|-------------------|-----|---|-------------------|-----------------|-----------------|--------------------------|
| DATE/ddurou | | | PARAMETERS (24 hourly values in µg/m ³) | | | | |
| DATE(dd:mr | n:yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS |
| FROM | TO | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) |
| 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 [™] September 2000 | | 600 | 300 | - | 120 | 120 | |

| BORGAON VILLAGE WNJOA2 | | | | | | | | |
|------------------------|--------------------|-----|------------------|-------------------|-----------------|-----------------|--------------------------|--|
| DATE(ddimr | | | | ENVIRONMENT | | | | |
| DATE(dd.iii | II.yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS | |
| FROM | TO | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | |
| 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 | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | |

| | BHALAR TOWNSHIP WNUOA3 | | | | | | | |
|------------|------------------------|---|------------------|-------------------|-----------------|-----------------|--------------------------|--|
| DATE/ddum | | PARAMETERS (24 hourly values in μg/m ³) | | | | | ENVIRONMENT | |
| DATE(dd:mi | n:yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS | |
| FROM | TO | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | |
| 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 | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | |

| | UKNI VILLAGE WNUOA4 | | | | | | | |
|-------------|---------------------|-----|------------------|-------------------|-----------------|-----------------|--------------------------|--|
| DATE/ddimi | | | ENVIRONMENT | | | | | |
| DATE(dd.iii | II.yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS | |
| FROM | то | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | |
| 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 | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | |

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| SAMPLE DESCRIPTION | | |
|--------------------|---------------------|--|
| | Water sample | |
| Test Required | pH: IS 3025 -Part 1 | 1:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O |
| SAMPLING METHOD | LSOP 5 | |

| MINE W/ | WNJOW1 | | | |
|--|-----------|---------------|--------------|----------------|
| DATE OF SAMPLE COLLECTION | | ANALYSIS | RESULTS | |
| DATE OF SAMPLE COLLECTION | pН | 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 | | | | |
| DATE OF SAMPLE COLLECTION | pН | 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 | | | | | | | |
|------------------------|---------------------------|----------------------|------------|--|--|--|--|
| | DATE OF SAMPLE COLLECTION | NOISE LEVEL IN dB(A) | | | | | |
| MONTH | DATE OF SAMPLE COLLECTION | 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 (REGU | LATION AND CONTROL) RULES | 75 | 70 | | | | |

| | BHALAR COLONY: | WNJON2 | |
|-----------------------|---------------------------|----------------|------------|
| | DATE OF SAMPLE COLLECTION | NOISE LEVEL IN | dB(A) |
| MONTH | DATE OF SAMPLE COLLECTION | 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 (REGU | LATION 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

| Environment Laboratory CMPDI RI- IV, NAGPUR | | Test Report | TC-7102 | | | |
|--|---|--|--|--------------------------------|----------------------|--|
| TEST REPORT NO. | | RIN/TR/MAY-22/42 | DATE OF ISSU | IE | 25-06-2022 | |
| NAME OF CUSTOMER | 3 | GM(ENV.), WCL(HQ), NAGPUR | | | | |
| CUSTOMER LETTER R | EFERENCE NO. | WCL/ HQ/ Environment/ 14-I/206-220 , Dt. 25.03.2022 | | | | |
| TEST REQUIRED | SPM: IS 5182 Part-4:1999(RA document volume-II (part-II) | , 2019), PM-10: IS-5182 Part 23:2006(RA 2017), -2.12:2016, NO ₂ : IS 5182 Part-06:2006(2017), Si | PM2.5: USEPA O ₂ :IS 5182 Part | Quality Assur -2:2001(RA 20 | ance guidance 17) | |

| NAME OF AREA | | WANI NORTH | |
|---------------------|------------|------------|---|
| NAME OF PROJECT | | JUNAD OC | |
| SAMPLE DESCRIPTION | Air sample | | |
| SAMPLING METHOD : I | SOP 4 | | • |
| | | | |

| | SAM OFFICE WNJOA1 | | | | | | |
|---|-------------------|-----|------------------|-------------------|--------------|-----|--------------------------|
| DATE/ddime | | | PARAMETERS (24 | hourly value | es in μg/m³) | | ENVIRONMENT |
| DATE(dd:mm:yy) OF SAMPLING | | SPM | PM ₁₀ | PM _{2.5} | NO2 | SO2 | CONDITIONS |
| FROM | то | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) |
| 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(ddimr | | | PARAMETERS (24 | hourly valu | es in μg/m³) | | ENVIRONMENT | |
| DATE(dd.iii | II.yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO2 | CONDITIONS | |
| FROM | TO | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | |
| 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 | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | |

| | BHALAR TOWNSHIP WNUOA3 | | | | | | |
|-------------|------------------------|---|-----|-------------------|-----------------|-----------------|----------------------|
| | | PARAMETERS (24 hourly values in μg/m ³) | | | | | ENVIRONMENT |
| DATE(dd:mi | SPM PM ₁₀ | | | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS |
| FROM | ТО | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) |
| 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 WNUOA4 | | | | | | |
|-------------|---------------------|-----|--|----|----|-----|----------------------|
| DATE(dd:mr | | | PARAMETERS (24 hourly values in μg/m ³) | | | | ENVIRONMENT |
| DATE(dd.iii | in yy) or same lind | SPM | SPM PM ₁₀ PM _{2.5} NO ₂ SO ₂ | | | | CONDITIONS |
| FROM | ТО | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) |
| 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 |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | |



SAMPLING PLAN : LQR 47

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FUGITIVE DUST MONITORING

| SECURITY POST WOF1 | | | | | | | |
|--------------------|--------------------|----------------|--|----|-------------------|--|--|
| DATE(ddimr | | PARAMETERS (24 | ENVIRONMENT | | | | |
| DATE(dd.iii | II.yy) OF SAMPLING | SPM | SPM PM ₁₀ PM _{2.5} 5 5 2 | | CONDITIONS | | |
| FROM | то | 5 | | | (Sky/Wind) | | |
| 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 1 | 1:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O |
| SAMPLING METHOD | LSOP 5 | |

| MINE W. | WNJOW1 | | | |
|--|-----------|---------------|--------------|----------------|
| DATE OF SAMPLE COLLECTION | | ANALYSIS | RESULTS | |
| DATE OF SAMPLE COLLECTION | pН | 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 | |
| | pН | 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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- 2 This report refers to the values related to the items tested.

NOISE LEVEL MONITORING DATA

| MANAGER OFFICE: WNJON1 | | | | | | | | |
|------------------------|----------------------------|----------------|------------|--|--|--|--|--|
| MONTH | | NOISE LEVEL IN | dB(A) | | | | | |
| | DATE OF SAMPLE COLLECTION | 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 (REGI | JLATION AND CONTROL) RULES | 75 | 70 | | | | | |

| BHALAR COLONY: WNJON2 | | | | | | | |
|-----------------------|----------------------------|----------------|------------|--|--|--|--|
| MONTH | DATE OF SAMPLE COLLECTION | NOISE LEVEL IN | dB(A) | | | | |
| | DATE OF SAMPLE COLLECTION | 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 (REGU | JLATION 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

| Environment Laboratory CMPDI RI-IV, NAGPUR | | Test Report | | | TC.7102 | | | |
|--|---------|-------------|---|-----|------------|---------------|---|----------------------|
| | | | | /42 | | | E | 28 07 2022 |
| NAME OF CLISTOMER | | | RIN/TR/JUN-22/42 DATE OF 1530E 28.07.2022 | | | | | |
| CUSTOMER LETTER RE | FERENCE | 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) | | | | | | | | ance guidance 17) |
| NAME OF AREA | | WANI NORTH | | | SAMPLING F | PLAN : LQR 47 | | |
| NAME OF PROJECT | | JUNAD OC | | | | | - | |
| SAMPLE DESCRIPTION | 1 | Air sample | | | • | | | |

SAMPLING METHOD : LSOP 4

| | | | SAM OFFICE | WNJOA1 | | | |
|---|------------|-----|------------------|-------------------|-----------------|-----|-------------------------|
| DATE(ddimr | | | PARAMETERS (24 | hourly valu | es in μg/m³) | | ENVIRONMENT |
| DATE(dd:mm:yy) OF SAMPLING | | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO2 | CONDITIONS |
| FROM | то | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) |
| 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/ddimi | | | PARAMETERS (24 | hourly valu | es in μg/m³) | | ENVIRONMENT | | |
| DATE(dd.iii | II.yy) OF SAMIFLING | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS | | |
| FROM | TO | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | | |
| 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 µg/m ³) | | | | | |
| | | SPM | PM ₁₀ | PM _{2.5} | NO2 | SO ₂ | CONDITIONS | |
| FROM | то | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | |
| 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 | | | | | | | |
|-------------|---------------------|---|------------------|-------------------|-----------------|-----------------|-------------------------|--|
| | | PARAMETERS (24 hourly values in μg/m ³) | | | | ENVIRONMENT | | |
| DATE(dd.iii | II.yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS | |
| FROM | то | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | |
| 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 1: &G: IS 3025-Part 39 | 1:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O :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 | | | | | | | |
| DATE OF SAMPLE COLLECTION | pН | 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 | | | | | | |
| DATE OF SAMPLE COLLECTION | pН | 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 | | | | | | | | | |
|------------------------|---------------------------|----------------|------------|--|--|--|--|--|--|
| | DATE OF SAMPLE COLLECTION | NOISE LEVEL IN | dB(A) | | | | | | |
| MONTH | DATE OF SAMPLE COLLECTION | 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 (REGU | LATION AND CONTROL) RULES | 75 | 70 | | | | | | |

| BHALAR COLONY: WNJON2 | | | | | | | | |
|-----------------------|---------------------------|----------------|------------|--|--|--|--|--|
| | DATE OF SAMPLE COLLECTION | NOISE LEVEL IN | dB(A) | | | | | |
| MONTH | DATE OF SAMPLE COLLECTION | 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 (REGU | LATION 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

| Environment Laboratory CMPDI RI-IV, NAGPUR | | | Test Report | | | and the | TC-7102 | |
|---|----------|------------|--|--|-------------------------------|--|---------------------------------|----------------------|
| | | | 1 | | | | | I |
| TEST REPORT NO. | | | RIN/TR/JULY-22/42 DATE OF ISSU | | | | E | 30.08.2022 |
| NAME OF CUSTOMER | | | GM(ENV.), WCL(HQ), NAGPUR | | | | | |
| CUSTOMER LETTER R | EFERENCE | NO. | WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022 | | | 2 | | |
| TEST REQUIRED SPM: IS 5182 Part-4:1999(RA document volume-ll (part-ll) | | | 2019), PM-10: I -2.12:2016, NO ₂ : | S-5182 Part 23:200 : IS 5182 Part-06:20 | 96(RA 2017), 906(2017), SC | PM2.5: USEPA D ₂ :IS 5182 Part | Quality Assura -2:2001(RA 20 | ance guidance 17) |
| NAME OF AREA | | WANI NORTH | | | SAMPLING F | Plan : Lqr 47 | | |
| NAME OF PROJECT | | JUNAD OC | | | | - | | |
| SAMPLE DESCRIPTION Air sample | | | | | - | | | |

SAMPLING METHOD : LSOP 4

| SAM OFFICE WNJOA1 | | | | | | | | | | | |
|---------------------------|---|-----|------------------|-------------------|--------------|-----|--------------------------|--|--|--|--|
| DATE/ddime | | | PARAMETERS (24 | hourly valu | es in μg/m³) | | ENVIRONMENT | | | | |
| DATE(dd.iii | II.yy) OF SAMELING | SPM | PM ₁₀ | PM _{2.5} | NO2 | SO2 | CONDITIONS | | | | |
| FROM | TO | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | | | | |
| 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 COA Sept | AL MINE, GSR 742(E), dt. 25 TH ember 2000 | 600 | 300 | - | 120 | 120 | | | | | |

| BORGAON VILLAGE WNJOA2 | | | | | | | | | | | |
|------------------------|--------------------|-----|------------------|-------------------|-----------------|-----------------|--------------------------|--|--|--|--|
| DATE/ddimi | | | PARAMETERS (24 | hourly valu | es in μg/m³) | | ENVIRONMENT | | | | |
| DATE(dd.iii | II.yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS | | | | |
| FROM | TO | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | | | | |
| 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 | | | | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | | | | |

| BHALAR TOWNSHIP WNUOA3 | | | | | | | | | | | |
|---|-------------------|-----|------------------|-------------------|-----------------|-----------------|-------------------------|--|--|--|--|
| PARAMETERS (24 hourly values in $\mu g/m^3$) | | | | | | | | | | | |
| DATE(dd:mi | n:yy) of sampling | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS | | | | |
| FROM | TO | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | | | | |
| 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 | | | | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | | | | |

| UKNI VILLAGE WNUOA4 | | | | | | | | | | | |
|---------------------|---------------------|-----|------------------|-------------------|-----------------|-----------------|-------------------------|--|--|--|--|
| DATE(dd:mr | | | PARAMETERS (24 | I hourly value | es in μg/m³) | | ENVIRONMENT | | | | |
| DATE(dd.im | in yy) or same lind | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS | | | | |
| FROM | то | 5 | 5 | 2 | 6 | 10 | (Sky/Wind) | | | | |
| 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 | | | | |
| NA | AQS, 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) | | | 2) | | | |
| SAMPLING METHOD : LSOP 4 | | | | | | |

| | | WOF1 | | | |
|-------------|-------------------|--------------------------------------|------------------|-------------------|----------------|
| | | hourly values in µg/m ³) | ENVIRONMENT | | |
| DATE(dd:min | n:yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | CONDITIONS |
| FROM | то | 5 | 5 | 2 | (Sky/Wind) |
| 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 1 &G: IS 3025-Part 39 | 1:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),COD: APHA (23rd Edition) 5220 C :2017,O 9:1991(RA 2019) & BOD: IS 3025 (Part 44): 1993 (RA 2019) |
| SAMPLING METHOD | LSOP 5 | |

| MINE WATER DISCHARGE: WNJOW1 | | | | | | | | | | |
|--|-----------|---------------|--------------|----------------|--|--|--|--|--|--|
| DATE OF SAMPLE COLLECTION | | ANALYSIS | RESULTS | | | | | | | |
| DATE OF SAMPLE COLLECTION | pН | 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 | | | | |
| DATE OF SAMPLE COLLECTION | pН | 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 | | |
|---------------------|------------------------------|----------------|------------|--|
| | DATE OF SAMPLE COLLECTION | NOISE LEVEL IN | dB(A) | |
| MONTH | DATE OF SAMPLE COLLECTION | 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 (RE | EGULATION AND CONTROL) RULES | 75 | 70 | |

| | BHALAR COLONY: | WNJON2 | | | |
|-----------------------|---------------------------|----------------------|------------|--|--|
| MONTH | DATE OF SAMPLE COLLECTION | NOISE LEVEL IN dB(A) | | | |
| | DATE OF SAMPLE COLLECTION | 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 (REGU | LATION 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

CMPDI

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

| Environment Laboratory CMPDI RI-IV, NAGPUR | Test Report | | | TC-7192 |
|---|------------------|--------------|---|------------|
| | | | | |
| TEST REPORT NO. | RIN/TR/AUG-22/24 | DATE OF ISSU | E | 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, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017) | | | | | | |
| SAMPLE DESCRIPTION | | | AIR SAMPLE | | SAMPLING PLAN : | | LQR 47 | |
| | SAMPLING METHOD : LSOP 4 | | PERIOD OF PERFORMANCE OF LAB ACTIVITIES: | | | | 15/07/22 TO 13/08/22 | |

| | SAM OFFICE WNJOA1 | | | | | | | |
|---|-------------------|-----|------------------|-------------------|--------------|-----|-----------------------------|--|
| DATE(dd:mm:yy) OF SAMPLING | | | PARAMETERS (24 | hourly value | es in μg/m³) | | | |
| | | SPM | PM ₁₀ | PM _{2.5} | NO2 | SO2 | CONDITIONS (Sky/Wind) | |
| FROM | ТО | 5 | 5 | 2 | 6 | 10 | CONDITIONS (Sky/Wild) | |
| 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 valu | es in μg/m³) | | | |
| | | SPM | PM ₁₀ | PM _{2.5} | NO2 | SO2 | CONDITIONS (Sky/Wind) | |
| FROM | ТО | 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 | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | |

| | BHALAR TOWNSHIP WNUOA3 | | | | | | | |
|------------|------------------------|---|-----|--------------------------------------|----|----|-------------------------|--|
| | | PARAMETERS (24 hourly values in µg/m ³) | | | | | | |
| DATE(dd:mi | n:yy) OF SAMPLING | IPLING SPM PM10 PM2.5 NO2 SO2 | | ENVIRONMENT CONDITIONS (Sky/Wind) | | | | |
| FROM | ТО | 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 | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | |

| | UKNI VILLAGE WNUOA4 | | | | | | |
|----------------------------|---------------------|---|------------------|-------------------|-----------------|-----------------|-------------------------|
| DATE(dd:mm:yy) OF SAMPLING | | PARAMETERS (24 hourly values in µg/m ³) | | | | | ENVIRONMENT |
| | | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | |
| FROM | то | 5 | 5 | 2 | 6 | 10 | CONDITIONS (Sky/ Willd) |
| 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 | |



Analysed by

| Environment Laboratory CMPDI RI- IV, NAGPUR | Test Report | TC-7102 |
|--|-------------|---------|
| | | |
| SAMPLE DESCRIPTION Water sample | | |

| SAME EL DESCRITTION | water sumple | | | | | |
|---------------------|--|--|----------------------------------|--|--|--|
| 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 : | 15.0 <u>7.2022 TO 13.08.2022</u> | | | |

| MINE WATER DISCHARGE: WNJOW1 | | | | | | | | |
|--|-----------|------------------|--------------|----------------|--|--|--|--|
| DATE OF CAMPLE COLLECTION | | ANALYSIS RESULTS | | | | | | |
| DATE OF SAMPLE COLLECTION | рН | 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 | | | | | | |
| | pН | 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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| Environment Laboratory CMPDI RI- IV, NAGPUR | Test Report | |
|--|-------------|---------|
| | | TC-7102 |

NOISE LEVEL MONITORING DATA

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

| MANAGER OFFICE: WNJON1 | | | | | | | |
|------------------------|---------------------------|----------------------|------------|--|--|--|--|
| | DATE OF SAMPLE COLLECTION | NOISE LEVEL IN dB(A) | | | | | |
| MONTH | DATE OF SAMPLE COLLECTION | 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 (REGU | LATION AND CONTROL) RULES | 75 | 70 | | | | |

| BHALAR COLONY: WNJON2 | | | | | | | | |
|-----------------------|----------------------------|----------------------|------------|--|--|--|--|--|
| | DATE OF SAMPLE COLLECTION | NOISE LEVEL IN dB(A) | | | | | | |
| MONTH | DATE OF SAMPLE COLLECTION | 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 (REGU | ILATION AND CONTROL) RULES | 55 | 45 | | | | | |

Ashwin B Wasnik Reviewed by

Deepanshu Sahu

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ENVIRONMENTAL MONITORING REPORT

JUNAD OC

WANI NORTH AREA

WESTERN COALFIELDS LTD.

JOB NO. 4634420034



SEP - 2022

Environment Laboratory

CMPDI

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

| Environment Laboratory CMPDI RI-IV, NAGPUR | Test Report | | TC-7102 |
|---|------------------|---------------|------------|
| 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, NO2: IS 5182 Part-06:2006(2017), SO2:IS 5182 Part-2:2001(RA 2017) | | | | | |
| | SAMPLE DESCRIPTION | | AIR SAMPLE | | SAMPLING PLAN : | | LQR 47 |
| SAMPLING METHOD : LSOP 4 | | 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 μg/m ³) | | | | | |
| | | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | CONDITIONS (Sky/Wind) |
| FROM | то | 5 | 5 | 2 | 6 | 10 | |
| 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 COA Sept | AL MINE, GSR 742(E), dt. 25 [™] ember 2000 | 600 | 300 | - | 120 | 120 | |

| | BORGAON VILLAGE WNJOA2 | | | | | | | |
|-------------|------------------------|---|------------------|-------------------|-----|-----|------------------------------|--|
| | | PARAMETERS (24 hourly values in μg/m ³) | | | | | | |
| DATE(du:ini | n.yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | NO2 | SO2 | | |
| FROM | ТО | 5 | 5 | 2 | 6 | 10 | | |
| 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 | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | |

| | BHALAR TOWNSHIP WNUOA3 | | | | | | |
|------------|------------------------|---|------------------|-------------------|-----|-----|-----------------------|
| | | PARAMETERS (24 hourly values in μg/m ³) | | | | | |
| DATE(dd:mi | n:yy) OF SAMPLING | SPM | PM ₁₀ | PM _{2.5} | NO2 | SO2 | CONDITIONS (Sky/Wind) |
| FROM | ТО | 5 | 5 | 2 | 6 | 10 | |
| 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 |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | |

| | UKNI VILLAGE WNUOA4 | | | | | | | |
|------------|---------------------|---|------------------|-------------------|-----------------|-----------------|-----------------------|--|
| | | PARAMETERS (24 hourly values in μg/m ³) | | | | | ENVIRONMENT | |
| DATE(dd.im | | SPM | PM ₁₀ | PM _{2.5} | NO ₂ | SO ₂ | | |
| FROM | ТО | 5 | 5 | 2 | 6 | 10 | CONDITIONS (Sky/Wild) | |
| 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 | |
| NA | AQS, 2009 | - | 100 | 60 | 80 | 80 | | |



Analysed by

| Environment Laboratory CMPDI RI- IV, NAGPUR | t Report |
|--|----------|
|--|----------|

| SAMPLE DESCRIPTION | Water sample | | |
|--------------------|---------------------|---|--|
| Test Required | pH: IS 3025 -Part 1 | 11:1983(RA 2017),TSS: IS 3025-Part 17:1984(RA 2017),C | 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 | | | | |
| DATE OF SAMPLE COLLECTION | pН | 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 | 5.5 - 9.0 | 100 | 250 | 10 | | |

| | ETP DISCHARGE: | WNJOW2 | | |
|--|----------------|---------------|--------------|----------------|
| DATE OF SAMPLE COLLECTION | | ANALYSIS | RESULTS | |
| DATE OF SAMPLE COLLECTION | рН | 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 |



CMPDI RI-IV, NAGPUR

| Test Report | and the second s |
|-------------|--|
| | Test Report |

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

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

Ashwin B Wasnik Reviewed by

she. Deepanshu Sahu Authorised by

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Environment Lab, CMPDI RI-IV, Nagpur.

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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

CMPDI

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

| Environment Laboratory CMPDI RI-IV, NAGPUR | Test Report Ambient Air quality monitoring data for heavy metals | ** |
|---|--|---------|
| | | TC-7102 |

| TEST REPORT NO. | RIN/TR/JUNE | /HM70 | | DATE OF ISSUE | 27-08-2022 |
|--|--|---------------|-------------------------|--------------------------|------------|
| NAME OF CUSTOMER | GM(ENV.),W | CL(HQ), NAGPU | R | SAMPLE DESCRIPTION | AIR SAMPLE |
| CUSTOMER LETTER REFERENCE NO. WCL/HQ/ENV | | | /14-I/206-220 DATED: 25 | 5.03.2022 | |
| TEST REQUIRED | ST REQUIRED Heavy metals (As, Pb, Ni, Cr & C | | | 4185) | |
| NAME OF AREA | WANI NORTH | | | SAMPLING METHOD : LSOP 4 | |
| NAME OF PROJECT | EXPN - JUNAD OC | | | SAMPLING PLAN : LQR 47 | |
| No. of Pages | 1 | | | | • |

| SI 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 |

| SI No Parameter | | Method of | Detection | Obs | National Ambient Air Quality | |
|-----------------|---|--------------------|--------------------------|---------|---------------------------------|--|
| 51. 140. | Farameter | analysis | limit | WNJOA-1 | WNJOA-2 | Standard NAAQS, 2009 |
| 1 | Arsenic, µg/m ³ | ASTM D 4185 | 0.0007 µg/m ³ | BDL | BDL | 0.006 µg/m ³ (Annual average) |
| 2 | Lead, µg/m3 | IS 5182 PART 22 | 0.007 µg/m3 | BDL | BDL | 1.0 µg/m ³ (24 Hourly average) |
| 3 | Nickle, µg/m ³ | ASTM D 4185 | 0.007 µg/m ³ | BDL | BDL | 0.02 µg/m3 (Annual average) |
| 4 | Total Chromium, μg/m ³ | ASTM D 4185 | 0.0045 µg/m ³ | BDL | BDL | ** |
| 5 | Cadmium, µg/m ³ | ASTM D 4185 | 0.0015 µg/m ³ | BDL | BDL | ** |

Fratitle

SCIENTIFIC ASSISTANT

This Report refers to the values related to the items tested.

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** This parameter not regulated as per NAAQS 3

BDL: BELOW DETECTION LIMIT

the states

DEEPANSHU SAHU AUTHORIZED SIGNATORY

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 Lab. & Consultancy: FP-34, 35, Food Park, MIDC, Butibori, Nagpur – 441122 Mob: +91-9372960077 Email: ngp@anacon.in Website: <u>www.anaconlaboratories.com</u> Report No. ANqr /PD/20A/2022/291

2021-22

<u>Certificate</u>

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

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

VINDHYAN

In Vindhyans, 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

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| | | Remarks | | | | | | | | | | | |
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| | | Formation Tapped | SHELLY LIMESTON E | | BASALT | SHELLY LIMESTON E | SHELLY LIMESTON E | SHELLY LIMESTON E | BASALT | SHELLY LIMESTON E | BASALT | SHELLY LIMESTON E | SHFLLV |
| | | ounty / Owner | IRRIGA TION | DOMES TIC | DOMES | IRRIGA TION | IRRIGA TION | IRRIGA TION | IRRIGA TION | IRRIGA TION | DOMES | DOMES | IRRIGA |
| | n bgl) | AUG- 22 | 0.14 | 3.25 | 6.48 | 3.12 | 2.14 | 2.15 | 5.57 | 6.40 | 2.12 | 4.12 | 6 1 <i>1</i> |
| | r level (n | APRIL MAY 2022 | 0.30 | 0.30 | 00.6 | 4.21 | 5.11 | 5.10 | 11.76 | 9.21 | 6.24 | 8.12 | q 17 |
| | to wate | JAN- FEB 2022 | 0.20 | 0.20 | 8.60 | 3.78 | 4.15 | 4.40 | 7.10 | 8.50 | 1.90 | 5.45 | 7 40 |
| | Depth | NOV- DEC 2021 | 0.14 | 0.14 | 7.08 | 3.38 | 1.58 | 2.00 | 6.95 | 7.80 | 1.83 | 5.34 | 7 35 |
| | Height of | measuri ng point in m agl | 0.34 | 0.54 | 0.73 | 0.33 | 0.40 | 0.30 | 0.70 | 0.33 | 0.82 | 0.54 | 0 51 |
| | Well | depth in m bgl | 3.80 | 11.68 | 8.60 | 8.50 | 7.50 | 6.95 | 9.91 | 7.35 | 12.25 | 17.74 | 8 81 1 |
| MCI | | dia (m) | 4.95 | 2.56 | 1.55 | 2.80 | 2.80 | 3.11 | 3.04 | 2.35 | 2.68 | 2.49 | 7 5g |
| | | R.L. | 197 | 212 | 215 | 198 | 198 | 217 | 213 | 214 | 221 | 224 | 207 |
| | | Sec | 1.45 | 0.82 | 51.0 0 | 4.79 | 4.80 | 36.6 9 | 0.82 | 7.85 | 24.3 0 | 42.0 3 | 47.6 |
| | Long | Ξc | 0 | 5 | 0.0 0 | 0 | 0 | 2 | £ | 7 | 9 | 9 | 6 0 |
| | | g g | 79 | 79 | 62 | 62 | 62 | 62 | 62 | 79 | 62 | 62 | 79 |
| | | Sec | 47.20 | 30.86 | 56.00 | 32.39 | 32.40 | 12.46 | 30.86 | 46.21 | 48.68 | 31.39 | 75 73 |
| | Lat | Ξc | m | 8 | 1.0 0 | 0 | 0 | ø | 8 | 7 | 9 | 9 | C S |
| | | Deg | 20 | 20 | 20.0 0 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20.0 |
| | | Well location | About 800 m W of village, adjacent to Wani road | N of village, near Hanuman Mandir | Near bus stop. Well of Sri. Arun Maruti Goble | N of village, near Hanuman Mandir | G.P | SE of village , near GP office adjacent road | N of village, near Hanuman Mandir | W of village, 60 m S of Mangli road | N of village (outside) , about 70 m E of Kesurli road after G.S.I drilling camp | Vivekanand Madhyamik vidhalaya | C of village near |
| | | Name of village | Nilapur | Kandoli 1 | Bhalar | Kesurli | Kesurli 2 | Majri | Kandoli 2 | Manora | Bhadrava ti Camp (GSI Drilling camp) | Bhadrava ti killa word | Gaurala |
| | | Well No. | WN6 | MN7A | WN8a | WN13 | WN13 A | M14b | M17b | M21 | M23 | M23A | M26 |

| | | | Not in use condition due to local people throwing garbage inside the well | | | Not in use condition due to local people throwing garbage inside the well | ccessible |
|---------------|---|--|--|--|--|--|---------------------------|
| LIMESTON E | SHELLY LIMESTON E | SHELLY LIMESTON E | BASALT | BASALT | BASALT | BASALT | urwell, NA- Not A |
| TION | DOMES TIC | DOMES TIC | DOMES | IRRIGA TION | DOMES TIC | IRRIGA TION | 8- Dug cum B |
| | 2.12 | 2.00 | Not in use | 2.96 | 2.96 | Not IN USE | AP ON, DCI |
| | 5.81 | 5.58 | 11.21 | 3.12 | 6.11 | Not IN USE | /at,PO-PUN |
| | 3.60 | 2.20 | Not in use | 1.52 | 4.20 | Not in use | am Panchy |
| | 3.60 | 1.70 | Not in use | 1.37 | 4.12 | Not in use | on , GP - Gr |
| | 0.70 | | ßL | 0.55 | | 0.82 | c, I-Irrigati |
| | 13.35 | | 9.38 | 15.15 | i | 12.59 | D - Domesti |
| | 2.68 | 2.62 | 1.98 | 2.22 | ŀ | 2.74 | nd level |
| 00. | 213 | 204 | 215 | 208 .00 | 222 | 213 | elow grou |
| ŝ | 56.6 5 | 28.0 0 | 49.0 7 | 4.01 | 5.11 | 48.9 6 | - metre b |
| 0 | 2 | 5 | ى | 9.0 0 | 6.0 0 | 5.0 0 | l, m.bgl |
| 00 | 62 | 62 | 62 | 79. 00 | 79. 00 | 79. 00 | und leve |
| | 59.29 | 36.00 | 17.27 | 40.24 | 56.14 | 06.0 | bove groi |
| 0 | J | 3 | Ν | 2.0 0 | 5.0 0 | 6.0 | metre a |
| 0 | 20 | 20 | 20 | 20.0 0 | 20.0 0 | 20.0 0 | ıt, m.agl - |
| ОНТ | About 50 m W of Nagpur - Chandrapur road, backside of Shivam Kirana | W of village, adjacent to road & near to embankment | 1.5 km NE of village, adjacent to Bhadravati road, near to road culvart infield | SE of village (60 m outside) near Hanuman Mandir | C of village, 15 m E of village road, near Mr. Shinde house in Pandav ward | Near ZP school of Balwadi | etre below measuring poir |
| | Sumthan a | Dhorwas a | Pipri | Goraja | Vijasan | Vijasan | e :- m.bmp - m |
| | M27 | M32b | M35 | M36 | M41a | M41b | Not |



GROUND WATER ANALYSIS

REPORTS



Anacon Laboratories Pvt. Ltd. Nagpur Lab

♀ FP-34, 35; Food Park, Five Star Industrial Estate, MIDC Butbori, Nagpur, Maharashira, India - 441 122 ↓+ 91 8045685558 ■ Email : info@anacon.in ⊕ https:// www.anaconlaboratories.com

Test Report

| Test Report No. : ALPL/12052022/21-6 | | dated 12.05.2022 | | | Pz | ge 1 of 2 | |
|--|--|--|-------------------------------------|---|------------------------------|-----------------------------------|--|
| Issued To : Western Coalfields Limited, Nagpur Putals Road, Coal Estate, Civil Lines, Nagpur, WCL HQ. (M.S.) - 440001 | Sample Inward No Inward Date Reference Inv. No. | ALPL/03052022/W-6/ 03.05.2022 wcl-hq-env-e01-2021- Dt-28.07.2021 | 30-6 22, | Analysis Str Analysis En Sample Cat | art id egory | 03.05.2022 12.05.2022 Water | |
| Sample Name Ground Water | Sample Particulars Sample ID - WN-6, [Wa | / Details ni North Area] | Purpose of Analysis Ground Water | | Quantity Receive | | |
| Sample Collected By Anacon Lab Representative Mr. Ma | hesh Maharle Sa | Sampling Date : 19.04.2022 Sampling Time - 12.00mm | | | Sampling Location Nilapur | | |
| Anacon Lab Representative Mr. Ma Tests Required : Chemical Testing. | dash Maharle Sa | mpling Time - 12 00pm | | - | Nilapu | | |

| s.N. | Test Parameter | Tast Parameter Measurement Unit | | Requirem IS 1050 (Ground Water Specific Including Am | Test Result | |
|------|------------------------------------|------------------------------------|--------------------------------|--|------------------------|----------------|
| | | | | Acceptable Limit | Permissible Limit # | |
| 1 | Chemical Testing 1. Water | | | | | |
| 1 | Alkalinity (as CoCO ₂) | mgd | IS 3025 (Part 23) : 1986 | 200 | - 600 | 129 |
| 2 | Colour | Hazes units | 1S 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) | mgđ | 1S 3025 (Part 40) : 1991 | 75 | 200 | 64.9 |
| 5 | Free residual chlorine | mg/l | 1S 3025 (Part 26) : 2021 | Min. 0.2 | 1 | BDL (DL = 0.1) |
| 6 | Fluoride (as F) | mgA | 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/i | APHA method 23rd edition: 2017 | 45 | No relaxation | BDL (DL - 0.2) |
| 9 | Odour | 5 Sec. | 1S 3025 (Part 5) : 1983 | Agreeable | Agreeable | Agreeable |
| 10 | pH | | IS 3025 (Part 11): 1983 | 6.5 to 8.5 | No relaxation | 6.58 at 25°C |
| 11 | Sulphate (as SO ₄) | mgg | IS 3025 (Part 24) ; 1986 | 200 | 400 | 55.98 |
| 12 | Total dissolved solids | mg/S | IS 3025 (Part 16) : 1984 | 500 | 2000 | 482 |
| 13 | Turbidity | NTU | IS 3025 (Part 10) : 1984 | 1 | 5 | 0.3 |
| 14 | Total hardness (as CaCO2) | mg/l | IS 3825 (Part 21) : 2009 | 200 | 600 | 86.85 |

Please refer last Page for Note and Remarks.

Verified By

Shubbangi Armarkar Technical Manager

Authorized Signatories

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





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Test Report

| Test Report No. : ALPL/12 | 52022/21-6 | | dated 12:05:2022 | | | Pa | ge 2 of 2 | |
|--|--------------------------------|---|---|-------------------|---|------|-----------------------------------|--|
| Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ, (M.S.) - 440001 | | Sample Inward 0 Inward Date Reference | No. ALPL/03052022/W- 03.05.2022 wel-hq-env-e01-202 DL-28.07.2021 | -6/30-6 11-22, | Analysis Start Analysis End Sample Category | | 03.05.2022 12.05.2022 Water | |
| Sample Name Ground Water | s | Sample Particula Sample ID – WN-6, [W | rs / Details /ani North Area] | Purpose Grou | of Analysis nd Water puality | Quar | tity Received | |
| Sample Anacon Lab Represen | Collected By maive Mr. Mahe | sh Mahurie | Sampling Date : 19.04.202 Sampling Time : 12.00pm | 12 | Sampling Location Nilapur | | | |
| Tests Required : Chemical | Festing. | | | | | | | |

THE OWNER AND PROPERTY AND

| S.N. | Test Parameter | Measurement Unit | Test Method | Requirer 18 105 (Ground Wate Specifi Including Ar | ment as per 00 : 2012 er Quality Water fications) nendment No. 3 | Test Result |
|------|--|---------------------|--|---|--|------------------|
| | | | | Acceptable Limit | Permissible Limit # | |
| п | Chemical Testing 2. Residues In Water | | | | 11211111111 | 9 |
| 15 | Arsenic (ns As) | mg/l | 45 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/i | IS 3025 (Part 2) : 2019 | 0.05 | 1.5 | BDL (DL - 0.03) |
| 19 | Cadmium (as Cd) | mg/i | IS 3025 (Part 2) : 2019 | 0.003 | No relaxation | BDL (DL - 0.001) |
| 20 | Iron (as Fe) | mg/i | 1S 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 | 1S 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) | ing/l | IS 3025 (Part 2) : 2019 | 5 | 15 | BDL (DL = 0.1) |

NOTES:

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PringT' is equivalent to "gpm".

Please see watermark detection limit of instrument/method and shall be cansidered as 'absent'

REMARKS : As requested by the client, sample was tested for above parameters only. Sample complies with ES:10509:2012 Specification, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

-END OF REPORT----

erified By

Shashikant Satdeve Sr. Chemist

Authorized Signatory 1as

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



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Test Report

| Test | Report No. : ALPL/120520 | 22/21-7 | | dated 12.05.2022 | | | Pa | ge 1 of 2 |
|--|---|----------------------------------|---|---|----------|---|-----------------------------|----------------------|
| Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ, (M.S.) - 440001 | | gpur Inward Dat | Sample Inward No. ALPL/03052022/W-6 Inward Date 03.05.2022 | | W-6/30-7 | -6/30-7 Analysis Start Analysis End Sample Category Purpose of Analysis Ground Water Quality | | 03.05.2022 |
| | | neo. 01 Reference Inv. No. | | wel-hq-env-e01-2021-22, Dt-28.07.2021 | | | | Water |
| 5 | Sample Name Sample Particul Ground Water Sample ID - WN-8a, | | ticulars / I 8a, [Wani | ulars / Details Purpos [Wani North Area] Gro | | | | ntity Received IL |
| | Sample Collected By Anacon Lub Representative Mr. Mahesh Mahurie | | | Sampling Date : 19.04.2022 Sampling Time : 12.00pm | | | Sampling Location Bhalar | |

Tests Required : Chemical Testing.

TEST RESULTS

| 5.N. | Test Parameter | Measurement Unit | Test Method | Requirem IS 1050 (Ground Water Specific Including Am | Test Result | |
|------|--|---------------------|--------------------------------|--|------------------------|----------------|
| | | | | Acceptable Limit | Permissible Limit # | |
| 1 | Chemical Testing 1. Water | | | | | |
| 1 | Alkalinity (as CaCO ₂) | mg/l | 1S 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 | 1S 3025 (Part 40) : 1991 | 75 | 200 | 46.08 |
| 5 | Free residual chlorine | mg/l | 15 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/I | APHA method 23rd edition: 2017 | -45 | No relaxation | 5.80 |
| 9 | Odour | | IS 3025 (Part 5): 1983 | Agreeable | Agreeable | Agreeable |
| 10 | pH | | 15 3025 (Part 11) : 1983 | 6.5 to 8.5 | No relaxation | 6.68 at 25°C |
| 17 | Sulphate (as SO4) | mg/l | IS 3025 (Part 24) : 1986 | 200 | 400 | 28.75 |
| 12 | Total dissolved solids | mg/l. | 1S 3025 (Part 16) : 1984 | 500 | 2000 | 428 |
| 13 | Turbidity | NTU | 15 3025 (Part 10) : 1984 | 1 | 5 | BDL (DL = 0.1) |
| 14 | Total hardness (as CaCO ₃) | mg/l | 1S 3025 (Part 21) : 2009 | 200 | 600 | 53.71 |

Dense refer last Page for Note and Remarks.

erified, By ton

Shubhangi Armarkar Technical Manager

Authorized Signatories

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





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Test Report

| Report No. : ALPL/12053 | 022/21-7 | | 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/03052022/9 | | W-6/30-7 | Analysia Sta | urt. | 03.05.2022 | | |
| | | Inward Date Reference | 03.05.2022 wel-hq-env-e01-2021-22, Dt28.07.2021 | | Analysis End | | 12.05.2022 | | |
| | | Inv. No. | 21/532/102/532/54 3 2 | | Sample Category | | Water | | |
| Sample Name Ground Water Sample ID – WN-8 Sample Collected By Anacor Lab Representative Mr. Mahesh Mahurle | | | eulars / Details Purpe a, [Wani North Area] Gr | | e of Analysis Qua und Water Quality | | ntity Received | | |
| | | | Sampling Date : 19.04.2 Sampling Time : 12.00p | Sampling Location Bluelar | | | | | |
| | ed To : ed To : etern Coalfields Limited, N la Road. Coal Esiste. Civil pur, WCL HQ. (M.S.) - 440 Sample Name Ground Water Sample C Anacor Lab Represents | ed To : ed To : tern Coalfields Limited, Nagpur la Road. Coal Estate. Civil Lines, pur, WCL HQ. (M.S.) - 440001 Sample Name Ground Water Sam Sample Collected By Anacor Lab Representative Mr. Mahesh | i Report No. : ALPL/12052022/21-7 ed To : tern Coalfields Limited, Nagpur la Road. Coal Estate. Civil Lines, pur, WCL HQ. (M.S.) - 440001 Sample Name Ground Water Sample Name Ground Water Sample Collected By Anacon Lab Representative Mr. Mahesh Malnurle | is Report No. : ALPL/12052022/21-7 dated 12.05.2022 ed To : dated 12.05.2022 id Road. Coal Fisite. Civil Lines, Sample Inward No. ALPL/03052022/3 inward Date 03.05.2022 inv. No. - Sample Name Sample Particulars / Details Ground Water Sample ID - WN-8a, [Wani North Area] Sample Collected By Sampling Date : 19.04.2 Anacor Lab Representative Mr. Mahesh Maharle Sampling Time : 12.00p. | i Report No. : ALPL/12052022/21-7 dated 12.05.2022 ed To : ed To : tern Coalfields Limited, Nagpur la Road. Coal Estate. Civil Lines, pur, WCL HQ. (M.S.) - 440001 Bample Name Ground Water Sample Name Ground Water Sample Collected By Anacor Lab Representative Mr. Mahesh Maharle | is Report No. : ALPL/12052022/21-7 dated 12.05.2022 ed To : ed To : tern Coalfields Limited, Nagpur Sample Inward No. ALPL/03052022/W-6/30-7 Analysis Str Inward Date 03.05.2022 wel-hq-env-e01-2021-22, Analysis En pur, WCL HQ. (M.S.) - 440001 Reference DL-28.07.2021 Sample Collected By Sample Name Sample Particulars / Details Purpose of Analysis Ground Water Sample ID - WN-8a, [Wani North Area] Purpose of Analysis Sample Collected By Sampling Date : 19.04.2022 Sampling Time : 12.00pm | Report No. : ALPL/12052022/21-7 dated 12.05.2022 Pa ed To : tern Coalfields Limited, Nagpur la Road. Coal Estate. Civil Lines, pur, WCL HQ. (M.S.) - 440001 Sample Inward No. Inward Date ALPL/03052022/W-6/30-7 03.05.2022 Analysis Start Reference 03.05.2022 wel-bq-env-e01-2021-22, DL-28.07.2021 Sample Category Sample Name Ground Water Sample Particulars / Details Sample ID – WN-8a, [Wani Noeth Area] Purpose of Analysis Ground Water Quan Ground Water Sample Collected By Anacon Lab Representative Mr. Mahesh Malnurle Sampling Date : 19.04.2022 Sampling Time : 12.00pm Sampling La Bluta | | |

Tests Required : Chemical Testing.

| S.N. Test Parameter | Test Parameter | rameter Measurement Test Method | | Require 15 105 (Ground Wat Specif Including As | Test Result | |
|---------------------|--|---------------------------------|--|--|---------------|------------------|
| | | | Acceptable Limit | Permissible Limit # | | |
| n | 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 | 18 3025 (Part 2) : 2019 / 18 3025 (Part 55): 2003 | 0.03 | 0.2 | BDL (DL = 0.01 |
| 17 | Boron (as B) | mg/l | 15 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/i | 1S 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 | Selesium (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) |

NOTES:
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Results shall be referred to tested sample(s) and applicable to tested parameters only.

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Periodable sample(s) shall be disposed of after 30 days maperically from the date of josse of Test Report, usless specified otherwise.

* Ingl' is equivalent to 'period.

Below detection limit
DL-Indicates detection limit of instrument/method and shall be considered as 'sharen'

REMARKS : As requested by the client, sample was tested for above parameters only. Sample complies with 15:10500:2012 Specification, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

-END OF REPORT----

Verified/By

Shashikant Satdeve Sr. Chemist

Authorized Signatory

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





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Test Report

| Test Report No. : ALPL/12052022/21 | -13 | | dated 12:05:2022 | | | Pa | ge 1 of 2 |
|---|---|---------|--|--|---|-----------------|-----------------------------------|
| Issued To : Western Coalfields Limited, Nagpur Fotala Road, Coal Estate, Civil Lines, Nagpur, WCI, HQ, (M.S.) - 440001 | Sample Inwa Inward Date Reference Inv. No. | ard No. | ALPL/03052022/W-6/30-1 03.05.2022 wcl-hq-env-e01-2021-22, Dt-28.07.2021 | | Analysis Start Analysis End Sample Category | | 03.05.2022 12.05.2022 Water |
| Sample Name Ground Water | Sample Name Sample Parti Ground Water Sample ID - WN-1 | | | Purpose of Analysis Ground Water Otality | | Quantity Receiv | |
| Sample Collecte Anacon Lab Representative Ma | Sampling Date : 18.04.2022 Sampling Time : 12.00pm | | | Sampling Location Kesulti | | | |

Tests Required : Chemical Testing.

TEST RESULTS

| S.N. | Test Parameter | Measurement Unit | Test Method | Requirem IS 1050 (Ground Water Specific Including Am | ent as per 0 : 2012 Quality Water ations) endment No. 3 | Test Result | |
|------|--|---------------------|--------------------------------|--|---|----------------|--|
| _ | | | | Acceptable Limit | Permissible Limit # | | |
| 1 | Chemical Testing 1. Water | | | | | | |
| 1 | Alkalinity (as CaCO ₃) | mgA | 18 3025 (Part 23) : 1986 | 200 | 600 | 174:3 | |
| 2 | Colour | Hazen units | 15 3025 (Part 4) : 2021 | 5 | 15 | - millions | |
| 3 | Chloride (as Cl) | mg/i | 1S 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 | ng/T | IS 3025 (Part 26) : 2021 | Min. 0.2 | 1 | BDL (DL - 0.1) | |
| 6 | Fluoride (as F) | mg/l | 15 3025 (Part 60) : 2008 | 1.0 | 1.5 | 0.32 | |
| 7 | Magnesium (as Mg) | mg/l | 1S 3025 (Part 46) : 1994 | 30 | 100 | 14.32 | |
| 8 | Nitrate (as NO ₁) | mg/l | APHA method 23rd edition: 2017 | 45 | No relaxation | 40.9 | |
| 9 | Odour | | 1S 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 SO4) | mg/l | 15 3025 (Part 24) : 1986 | 200 | 400 | 21.04 | |
| 12 | Total dissolved solids | rtog/l | IS 3025 (Part 16): 1984 | 500 | 2060 | 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



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Test Report

| Test Report No. : ALPL/120520 | 22/21-13 | | dated 12.05.2022 | | | Pa | ge 2 of 2 |
|--|------------------------------|---|--|--|-----------------------------------|--------------------|-----------------------------------|
| Issued To : Western Coalfields Limited, Nagpur Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ. (M.S.) - 440001 | | Sample Inward N Iuward Date Reference Inv. No. | ALPL/03052022/W 03.05.2022 wel-hq-env-e01-202 Dt28.07.2021 | ALPL/03052022/W-6/30-13 03.05.2022 wel-hq-env-e01-2021-22, Dt28.07.2021 | | ert ed egory | 03.05.2022 12.05.2022 Water |
| Sample Name Sample Particu Ground Water Sample ID - WN-14, | | | s / Details ani North Arna] | Purpose Grou | of Analysia nd Water uality | Quantity Receive | |
| Sample Col Anacon Lab Representativ | lected By rc Mr. Mahesh M | vialuarie S | ampling Date : 19.04.202 ampling Time : 12.00pm | 12 | Sam | pling Lo Kesalr | cation i |
| Tests Required : Chemical Testi | 0.92 | | | | | | |

| 5.N. | Test Parameter | Mensurement Unit | Test Method | Requirer IS 105 (Ground Wate Specif Including Ar | ment as per 60 : 2012 er Quality Water fications) nendment No. 3 | Test Result |
|------|--|---------------------|--|--|--|------------------|
| | - | | | Acceptable Limit | Permissible Limit # | |
| п | Chemical Testing 2. Residues In Water | | - | | | |
| 15 | Arsenic (as As) | P.gm | IS 3025 (Part 37) : 1988 | 0.01 | No relaxation | BDL (DL - 0.01) |
| 16 | Aluminium (as Al) | mg/I | IS 3025 (Part 2) : 2019 / IS 3025 (Part 55): 2003 | 0.03 | 0.2 | BDL (DL = 0.01 |
| 17 | Boron (as B) | ing/I | IS 3025 (Part 2) : 2019 | 0.5 | 2.4 | BDL (DL = 0.1) |
| 18 | Cupper (as Cu) | mg/l | IS 3025 (Part 2) 2019 | 0.05 | 1.5 | BDL (DL - 0.03) |
| 19 | Cadmium (as Cd) | img/t | IS 3025 (Part 2) : 2019 | 0.003 | No relaxation | BDL (DL + 0.001) |
| 20 | Iron (as Fe) | mg/1 | 1S 3025 (Part 2): 2019 | 1.0 | No relaxation | BDL (DL = 0.01) |
| 21 | Lead (as Pb) | mg/i | IS 3025 (Part 2) : 2019 | 0.01 | No relaxation | BDL (DL = 0.001) |
| 22 | Manganese (as Mn) | ng/i | 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 | 1S 3025 (Part 56) : 2003 | 0.01 | No relaxation | BDL (DL= 0.001) |
| 25 | Total Chromium (as Cr) | mg/i | 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) |

NOTES:

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Test report shall not be oproduced except to full without prior written approval of Asazon Lake.

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Please specified otherwise.

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Below detection limit
Di- Indicates detection limit of Instrumentinaethod and shall be considered as "absent"

REMARKS : As requested by the client, sample was tested for above parameters only. Sample samples with 15:18500:2012 Specification, for tests conducted, indicating that it is fit for drinking purpose with respect to tested parameters.

END OF REPORT-

Verified By

Shashikant Satdeve Sr. Chemist

Authorized Signatory jar

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



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in order to ensure that your next experience will be significantly better, we welcome your feedback over email on feedback@anacon.in

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Anacon Laboratories Pvt. Ltd. Nagpur Lab 9 FP-34, 35, Food Park, Five Star Industrial Estate, MIDC Butibon, Nagpur, Maharashtra, India - 441 122 4+ 91 8045685558 # Email : Info@anacon.in @ https://www.anaconlaboratories.com

Test Report

| Issued To 1 San Western Coalffelds Linsled, Nagpur Funla Read: Coal Estate, Civil Lines, Nagpur, WCL HQ. (M.S.) - 440001 Inv | | de Inward No. rd Date rence Letter | ALPL/23052022/W-1/35-8 28/05/2022 Wel-bg-env-e01-2021 22;Dt-28/07/2021 | | Analysis Start Analysis End | 28.05.2022 06.06.2022 | |
|---|-------------|--|---|-----------------|-----------------------------------|--------------------------|--|
| | | v. No | | Sample Category | | Water | |
| Sample Name Ground water | See WELL | Sample Particulars / E WELL, ID: M-14A (MAJR | | Parpo Ground | ee of analysis 1 Water Quality | Quantity Received | |
| Sample Collected By Anaton Lab Representative Mr. Mahesh Maharle | | Sampling Date Sampling Time | 12.05.2022 10.30am | | San | pling Location MAJRI | |
| Fests Required: Chemical Testing, | | CONTRACTOR STREET | | | | 1000000 | |

| <u>8.N.</u> | Test Parameter | Mensurement Unit | Test Method | Require 18-105 (Drinking Wa Including As | Test Result | |
|-------------|--|---------------------|---|---|-----------------------|-----------------|
| -22-3 | | | | Acceptable Limit | Permissible Limit# | |
| 1 | Chemical Testing 1, Water | | | | | |
| 1 | Alightinity (as CaCO ₂) | ngi | IS 3025 (Part 23): 1986 | 200 | 600 | 158 |
| 2 | Colour | Hazen unita | 15 3025 (Part 4) 2021 | 5 | 15 | 1 |
| 3 | Chloride (as Cl) | ngi | IS 3025 (Part 32) :1988 | 250 | 1000 | 105.61 |
| 4 | Calcium (as Ca) | ngt | IS 3025 (Part 40) : 1991 | 75 | 200 | 45 |
| 5 | Free residual chlorine | ng1 | IS 3025 (Part 26) : 2021 | Min 0.2 | L | BDL(DL-0.1) |
| 6 | Fluoride (as F) | mg/l | IS 3025 (Part 60): 2008 | 1.0 | 1.5 | 0.54 |
| 17 | Magneerum (as Mg) | . fqm | IS 3025 (Part 46): 1994 | 30 | 100 | 16.55 |
| 18 | Nitrate (as NO ₂) | mpl | APHA method 23od edition: 2017 | 45 | No relaxation | 30 |
| .9 | Odour | + | 15 3025 (Part 5) : 1983 | Agreeable | Aurocable | Agreeable |
| 10 | pH | | 15 3025 (Part 11) : 1983 | 5.5 to 8.5 | No relocation | 7.24 at 25%C |
| 311.5 | Sulphate (as SO ₄) | - ngi | IS 3025 (Part 24) : 1986 | 200 | 400 | 36.05 |
| .12 | Total dissolved solids | ferr | IS 3025 (Part 16) : 1984 | \$00 | 2000 | 376 |
| 13 | Turbidity | NTU | IS 3025 (Part 10) 1984 | 1 | 5 | 0.2 |
| 14 | Total hardness (ns CaCO ₂) | mpl | IS 3025 (Part 21) : 2009 | 200 | 600 | 61.56 |
| 11 | Chemical Testing 2. Residues In | Water- | | | | |
| 15 | Arsenic (as As) | figm | IS 3025 (Part 37) 1988 | 0.01 | Notehration | BDL (DL = 0.01) |
| 16 | Aluminium (as Al) | ngt | IS 3025 (Part 2) 2019 / IS 3025 (Part 55) 2003 | 0.03 | 0.2 | BDL (DL + 0.01) |
| 17 | Boron (as B) | fight | IS 3025 (Part 2): 2019 | 0.5 | 2.4 | BDL (DL - 0.01) |
| 18 | Copper (as Cu) | Fgm | 15 3025 (Part 2) : 2019 | 0.05 | 1.5 | BDL (DL - 0.03) |
| 19 | Cadmium (as Cil) | ingit . | IS 3025 (Part 2): 2010 | 0.003 | No relaxation | BDL (DL - 0.001 |
| 20 | Iron (as Fe) | tight | IS 3025 (Part 2) : 2019 | 1.0 | No relation | BDL (DL - 0.01) |
| 21 | Lend (as Pb) | Tight | IS 3025 (Part 2): 2019 | 8.01 | No relaxition | BDL (DL-0.001 |
| 22 | Manganese (as Mn) | 1102 | IS 3025 (Part 2): 2019 | 0.1 | 0.3 | BOI. (DI0.05) |
| 23 | Niekof (az Ni) | ngi | IS 3025 (Part 2) : 2010 | 0.62 | No-relaysticat | 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) | trig 9 | 15 3025 (Part 2) : 2019 | 0.05 | No relaxation | BOL (D) 0.03 |
| 26 | Zinc (as Zn) | mail | IS 3025 (Part 2) : 2010 | 5 | 15 | BOL (DL - 0.1) |

NOTE: • Please are unumark. "Origon! Test Report" to restlemently of the report. • Results shall be referred to transform (and payliculate to tested parameters only. • Test opport dual not be reproduced encept in Ed webert prior writes approxil of Assess Labels of Labels of Assess Labels of As

REMARKS: As required by the clicus, sample visas tested for direct parameters role. Sample rangebra with 15:10500:2012 Specification. For role conducted, indirecting that it is fit for directing purpose with respect to tested permanences

Shubhangi Annarkar Technical Manager

Verified By Shashikant Satdeve Sr. Chemist

END OF REPORT-

Authorized Signatury aan Dr. (Mrs.) S.D. Garway Quality Manager



Thanks for putting in your faith and trust in our services, We at Anacon Laboratories cherish our relationship.

We put in a lot of hard work to ensure that you have a seamless experience at every step of our relationship. in order to ensure that your next experience will be significantly better, we welcome your feedback over email on feedback@anacon.in

Anacon Laboratories Pvt. Ltd. Nagpur Lab



Anacon Laboratories Pvt. Ltd.

9 FP-34, 35, Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122 5+91 8045685558 @ Email : info@anacon.in @ https://www.anaconiaboratories.com

Test Report

| Test Report No. 1 ALPL/06062022/07-9 | | Dated 06.0 | 6 2022 | | | Page 1 of 1 | |
|---|--------------------------|---|---|------------------------------------|--------------------------------|----------------------------|--|
| Issaed To : Western Coalfields Limited, Nagpur Fitala Road, Coal Estate, Civil Lines, Negpur, WCL, HQ, (M.S.) - 440001 | Sampi Jowan Refere | e Inward No. d Dute nce Letter | ALPL/28052022/W-1/35-9 28.05.2022 Wei-hq-env-e01-2021 22,Dt-28.07.2021 | | Analysis Start Analysis End | 28.05.2022 06.06.2022 | |
| 1 | | A CARACTER CONTRACTOR OF THE CARACTER CONTRACT | | Sample Categor | | Water | |
| Sample Name Ground water | Same WELL | Sample Particulary / Details WELL D: M-14B (MAJRI AREA) | | Purpose of anal Ground Water Cu | | Quantity Received | |
| Sample Collected By Anaone Ldb Representative Mr. Mahesh Maharle | | Sampling Dat Sampling Tim | ampling Date 12:05:2022 ampling Time 11:50m | | 50 | Sampling Location MAIRI | |
| Tests Required: Chemical Testing. | 0.110.000 | | | | | dis that | |
| The second s | | PPPP | PROPERTY AND ADDRESS | | | | |

| S.N. Test Parameter | | Measurement Unit | Test Method | Require IS 109 (Drinking Wa Including As | ment as per 00 : 2012 ter Specifications} mendment No. 3 | Test Result |
|---------------------|--|---------------------|--|---|---|------------------|
| | | | | Acceptable Limit | Permissible Limit# | |
| 1 | Chemical Testing 1. Water | | | | | |
| -31-3 | Altalinity (as CaCO ₃) | ligm. | IS 3025 (Part 23) : 1986 | 200 | 600 | 132 |
| 2 | Colour | Hazen unita | 15 3025 (Part 4) : 2021 | 5 | 15 | 1 |
| 3 | Chiloride (as Cl) | mg/l | IS 3025 (Part 32) 1988 | 250 | 1000 | 107.50 |
| - 4 | Calcium (as Ca) | marl | IS 3025 (Part 40) : 1991 | 75 | 200 | 48 |
| 5 | Free residual chlorine | mp1 | 1S 3025 (Part 26) : 2021 | Min 0.2 | 1 | BDL (DL-0.1) |
| 6 | Fluoride (as F) | mg/t | IS 3025 (Part 60) : 2008 | 1.0 | 1.5 | 0.53 |
| - CT | Magnesium (as Mg) | mgd | 18 3025 (Part 46) : 1994 | 30 | 100 | 10.71 |
| .8 | Nitrate (as NO ₅) | mg/l | APHA suthed 23rd edition: 2017 | 45 | No relaxation | 47.70 |
| 9 | Odour | 3 (1988 1) | IS 3025 (Part 5) : 1983 | Agreenble | Agreeable | Agreeable |
| 10 | pH | 1 . TV | IS 3025 (Part 11): 1983 | 6.5108.5 | No relaxation | 7.24 at 25°C |
| 11 | Sulphate (an SO ₄) | mg/l | 1S 3025 (Part 24): 1986 | 200 | 400 | 41.58 |
| 12 | Total discolved solids | mgil | 1S 3025 (Part 16) : 1984 | 500 | 2000 | 349 |
| 13 | Turbidity | NTU | 15 3025 (Part 10) : 1984 | 1 | 5 | 0.3 |
| -14 | Total hardness (as CaCO ₄) | ingl | IS 3025 (Piet 21): 2009 | 200 | 600 | 38.71 |
| ш | Chemical Testing 2. Residues In | Water | | | | |
| 15 | Assenic (as As) | mpl | IS 3025 (Part 37) ; 1988 | 0.01 | No relation | BDL (DL - 0.01) |
| 16 | Aluminium (ze Al) | figm | IS 3025 (Part 2) : 2019 / IS 3025 (Part 55): 2003 | 0.03 | 0.2 | BDI, (DL = 0.01) |
| 17 | Boron (as B) | mp1 | IS 3025 (Part 2) 2019 | 0.5 | 2.4 | BDL (DL - 0.01) |
| . 18 | Copper (as Cu) | ngd | 15 3025 (Part 2): 2019 | 0.65 | 15 | BDL (DL - 0.03) |
| 19 | Codmium (as Cd) | mg1 | 15 3025 (Part 2) : 2019 | 0.003 | No relaxation | BDL (DL + 0.8015 |
| 20 | hun (as Fe) | fgm | IS 3025 (Part 2) : 2019 | 1.0 | No relaxation | BDL (DL - 0.01) |
| . 21 | Lead (as Pb) | lam | IS 3025 (Part 2): 2019 | 0.01 | Norelaxation | BDL (DL - 2.001) |
| 22 | Manganese (as Mn) | ngi | 15 3025 (Part 2) : 2019 | 0.1 | 0.3 | BDL (DL -0.05) |
| 2) | Niekul (as Ni) | form | 15 3025 (Part 23 ; 2019 | 0.02 | No relation | BDL (DL - 0.01) |
| 24 | Selenium (as Se) | mg/l | IS 3025 (Part 56) 2003 | 0.04 | No relaxation | BDL/DL-0.001) |
| 25 | Total Chromium (as Cr) | fgm | 15 3025 (Part 2) : 2019 | 0.05 | No releastion | BDL (DL - 0.01) |
| 26 | Zinc (as Zn) | ngt | IS 3025 (Part 25: 2019 | 5 | 15 | BDL (DE = 0.13 |

NOTE: • Flass are withmesh "Original Test Report" to confirm the authorizity of this report • Rousin shall be inferred to instead surgisticitie to instead parameters only. • Test report shall not be reported on the without prior without prior without provide a function of a surgisticity of the report of a function of a surgisticity of the report of a function of a surgisticity of the report of a function of the report of the report

REMARKSta requested by the object, sample was bailed for showr parameters rate. Sample complian with His (0800)(2012) Specification, for tests resolutived, Indirating that it is fit for drinking parameters in toted parameters.

Verified By

Shubhangi Armarkar Technical Manager

Shoshikant Satdeve Sr. Chemist

END OF REPORT-

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





Anacon Laboratories Pvt. Ltd. Nagpur Lab PFP-34, 35, Food Park, Flve Star Industrial Estate, MIDC Bullbori, Nagpur, Maharashtra, India - 441 122 4+91 8045686558 @ Email : Info@anacon.in https://www.anaconlaboratories.com

Test Report

| m. No. | S- all states and states and | ALPL/28052022/W-1/35-15 28.05.2022 Wtd-Ing-env-e91-2023 22;Dt 28.07.2021 | | Water | |
|---|--|--|---|--|--|
| Sample Particulars / D VELL ID: M-23 [MAJRI | etails AREA] | Parpo | se of analysis Water Outliny | Quantity Received | |
| Sampling Date Sampling Tim | opling Date 14.05.2022 opling Time 01.30am | | Sen | npling Location | |
| in the second second second | | | | And the property in | |
| and | s, No, Sample Particulars / D ELL ID: M-23 [MAJRI Scoupling Date Scoupling Time TEST | s, No. Sample Particulars / Details ELI, ID: M-23 [MAJRI AREA] Sconpling Date 14:05:3022 Sconpling Time 01:30gm TEST RESULTS | s, No Sample Particulars / Details Purps ELL ID: M-23 [MAJRI AREA] Oroun Sampling Date 16.05.3022 Sampling Time 01.30gm TEST RESULTS | s, No. Sample Category Sample Particulars / Details ELL ID: M-23 [MAJRI AREA] Sampling Date Sampling Time 01.30gm TEST RESULTS | |

| s.N. | Test Parameter Measurement Unit | | Test Method | Require 18 105 (Drinking Wat Including Au | Test Result | |
|------|--|-------------|--|--|-----------------------|------------------|
| | | | | Acceptable Limit | Permissible Limit# | |
| 1 | Chemical Testing 1. Water | | | | | |
| 1 | Alkalinity (as CaCO ₅) | ingl | 19 3025 (Part 23) : 1986 | 200 | 606 | 171 |
| 2 | Colour | Hazon units | IS 3025 (Part 4) 2021 | 5 | 15 | 1 |
| 3 | Chloride (as Cl) | nat | 15 3025 (Part 32) 1988 | 250 | 1000 | 10938 |
| | Calcium (as Ca) | ing/l | IS 3025 (Part 40).: 1991 | 75 | 200 | 65.1 |
| 1 | Free residual chlorine | Ingil | 1\$ 3025 (Part 26) : 2021 | Min. 0.2 | 1 | BDL (DL-0.1) |
| ő | Fluoride (as F) | ingl | 15 3025 (Part 60) : 2008 | 1.0 | 1.5 | 0.52 |
| 7 | Magnesturn (an Mg) | mg/l | IS 3025 (Part 46): 1994 | 30. | 100 | 13.64 |
| 8 | Nitrate (as NO ₃) | ingi | APHA method 23rd edition: 2017 | 45 | No relaxation | 47.63 |
| 9. | Odour | | 15 3025 (Part 5): 1983 | Agreeable | Agreeable | Agreeable |
| 10 | Ht. | S | 15 3025 (Part 11): 1983 | 6.5 to 8.5 | No relaxiation | 7.10 at 25°C |
| 11 | Sulphate (as SO4) | ngî | 1S 3025 (Part 24) : 1986 | 200 | 400 | 40.95 |
| 12 | Total dissolved solids | mg1 | IS 3025 (Part 16): 1984 | 500 | 2000 | 412 |
| 13 | Turbidity | NTU | 15 3075 (Part 10) 1984 | T | 5 | 0.2 |
| 14 | Total hardness (as CaCO ₁) | Igm | IS 3025 (Part 21) : 2009 | 200 | 600 | 79.7 |
| 11 | Chestical Testing 2. Residues In | Water | | | | |
| 15 | Arsenic (as As) | ingit | IS 3025 (Part 37) 1988 | 0.01 | No relaxation | BDL (DL - 0.61) |
| 16 | Aluminium (es Al) | ngi | 15 3025 (Part 2) : 2019 / 15 3025 (Part 2) : 2003 | 0.03 | 0.2 | BDL (DL - 0.01) |
| 17 | Boron (as B) | nul | IS 3025 (Part 2) : 2019 | 0.5 | 2.4 | BDL (DL = 0.01) |
| 18 | Copper (as Cu) | ram | 15 3025 (Part 2) : 2019 | 0.05 | 1.5 | BDL (DL - 0.01) |
| 19 | Cadmaum (as Cd) | fam | 15 3025 (Part 2): 2019 | 0.003 | No relaxation | BDL (DL + 0.001) |
| .20 | Iron (os Fe) | fam . | IS 3025 (Pwt 2) : 2019 | 1.0 | No relaxation | BDL (DL = 0.01) |
| 21 | Lead (as Pb) | ng1 | IS 3025 (Part 2): 2019 | 0.01 | No reluxation | BDL (DL+0.001) |
| 22 | Manganese (us Mn) | mg1 | IS 3025 (Part 2) : 2019 | 0.1 | 0.3 | BDL (DL - 0.05) |
| 23 | Nickel (as Ni) | mg1 | 15 3025 (Piet 2) : 2019 | 0.02 | No relaxation | BDL (DL+0.01) |
| .24 | Selenium (as Se) | ngit | 1S 3025 (Part 56) : 2003 | 0.01 | No relaxation | BDL (DL + 0.001) |
| , 25 | Total Chromium (as Cr) | ngi | 15 3025 (Part 2) : 2019 | 0.05 | No relatation | BDL (DL - 0.01) |
| 26 | Zinc (as Zit) | np1 | IS 3025 (Part 2) : 2019 | 5 | 15 | BDL (DL = 0.1) |

NOTE: # Phone not writemask. "Original Tan Report" to confirm the automation of this report, # Results shall be referred to terred surgests) and applicable to terred parameters (set). # Terreport thall not be represented except in Rd without print writema approval of Assesses (area). It is the terres to be the terres of terres of the terres of terres of the terres of terres of the terres of the terres of teres of terres of teres of t

REMARKS: As requested by the circle, mouth was insted for above parameters indy. Gaugale catagolies with 05 to0000 that hyperfluenties, for items conducted, indicating that it is fit for detailining property with respect to tested parameters

Shubhangi Armarkar

Verified By Shashikant Satdeve

Technical Manager

Sr. Chemist END OF REPORT-

Authorized Signatury yau Dr. (Mrs.) S.D. Garway Quality Mnnager





Anacon Laboratories Pvt. Ltd. Nagpur Lab PFP-34, 35, Food Park, Five Star Industrial Estate, MIDC Bullbori, Nagpur, Maharashtra, India - 441 122 4 + 91 8045685558 # Email : info@anacon.in @ https://www.anacontaboratories.com

Test Report

| Issued To : Western Coalfields Limited, Nagpur Panalo Road, Coal Escore, Civil Lines, Nagpur, WCL HO, (M.S.) - 44000) | | Doted 04.0 ple Inward No. ord Date rence Latter No. | ALPL/28052022/W 28.05.2022 Wd-bg-etv-e01-20 22;Dt-28.07.2021 | ALPL/28052022/W-1/35-16 28.05.2022 Wel-hg-etw-e01-2021 12.Di-28.07.2021 | | Page 3 of 1 28.05.2022 06.05.2022 |
|--|-------------|---|---|--|---------------------------------|--|
| Sample Name Ground water | Sar WILL | nple Particulars / I ID: M-23A [MAJR | Details I AREAL | Purpe | se of analysis Water Ocality | Quantity Received |
| Sample Collected By Aracon Lab Representative Mr. Mahash N | abarle | Sampling Date Sampling Tim | ig Date 15:05:2022 | | 5 | apling Location |
| Tests Required: Chemical Testing. | | A served to the served | | | | and and an and a state of the s |
| | - S. | TEST | RESULTS | | | |

| s.N. | Test Parameter | Test Parameter Measurement Unit Test Method | | Require 15.10 (Drinking Wa Including Au | Test Result | |
|------|--|--|---|--|------------------------|------------------|
| | | | | Acceptable | Permissible Limit # | |
| 1.1 | Chemical Testing L Water | | | the second second | | - |
| 1.1 | Alkalinity (as CaCO ₁) | trig/l | 15 3025 (Part 23) : 1986 | 200 | 600 | 167 |
| - 2 | Colour | Hazen units | IS 3025 (Part 4) 2021 | 3 | 15 | 1 |
| 3 | Chloride (as Cl) | ng/1 | IS 3025 (Part 32) 1988 | 250 | 1000 | 113.16 |
| 4 | Calcium (as Ca) | 110/1 | 15 3025 (Part 40) : 1991 | 75 | 200 | 66.0 |
| 3 | Fine residual chlorine | trg/T | 18 3025 (Part 26) : 2021 | Min. 0.2 | 1. | BDL (0L-0.1) |
| ÷ | Fhioride (as F) | 169/1 | IS 3025 (Part 60) : 2008 | 1.0 | 1.5 | 0.53 |
| - 7 | Magnesiunt (as Mg) | #B/I | IS 3025 (Part 46) 1994 | 30 | 100 | 14.61 |
| 8 | Nitrate (as NO ₄) | Pan | APHA method 23rd edition: 2017 | 45 | No relaxation | 46.63 |
| . 9 | Odour | | IS 3025 (Part 5): 1983 | Agreeable | Agreeable | Agreeable |
| 10 | pH | | 18 3025 (Part 11) : 1983 | 6.5 10 8.5 | No relation | 7.00 at 25%C |
| 144 | Sulphate (as SO ₈) | ngi | IS 3025 (Part 24) : 1986 | 200 | 400 | 38.50 |
| 12 | Total dissolved solids | 1/40 | 15 3025 (Part 16) 1984 | 500 | 2000 | 410 |
| 11 | Turbidity | NTU | IS 3025 (Part 10) 1984 | 1 | 5 | 01 |
| 14 | Total hundress (ns CaCO ₂) | ngn | IS 3025 (Part 21) : 2009 | 200 | 600 | \$0.6 |
| н | Chemical Testing 2. Residues In | Water | | | | |
| 15 | Arsenic (as As) | mgi | 15 3025 (Part 37) : 1988 | 0.01 | No relaxation | BDC/DL+0.011 |
| lõ | Aluminium (an Al) | nga | 18 3025 (Part 2): 2019 / 18 3025 (Part 55): 2003 | 0.03 | 0.2 | BDL (DL + 0.01) |
| 17 | Boron (as B) | 110 | IS 3025 (Part 2): 2019 | 0.5 | 24 | BDL (DL - 0.01) |
| 18 | Copper (as Cu) | igm | IS 3025 (Part 2): 2019 | 0.05 | 1.5 | BDL (DL -0.03) |
| 19 | Cadmium (as Cd) | ingi i | IS 3025 (Part 2) : 2019 | 0.003 | No relaxation | BDL (DL - 0.001) |
| 20 | Iron (as Fe) | ngi | IS 3025 (Part 21: 2019 | 1.0 | No relaxation | BDL (DE +0.01) |
| 21 | Lead (as Pb) | right | IS 3025 (Part 2) : 2019 | 0.01 | No relayation | BDL (DE - 0.001) |
| 22 | Manganese (as Mit) | lgn | IS 3025 (Part 2) : 2019 | 0.1 | 0.3 | BDL (DL -0.05) |
| -23 | Nickel (as Ni) | ngi | IS 3025 (Part 2) : 2019 | 0.02 | No relaxation | BDL (DL + 0.01) |
| 24 | Selemium (as Se) | ign | 18 3025 (Part 56) : 2003 | 0.01 | No relaxation | BDL (DL = 0.001) |
| 25 | Total Chepmium (as Cr) | light | IS 3025 (Part 2) : 2019 | 0.05 | No relaxation | BDL (DL = 0.01) |
| + 26 | Zinc (as Zit) | ngi | 1S 3025 (Part 2): 2019 | 5 | 15 | BOL (DL - 0.1) |

NOTE:
 Finance set subservants, "Original Ten Report" to confirm the automicity of this report ® Results shall be infinited to standardized and applicable in model personation only.
 The report shall not be reprinted on the report of the Report "to confirm the automicity of this report shall be infinited to standardized and applicable in model personation of y.
 The report shall not be reprinted on the report of the Report "to confirm the automicity of this report of the report

REMARKS: As required by the glass, sample was tested for above parameters only. Sample samples with 55 (1990) 2011 Specification, for tests conducted, indicating that it is fit for delaking parameters in respect to tested par

Verified By Shubhargi Amarkar Sheshikant Satdeve

Technical Manager

Sr. Chemist END OF REPORT-

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



ANACON

Anacon Laboratories Pvt. Ltd.

Anacon Laboratories Pvt. Ltd. Nagpur Lab

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Test Report

| Issued To : Western Coalifields Limited, Nagpur Funda Road, Coal Estare, Civil Lines, Nagpur, WCL HQ: (M.S.)- 440001 | | e Inward No. d Date sace Letter o. | ALPL/28052022/W-1/35-20 28/05/2022 Wol-hq-enr-e01-2021 22,Dr:28/07/2021 | | Analysis Start Analysis End Samula Category | 28.05.2022 06.06.2022 Water Quantity Received |
|---|---------|---|--|---|---|--|
| Sample Name Ground water | Sam | ple Particulars / Details ID: M-27 MAJRI AREA] | | Purpose of analysis Ground Water Quality | | |
| Sample Collected By Anacon Lab Representative Mr. Mahosh Maharle | | Sampling Data Sampling Tim | ing Date 16.03.2022 Ing Time 12.55pm | | Sa | upling Location SUMTHANA |
| Tests Required: Chemical Testing. | 1000049 | ALCONTRACTOR DE | Standard States | | | 1000 0000000 |

| <u>s.n.</u> | Test Parameter | Test Parameter Measurement Unit | | Require ES 105 (Drinking Wa Including Ar | Test Result | |
|-------------|--|---------------------------------|--|---|------------------------|-------------------|
| | | | | Acceptable Limit | Permissible Limit # | CONTRACTOR - |
| 11 | Chemical Testing L Water | | | | | |
| 10 | Alkalinity (as CaCO ₃) | ngt | IS 3025 (Part 23): 1986 | 100 | -600 | 147 |
| 1 | Colour | History units | IS 3025 (Part 4) 12021 | 5. | 15 | 1 |
| - 3 | Chloride (as Cl) | mg/l | 15 3025 (Part 32) 1988 | 250 | 1000 | 115.04 |
| 1.04 | Calcium (as Ca) | ngit | IS 3025 (Part 40) : 1991 | 75 | 200 | 69.2 |
| - 5 | Free residual chlorine | Pager | IS 3025 (Part 26) : 2021 | Min. 0.2 | 1 | BDL (DL-0.1) |
| - 6 | Plaoride (as F) | 1/gm | IS 3025 (Part 60) 2008 | 1.0 | 1.5 | 0.54 |
| 7 | Magnesium (as Mg) | 100/1 | IS 3025 (Part 46): 1994 | 30 | 100 | 11.69 |
| 8 | Nitrate (as NO ₃) | Pam | APHA method 23rd edition: 2017 | 45 | No relaxation | 32.85 |
| - Q | Odeur | | 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) | mgil | LS 3025 (Part 24) : 1986 | 200 | 400 | 47.19 |
| 12 | Total dissolved solids | maji | 15 3025 (Part 16) : 1984 | 500 | 2000 | 393 |
| 13 | Turbidity | NTU | IS 3025 (Part 10) : 1984 | 1 | 5 | 0.3 |
| 14 | Total hardness (as CaCO ₁) | rog/l | IS 3025 (Part 21) : 2009 | 200 | 000 | 80.9 |
| н | Chemical Testing 2. Residues In | Water | | | | |
| 15 | Arsenic (as As) | mg/l | 15 3025 (Part 37) : 1988 | 0:01 | No relaxation | BDL (DL - 9.01) |
| 16 | Alumintum (as Al) | nga | IS 3025 (Part 2) : 2019 / IS 3025 (Part 55): 2003 | 0.03 | 0.2 | BDL (DL - 9.01) |
| 17 | Borott (as B) | ngil | IS 3025 (Part 2) : 2019 | 0.5 | 2.4 | BDL (DL - 0.01) |
| 18 | Copper (as Cu) | mgd | IS 3025 (Part 2): 2019 | 0.05 | 1.5 | BOL (DL - 0.03) |
| 19 | Cadmium (as Cd) | maji | 15 3025 (Part 21: 2019 | 0.005 | No relevation | BOI. (DL - 0:001) |
| 20 | dron (as Fe) | Ingit | IS 3025 (Part 2): 2019 | 1.0 | No relaxation | BDL (DL - 0.01) |
| 21 | Lead (ns Pb) | ma/l | 18 3025 (Part 2): 2019 | 0.01 | No relaxation | BDL (DL + 0.001) |
| 22 | Manganese (in Mn) | mg/l | IS 3025 (Part 2): 2019 | 0.1 | 03 | BOL (DL - 0.05) |
| 23 | Nickel (nr Ni) | figm | IS 2025 (Part 2): 2019 | 0.02 | No relaxation | BOL (DL - 0.01) |
| .24 | Selenium (as Se) | mgri | IS 3025 (Part 56) : 2003 | 0.01 | No relaxation | BDL (DL-0.001) |
| 25 | Total Chromium (ns Cr) | mgi | 15 3025 (Part 2) - 2019 | 0.05 | No relaxation | BDL (DL - 0.03) |
| 26 | Zine (as Zn) | lam l | IS 3025 (Part 2) : 2019 | 5 | 15 | BDL (DL+0.1) |

REMARKS: As organized to the client, sample was bened for above parameters only. Sample camples with 15: 000012812 Specification, for texts conducted, indicating that it to Tr fac drinking parpear with request to insted parameters.

Verified By

Shubbangi Armarkur Technical Manager

Shishikant Satdeve Sr. Chemist

END OF REPORT-

Authorized Signatory your

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



Thanks for putting in your faith and trust in our services, We at Anacon Laboratories cherish our relationship. We put in a lot of hard work to ensure that you have a seamless experience at every step of our relationship.

in order to ensure that your next experience will be significantly better, we welcome your feedback over email on feedback@anacon.in



Anacon Laboratories Pvt. Ltd. Nagpur Lab PFP-34, 35, Food Park, Five Star Industrial Estate. MIDC Butlbori, Nagpur, Maharashtra, India - 441 122 4+91 8045686558 @ Email : info@anacon.in G https://www.anaconlaboratories.com

Test Report

| Test Report No. 1 ALPL/06062022/07-2 | 1 | Dated 06.0 | \$ 2022 | | | Page 1 of 1 | |
|---|---------------------|--|---|------------------|------------------------------------|--------------------------|--|
| Issued To : Western Coalfields Limited, Nagpar Funla Road, Cool Entate, Civil Lines, Nagnar, WCL HQ. (M.S.) - 440001 | Sam Jawa Refe | ple Ioward No. ard Date rence Letter | ALPL/28052022/W 28.05.2022 Wel-hq-en+c01-20 22.0t:28.07.2021 | -1/35-21 (2.1 | Analysis Start Analysis End | 28.05.2022 06.06.2022 | |
| | Inv. | No. | | A | Sample Category | Water | |
| Sample Name Ground water | Sar | mple Particulars / I & ID: M-31 (MAJRI | AREA | Parp | ase of analysis d Water Quality | Quantity Received | |
| Sample Collected By Anaton Lab Representative Mr. Maine | ih Maburke | Sampling Data Sampling Tim- | 16.05.2022 03.20pm | | Sar | apling Location | |
| Tests Required: Chemical Testing. | | | Change State | | | La sere de la la | |
| Therefore a state of the state of the state | | TEST | RESULTS | - N.1 | | | |

| 5.N. | Test Parameter | Measurement Unit | Text Method | Require IS 102 (Drinking We Including A) | ment as per 00 : 2012 ter Specifications) mendment No. 3 | Test Result | |
|---------|--|---------------------|---|---|---|------------------------|--|
| _ | | 1110208 | | Acceptable Limit | Permissible Limit# | 1.1. (2010) 12:480° (1 | |
| 1 | Chemical Testing I. Water | | | | | | |
| 1.1 | Alkalinity (as CaCO ₃) | ligm . | IS 3025 (Part 23) : 1986 | 200 | 600 | 145 | |
| - 2 | Colour | Hazen units. | IS 3025 (Part 4): 2021 | 5 | 15 | 1 | |
| 1 | Chloride (as Cl) | mpi | IS 3025 (Part 32) :1988 | 250 | 1000 | 111.27 | |
| -04 - L | Celcium (as Ca) | nad | 18 3025 (Part 40) : 1991 | 15 | 200 | 714 | |
| 3 | Free residual chioring | næt | IS 3025 (Part 26) : 2021 | Min 0.2 | 1000 | BDL(DL-0.1) | |
| 6 | Fluoride (as F) | mp1 | IS 3025 (Part 60) : 2008 | 1.0 | 1.5 | 0.58 | |
| 7 | Magnesium (as Mg) | ing/l | IS 3025 (Part 46): 1994 | 30 | 100 | 20.45 | |
| 8 | Nitrate (as NO ₃) | mgi | APHA method 23rd edition: 2017 | 45 | No relaxation | 46.88 | |
| 9 | Odour | S 199 | IS 3025 (Part 5): 1983 | Agreeable | Autoshie | Amaaable | |
| 10 | 19H | | IS 3025 (Part 11) : 1983 | 6.5 to 8.5 | No relaxation | 7.14 at 25% | |
| 11 | Sulphate (as SO ₄) | mg/l | 15 3025 (Part 24) : 1986 | 200 | 400 | 18.76 | |
| 12 | Total dissolved solida | mg/l | 15 3025 (Part 16) : 1984 | 500 | 2000 | 1046 | |
| 13 | Turbidity | NTU | 1S 3025 (Port 10): 2984 | 1 | . 1 | 0.4 | |
| -14 | Total hardness (as CaCO ₄) | mg1 | 15 3025 (Part 21) : 2009 | 200 | 600 | 97.95 | |
| 11 | Chemical Testing 2. Residues In | Water | | | | | |
| 1.5 | Arsenic (ai Aa) | mg/l | 15 3025 (Part 37) : 1988 | 0.01 | No relevation | BDL (DL - 0.01) | |
| 16 | Aluminium (as Al) | mg/1 | IS 3025 (Part 2) : 2019/ IS 3025 (Part 55): 2003 | 0.03 | 0.2 | BEX. (Di 0.01) | |
| 17 | Boron (as B) | mg/l | IS 3025 (Part 2) 2019 | 0.5 | 24 | BD2.000.0001 | |
| 18 | Copper (as Cu) | mgd | 18 3025 (Part 2): 2019 | 0.85 | 15 | BDL (DL +0.03) | |
| 10 | Cadmium (as Cd) | mg/l | 15 3025 (Part 21: 2019 | 0.003 | No relaxation | BOLIDE . 0.001 | |
| 20 | Iron (as Fe) | ma/1 | 15 3025 (Part 21: 2019 | 1.0 | No relacation | BDL (DL - 0.01) | |
| 21 | Lead (as Pb) | ing/ | IS 3025 (Part 2): 2019 | 0.01 | No relocation | BDL (DL - 0.001) | |
| 22 | Manganese (as Mn) | Ingel | 18 3025 (Purt 2) : 2019 | 0.1 | 0.1 | BDL/DL - 0.053 | |
| 23 | Nickel (sa Ni) | ham | 15 9023 (Part 21: 2019 | 0.02 | No relevation | BOR (DL -0.00) | |
| 24 | Selenium (as Se) | ima/1 | IS 3025 (Part 56) : 2003 | 0.01 | No relocation | BDL (DL-0.001) | |
| 25 | Total Chromium (as Cr) | mg/l | 15 3025 (Part 2): 2019 | 0.05 | No relocation | BDL (DL 0.03) | |
| 26 | Zine (in Zn) | ma/1 | IS 3025 (Part 2): 2019 | 5 | 15 | BDL (DL + 0.03) | |

NDTE: • Plasan see sourceast. "Organi Tee Reper" to confirm the automaticity of this report * Results shall be referred to mend recepted) and applicable to water permeters only. • Test report dual on the reproduced encept in full without prior untime approval of Association 4. • Association of the interval of association of the interval of association of the interval of the inte

REMARKS: As required by the client, sample was tested for done premeters only. Sample coughas with 35:16004.0012 Specification, for tests resolution, indicating that is in fit for driving purpose with respect to **inted** parameters

tun Shubhungi Armarkar Technical Manager

Verified By

Shashikant Satdeve Sr. Chemist

END OF REPORT-

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



Anacon Laboratories Pvt. Ltd. Nagpur Lab



Anacon Laboratories Pvt. Ltd.

9 FP-34, 35, Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122 4+91 8045685558 @ Email : info@anacon.in @ https://www.snaconiaboratories.com

Test Report

| Issued To 1 Western Coalfields Limited, Nagpur Putnin Road, Coal Entite, Civil Lines, Nagpur, WCL IQ (M.S.) - 440001 | Sample Inward No. Inward Date Reference Letter | ALPL/28052022/9 28.05.3022 Wel-hq-mv-e01-30 32;Dc.28.07.3021 | (-1/35-22 (21 | Analysis Start Analysis End | 28.05.2022 06.06.2022 | |
|---|---|---|------------------|--------------------------------|---------------------------|--|
| Sample Name Ground water | Sample Particulars/ WELL ID: M-328 [MAJ | Details IU AREA] | Purpe | t Water Quality | Quantity Received | |
| Sample Collected By Anacon Lab Representative Mr. Mahesh Mah | sempling De Sempling Ti | 6e 17.05.2022 ne 30.30em | | Sam | pling Location NORWASA | |
| Tests Required: Chemical Testing, | The second se | | | | | |
| | TES | TRESULTS | | | | |

| s.N. | Test Parameter Measurement Unit | | Test Method | Require 18 105 (Drinking Wa) Including As | Test Result | |
|---------|--|-----------------|---|--|-----------------|------------------|
| | | | | Acceptable | | |
| 1 | Chemical Testing 1. Water | - Second Second | | | | |
| 1 | Alkalinity (as CaCO ₆) | mg/l | IS 3025 (Part 23) : 1986 | 200 | 600 | 126 |
| 2 | Colour | Hazen anits | IS 3025 (Part 4): 2021 | | 15 | 1 |
| - 3 | Chioride (as Cl) | mg/l | IS 3025 (Part 32) :1988 | 250 | 1000 | 120.70 |
| · 4 · . | Calcium (as Ca) | ing/1 | 15 3025 (Part 40) : 1991 | 75 | 200 | 22.61 |
| - 3 | Free residual ablavine | mg/l | 15 3025 (Part 26) : 2021 | Min 0.2 | 1.5 | BDL (DL-0.5) |
| - ti | Fluoride (as F) | mg/l | 15 3025 (Part 60) : 2008 | 1.0 | 1.5 | 0.54 |
| 7 | Magnesium (as Mg) | mpl | IS 3025 (Part 46): 1914 | 30 | 100 | 18.5 |
| 8 | Nitrate (an NO ₃) | mg1 | APHA method 23rd edition: 2017 | 45 | No relaxation | 40 |
| 9 | Odour | | IS 3025 (Part 5) : 1983 | Agreeable | Agrecable | Agreeable |
| 10 | pH. | 0.14 | 1S 3025 (Part 11) 1983 | 0.5 to 8.5 | No relaxation | 7.13 at 25°C |
| 11 | Sulphate (as SO ₄) | mpi | 15 3025 (Part 24) 1986 | 200 | 400 | 41.34 |
| 12 | Total dissolved solids | ngi | IS 3025 (Part 16): 1984 | 500 | 2000 | 417 |
| 13 | Tabidiy | NTU | IS 3025 (Part 10) : 1964 | 1 | 5 | 0.3 |
| 14 | Total hardness (as CaCO ₁) | -mg1 | IS 3025 (Part 21): 2009 | 200 | 500 | 41.12 |
| 11 | Chemical Testing 2. Residues In | Water | and the second second second second | Vil manage i | Contraction and | and all a summer |
| 15 | Ametic (as As) | ngi | IS 3025 (Part 37): 1988 | 0.01 | No relation | BDL (DL - 0.01) |
| 16 | Aluminium (as Al) | Pgm | 1S 3025 (Part 2): 2019 / 1S 3025 (Part 55): 2003 | 0.03 | 0.2 | BDL (DL - 0.01) |
| 17 | Bornet (ns B) | ngi . | IS 3025 (Part 2) 2019 | 0.5 | -24 | BDL (DL-0.01) |
| 18 | Copper (as Cu) | mp/ | IS 3025 (Part 2): 2019 | 0.05 | 15 | BDL (DL-9.83) |
| 19 | Cadmium (as Cd) | 1ett | 15 3025 (Part 2) : 2019 | 0.003 | No relaxation | BDL (DL - 9.001) |
| 20 | tron (as Fe) | Fight | 15 3025 (Part 2): 2019 | 1.0 | No relaxation | BDL (DL + 0.01) |
| 21 | Lead (as Pb) | mgl | IS 3025 (Part 2): 2019 | 0:01 | No relaxation | BDL (DL - 0.001) |
| 22 | Manganese (as Mn) | P.gm | (S 3025 (Part 2) : 2019 | 0.1 | 0.3 | BDL (DL-0.05) |
| 23 | Nickel (m Ni) | Rem | IS 3025 (Part 2): 2019 | 0.02 | No relaxation | BDL (DL -0.01) |
| 24 | Selenium (as Se) | Ing/I | IS 3025 (Part 56): 2003 | 0:01 | No relaxation | BOL (01-0.001) |
| 25 | Total Chromium (as Cr) | ngil | (S 3025 (Part 2): 2019 | 0:05 | No relaxation | BOL (DL + 0.03) |
| 26 | Zine (as Zii) | ring/1 | IS 3025 (Part 2): 2019 | 3 | 15 | BDL (DL-0.1) |

SOTE: * Finances we watermork "Original Tate Report" to confirm this advantative all the related shall be released to rested sample(s) and replicable to tested parameters only. * Test report that not be repredeced ecorpt in full where prior writes appended of Assam Lake # LakeBay of Assam Lake is beinged to invested sensitively. * Son-percebule and percebule and percebule and analysis) shall be disposed of after 20 equations for the report wite to one of Test Report, units appended and the related deviation is advanted of in the rest exception of the disposed and the relation of the report of the disposed and the relation of the report of the disposed of the relation of the relation of the relation of the report of the disposed of the relation of the rel

REMARKS: Arrogenised by the clevel, surgely retrigited for these parameters only. Sample roughes with \$5(18598201) Specification, for tests conducted, todicating that it is \$1 for detailing purpose with respect to tritted personations.

Verified By

Shuhifungi Armarkar Technical Manager

Shashikant Satdeve Sr. Chemist

END OF REPORT-

Authorized Signatory yan Dr. (Mrs.) S.D. Gerway

Quality Manager





Anacon Laboratories Pvt. Ltd. Nagpur Lab

9 FP-34, 35, Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122 4+91 8045685558 # Email : info@anacon.in O https://www.anaconlaboratories.com

Test Report

| ssued 16 - Western Coalfields Limited, Nagpur 'unus Roud, Coal Estate, Civil Lenes, Vagpue, WCL HQ. (M.S.) - 440001 | Samp Iswa Refer | de Inward No. rd Dats suce Letter | 1 Date 28.05.2022 Wel-bq-env-e01-2021 22,04:28.07.2021 | | Analysis Start Analysis End | 28.05.2022 06.06.2022 |
|--|-----------------------|---|--|-------|--------------------------------|--------------------------|
| | Inv. 1 | ía. | | | Sample Category | Water |
| Sample Name Ground water | San WELL | ple Particulars / D ID: M-35 [MAJR] | Netails [AREA] | Purpi | use of analysis Quantity R | |
| Sample Collected By Annoon Lab Representative Mr. Mohesh | Mahurle | Sempling Dat Sempling Tim | r 18.05.2022 iii 12.30pm | | San | pling Location |
| Fests Required: Chemical Testing. | | | | - | | TANK |

| S.N. | Test Parameter | Measurement Unit | Test Method | Require IS 105 (Drisking Wa Including As | Test Result | | |
|------|--|---------------------|---|---|------------------------|------------------|--|
| | | Contraction of the | | Acceptable Limit | Permissible Limit # | | |
| 1 | Chemical Testing 1. Water | | Solution of the sector | Contraction of the second | 1 | | |
| 1 | Alkalinity (as CaCO ₃) | ារផ្លា | IS 3025 (Part 23) 1986 | 200 | 600 | 150 | |
| 2 | Colour | Heavent carries | IS 3025 (Part 4) : 2021 | 5 | 15 | | |
| 3 | Chloride (as Cl) | rigm | 18 3025 (Part 32) (1988 | 250 | 1000 | 126.36 | |
| 4 | Calcium (as Ca) | ing1 | 1S 3025 (Part 40) : 1991 | 75 | 200 | 69.55 | |
| . 5 | Free residual chlorine | figur (| IS 3025 (Part 26) 2021 | Min. 0.2 | 1 | BDL (DL-0.1) | |
| - 6 | Fluoride (as F) | Tem 1 | IS 3025 (Part 60) - 2008 | 1,0 | 1.5 | 0.54 | |
| 7 | Magnesium (as Mg) | mp1 | IS 3025 (Part 46) 1994 | 30 | 100 | BDL (DL-2) | |
| - 8 | Nitrate (as NO ₂) | ngi | APHA method 23rd edition: 2017 | 45 | No relaxation | 40 | |
| . 9 | Odour | + | 15 3025 (Part 5): 1983 | Agreeable | Agrecable | Agreeable | |
| 10 | pH | | 1S 3025 (Part 11) : 1983 | 6.5 to 8.5 | No relaxation | 7.13 at 25%C | |
| 11 | Sulphate (as SO ₄) | ng1 | 1S 3025 (Part 24) : 1986 | 200 | 400 | 42.97 | |
| 12 | Total dissolved solids | mgt | IS 3025 (Part 16) 1984 | 500 | 1000 | 499 | |
| 13 | Turbidity | NTU | IS 3025 (Part 10) : 1984 | 1 | 5 | 0.3 | |
| - 14 | Total hardness (as CaCO ₃) | ingn . | IS 3025 (Part 21) : 2009 | 200 | -600 | 69.68 | |
| п | Chemical Testing 2. Residues In | Water. | The second se | 100000000000000000000000000000000000000 | 1 | | |
| 15 | Amenic (as As) | Tgm | 1S 3025 (Part 37) : 1988 | 0.01 | No relatation | BDL (DL = 0.01) | |
| 16 | Aluminium (as Al) | ngi | IS 3025 (Part 2) : 2019 / IS 3025 (Part 55): 2003 | 0.03 | 0.2 | BDL (DL - 0.01) | |
| 17 | Boron (as B) | ng1 | 15 3025 (Part 2) - 2019 | 0.5 | 2.4 | BDL (DL 0.01) | |
| 18 | Copper (as Cu) | ing1 | IS 3025 (Part 2): 2019 | 0.65 | 1.5 | BDL (DL 0.03) | |
| 19 | Codmium (as Cd) | ingl | IS 3025 (Part 2): 2019 | 0.003 | No relaxation | BD1. (D10.001) | |
| 20 | Iron (as Fe) | mgt | IS 3025 (Part 2): 2019 | 1.0 | No relatation | BDL (DL = 0.0F) | |
| -21 | Leed (as Pb) | Ingi | IS 3025 (Part 2): 2019 | 0.01 | No relatation | BDL (DL = 0.001) | |
| - 72 | Marganese (as Mn) | mgl | IS 3025 (Part 2) : 2019 | 0.1 | 0.3 | BOI (DL - 0.05) | |
| 23 | Nickel (as Ni) | mgi | IS 3025 (Part 2): 2019 | 0.02 | Novelanation | BDL (DL = 0.01) | |
| 24 | Sejonium (na Se) | Injul | IS 3025 (Part 55) : 2003 | 0.01 | No relayation | BDL (DL - 0.001) | |
| 25 | Total Chromium (us Cr) | npî | 15 3025 (Part 2) (2019 | 0.05 | No orbezation | BDL (DL - 0.03) | |
| 26 | Zinc (as Zn) | fign | IS 3025 (Part 2): 2019 | 5 | 15 | BDI (DI +0.1) | |

NOTE: • Next set with remark "Dragon! Test Report" to cardina the subaratoly of the report • Receive dust for solared in standard simple() and applicable is tested parameters only. • Test report theil out be reported in registion of the report • Received in the subaratorial standard standard in the subaratorial is the standard and parameters only. • Test report theil out be reported in the subaratorial prior written approximate for the subaratorial standard in the subaratorial standard and applicable is tested parameters only. • Test report theil out be reported in the subaratorial prior written approximate for the subaratorial standard and applicable to the subaratorial standard and applicable to the subaratorial standard and applicable to the subaratorial standard applicable to the subarato REMARKS: As required to the street, metple was toxed for shore parameters sole. Sample complex with 15:18000-2013 Specification, for term readanted, indicating that it is fir for drinking purpose with respect in

insted parameters.

an

Verified By 88 C Shashikant Satdeve

Shubhengi Armarkar Technical Manager

Sr. Chemist -END OF REPORT-

Authorized Signatory 2)uan Dr. (Mrs.) S.D. Garway Quality Manuger



Anacon Laboratories Pvt. Ltd. Nagpur Lab



Anacon Laboratories Pvt. Ltd.

PFP-34, 35, Food Park, Five Star Industrial Estate. MIDC Butibori, Nagpur, Maharashtra, India - 441 122 4+91 8045685558 @ Email : Info@anacon.in A https://www.anaconlaboratories.com

Test Report

| Issued To : Western Coalfields Limited, Nagpur Fuiala Road, Coal Estate, Civil Linet, Nagnir, WCL HQ. (M.S.) - 440001 | | rence Letter | ALPL/28052022/W 28.05.2023 Wcl-hq-mv-e01-20 23;Dr-28.07.2021 | (-1/35-26 121 | Analysis Start Analysis End | 28.05.2022 06:06.2022 | |
|--|-----------|---|---|------------------|---------------------------------|--------------------------|--|
| Sample Name Ground writer | Sat | ople Particulars / I L ID: M-36 [MAIR | Details AREAL | Parpa | er of analysis Water Quality | Quantity Received | |
| Sample Collected By Aracon Lab Representative Mr. Mahesh | Malvarle | Sampling Date Sampling Tim | e 19/05/2022 e 10.30am | | Sate | ging Location GORAIA | |
| Tests Required: Chemical Testing. | on one of | | | | | Service | |
| | | TEST | RESULTS | | | | |

| S.N. | Test Parameter | Measurement Unit | Measurement Unit Test Method | | Requirement as per 15 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 3 | | |
|---------|--|---------------------|--|-----------------------|---|------------------|--|
| | | | | Acceptable Limit | Permissible Limit # | | |
| 1 | Chemical Texting 1. Water | | | and the second second | | | |
| - 1 - j | Alkalinity (as CaCO ₃) | nga | IS 3025 (Part 23) : 1986 | 200 | 600 | 152 | |
| | Colour | Hazen unita | IS 3025 (Part 4) : 2021 | 5 | 15 | 1 | |
| 3 | Chloride (as Cl) | rig/l | 18 3025 (Part 32) :1988 | 250 | 1009 | 124.47 | |
| - 4 | Calcium (as-Co) | Ngm | 15 3025 (Part 40) : 1991 | 75 | 200 | 68.12 | |
| 5 | Free residual chlorine | tmg/l | IS 3025 (Part 26) : 2021 | Min 0.2 | | BDL (DL-0.1) | |
| 6 | Fluoride (ns F) | Pant | IS 3025 (Part 60) : 2008 | 1.0 | 1.5 | 0.53 | |
| 7 | Magnesium (as Mg) | ng/l | IS 3025 (Part 46) 1994 | 30 | 100 | 2.61 | |
| - 8 | Nitrate (as NO ₃) | mg/T | APHA method 23rd edition: 2017 | 45 | No relaxation | 40 | |
| | Odour | | IS 3025 (Part 5): 1983 | Agreeable | Agreeable | Agreeable | |
| 10 | pH | | 15 3025 (Purt 11) : 1983 | 6.5 10 8.5 | No relaxation | 7.10 m 25%C | |
| 11 | Sulphate (an SO ₄) | mg1 | 15 3025 (Part 24) : 1986 | 200 | 400 | 41.41 | |
| 12 | Total dissolved solids | mg/l | 1S 3025 (Part 16) : 1914 | 500 | 2000 | 500 | |
| 13 | Turbidity | NTU | 15 3025 (Part 10) : 1984 | 1 | 5 | 0.2 | |
| - 14 | Total hundress (as CaCO ₄) | mg/l | IS 3025 (Part 21) : 2009 | 200 | 600 | 70.73 | |
| 11 | Chemical Testing 2. Residues In | Water | | St | S | | |
| 15 | Arsenie (as As) | Igm | 1S 3025 (Part 37): 1988 | 0.01 | No relaxation | BDL (DL + 9.01) | |
| 16 | Aluminium (as Al) | mgl | 15 3025 (Part 2) : 2019 / 15 3025 (Part 55): 2003 | 0.03 | 0.2 | BDL (DL-0.01) | |
| 17 | Boron (as B) | ing1 | IS 3025 (Part 2) : 2019 | 0.5 | 2.4 | BDL (DL + 0.01) | |
| - 18 | Copper (as Cu) | ingi | 15 3025 (Part 2) . 2019 | 0.05 | 1.5 | BDL (DL - 0.03) | |
| 19 | Cadmium (as Cd) | ingil | 15 3025 (Part 2): 2019 | 0.003 | No relaxation | BDL (DL-0.001) | |
| 20 | Iron (as Fe) | ligm | IS 3025 (Part 2) : 2019 | 1.0 | No relacation | BDL (DL - 0.01) | |
| 21 | Load (as Pb) | mg1 | 15 3025 (Part 2) : 2019 | 0.01 | No relaxation | BDL (DL + 0.001) | |
| 22 | Manganese (as Mn) | ing1 | 18:3025 (Pair.2) : 2019 | 0.1 | 0.3 | BDL(DL-0.05) | |
| 25 | Noticel (as N1) | mg) | 15 3025 (Part 2): 2019 | 0.02 | No reluxation | BDL (DL-0.01) | |
| 24 | Selenium (as Se) | mp1 | IS 3025 (Part 55) : 2003 | 0.01 | No relaxation | BDL (DL-0.001) | |
| 25 | Total Chromium (as Cr) | ing1 | 15 3025 (Part 2) : 2019 | 0.05 | No relasation | BDL (DL + 0.03) | |
| 26 | Zinc (as Zn) | ingi | 15 3025 (Part 2) : 2019 | 5 | 15 | BDL (DL - 0.1) | |

NOTE: • Flows are waterwark. "Original Test Report" to confirm the subscription of this report. • Examples shall be related as tased samples (i indicated as a particular to rested parameters call). • The report shall not be repeated and a confirm the subscription of Account Afric. • Lottling: of Account Afric 1 indicates in invasional assessed and ... • Non-persistential end parameters cally. • The report shall not be repeated on the report of the report of Account Afric. • Lottling: of Account Afric 1 indicates in invasional assessed and ... • Non-persistential end parameters cally. • The report shall not be repeated on the data of these processes of the Report. • Figure 1 indicates in a data and a subscription of the report of th

REMARKS: As requisited by the effect, sample was stead the above permanent only. Sample complex with the SOSSOCIES Specification, for tests conducted, tadicating that is in the deviding purpose with respect to tested parameters.

12

par-

Shubhangi Armorkur Technical Manager

Shashikant Satdeve Sr. Chumist

Verified By

END OF REPORT-

Authorized Signatury Jaan Dr. (Mrs.) S.D. Garway Quality Manager



Anacon Laboratories Pvt. Ltd. Nagpur Lab



Anacon Laboratories Pvt. Ltd.

Q FP-34, 35, Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Mahanashtra, India - 441 122 4+91 8045685858 # Email : info@anacon.in @ https://www.anaconlaboratories.com

Test Report

| Issued To : Western Coalfields Limited, Nagpur Futula Road, Coal Entite, Civil Lines, Nagpur, WCL HQ (M.S.) - 440001 | | pie Jaward No. urd Date rence Letter No. | ALPL/28052022/W 28.05.2022 Wel-hq-env-e01-20 22.Dt:28.07.2021 | ALPL/28052027/W-1/15-30 28.05.2022 Wal-bq-env-e01-2021 22.05/28.07.2021 | | 28.05.2022 06.06.2022 | |
|---|-----------|---|--|--|------------------------------------|--------------------------|--|
| Sample Name Ground water | Sar | nple Particulars / I 2. ID: M-41 (MAJR | Details AREA] | Parp | ese of analysis d Water Oaality | Quantity Received | |
| Sample Collected By Amoon Lab Representative Mr. Mahes | h Maharle | Sampling Data Sampling Tim | e 21.05.2022 e 10.30am | | Sau | wing Location | |

| 5.N. | Test Parameter | Text Parameter Measurement Unit Test Method | | Require 25 105 (Drinking Wat Including Ar | Test Result | |
|------|--|--|--|--|------------------------|------------------|
| | | | | Acceptable | Permissible Limit # | |
| 1 | Chemical Testing 1. Water | | | | | |
| 1 | Alkalinity (as CaCO ₁) | P@m . | 18 3025 (Part 23) : 1586 | 200 | 600 | 136 |
| 2 | Colour | Hazen unita | IS 3025 (Part 4) 2021 | 5 | 15 | 1 |
| 3 | Chioride (as Cl) | mg/i | IS 3025 (Part 32) 1988 | 250 | 1000 | 113.16 |
| .4 | Calcium (as Ca) | Part | IS 3025 (Part 40) : 1991 | 75 | 200 | 60.32 |
| 5 | Free residual chlocine | Egn | 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 |
| 17 | Mognesium (as Mg) | Pam | IS 3025 (Part 46) 1994 | 30 | 100 | 12.2 |
| 8 | Nitrate (as NO ₁) | 1.em | APHA method 23sl adition: 2017 | 45 | No relaxation | 40 |
| . 9 | Cidour | 1 1 1 2 C C C C | IS 3025 (Part 5): 1983 | Agreeable | Agreeable | Agreeable |
| 10 | pH | | IS 3025 (Part 11): 1983 | 6.5108.5 | No relaxation | 7.14 nt 25°C |
| -11 | Sulphate (as SO ₄) | ngi | IS 3025 (Part 24) : 1986 | 200 | 000 | 39.93 |
| 12 | Total dissolved solids | mgA | IS 3025 (Part 16) : 1984 | .900 | 2000 | 454 |
| 10 | Turbidity | NTU | 18 3025 (Part 10) : 1984 | 1 | 5 | 0.4 ~ |
| 14 | Total hardness (as CaCO ₄) | ngi | IS 3025 (Part 21) : 2009 | 206 | 600 | / 72.12 / 1 |
| ш | Chemical Testing 2. Residnes In | Water | | | | |
| 15 | Arsenie (as As) | Pgm | IS 3025 (Part 37) : 1988 | 0,01 | No relaxation | BOL (DL-0.01) |
| 16 | Aluminium (as Al) | ngi | 18-3025 (Part 2) 2019 / 18-3025 (Part 55): 2003 | 0.03 | 0.2 | BDL (DL+0.01) |
| 17 | Boren (as 0) | mgi | IS 3025 (Part 2) 2010 | 0.5 | 2.4 | BDL (DL - 0.01) |
| 18 | Copper (as Cu) | ng/l | 18 3025 (Part 2): 2019 | 0.05 | 1.5 | BOL (DL - 0.03) |
| 19 | Cadmium (as Cd) | ing/1 | IS 3025 (Part 2) : 2019 | 0.003 | No relaxation | BDL (DL - 0.001) |
| 20 | Irou (as Fe) | ma/l | IS 3025 (Part 2): 2019 | 1.0 | No relevation | BDE (D) 0.013 |
| 21 | Lead (ns Pb) | mg/l | IS 3025 (Part 2): 2019 | 0.01 | No relaxation | BOL (DL -0.001) |
| - 22 | Manganese (as Mn) | mg/l | IS 3025 (Part 2) : 2019 | 0.1 | 0.1 | BDL (DL - 0.05) |
| 23 | Nickel (as Ni) | Part | 15 3023 (Part 2) . 2019 | 0.62 | No relaxation | BOL IDL - DOL |
| 24 | Selenium (as Se) | Ingil | 15 3025 (Part 56) : 2003 | 0.01 | No relaxation | BDL (DL-0.001) |
| 25 | Total Chromium (ns Cr) | mg/l | 15 3025 (Part 2) 2019 | 0.05 | No relaxation | BDL (DL - 0.03) |
| .26 | Zine (as Zn) | mg/l | IS 3025 (Part 2) : 2019 | 5 | 15 | BDL (DL-0.1) |

NOTE:

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REMARKS: As reported to the steed, needs was tested for shore parameters only. Sample complian with IS:10000.0012 Specification, for tests conducted, indicating that it is far detailing purpose with respect to teerind partnersers.

Verified By

Shibhangi Armarkar Technical Manager

Shashikant Satdeve Sr. Chemist

END OF REPORT-

Authorized Signatory Gam Dr. (Mrs.) S.D. Garsery

Quality Manager



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

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

 Table-1

 Projectwise Land Reclamation Status in Opencast Projects of WCL

 (<5 Million cu. M coal+OB) based on Satellite Data of the year 2020-21)</td>

| Bl.Ne Technicit T | | | | | | - | | | - | | | | | | - | | - | | (Al | rea in Ha) |
|---|-------|-----------------|-------------------------|---------|---|--------|--|--------|--|--------|---|--------|-----------------------------|---------|------------|---------|--|---------|----------------------|------------|
| Si.No Project Index Eduation on Back Index Internation on Back Plantation on Executed 7 Social Forward Plantation on Executed 7 Social Forward Available Index Internation Available | SI.No | | Total Leasehold Area | | Technical Reclamation Area under Backfilling | | Biological Reclamation Plantation on Excavated / Backfilled Area | | Plantation Other Plantations | | | | | | | | Total Area under Plantation | | Total Area | |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$ | | Project | | | | | | | Plantation on External Over Burden Dumps | | Social Forestry, Avanue Plantation Etc. | | Area under Active Mining | | Area | | (% Green Cover Generated in Leasehold) | | under Reclamation | |
| end 2017 2020 2017 | 1 | 2 | 3 | 3 4 | | 4 | 5 | | 6 | | 7 | | 8 | | 9 (=4+5+8) | | 10 (=5+6+7) | | 11(=4+5) | |
| 1 Kolegaon 349.00 37.52 0.00 0.000 0.000 7.83 2.23 25.63 39.26 48.03 39.26 48.03 39.26 48.03 39.26 48.03 39.26 48.03 39.26 48.03 39.26 48.03 39.26 48.03 39.26 48.03 39.26 48.03 39.26 48.03 39.26 48.03 59.26 48.07 0.000 10.000% 10.000% 10.000% 10.000% 10.000% 10.000% 10.000% 10.000% 10.224 11.28 11.28 11.28 11.28 11.28 11.28 11.28 11.28 11.28 11.28 11.28 11.28 11.28 12.28 11.00 12.28 10.00 7.78 0.00 10.00 10.28 11.28 11.28 11.28 11.28 12.28 38.08 95.79 0 0.1107% 13.26 2.66 2.61 2.576 6.07 2.628 2.848 56.24 6.1.54 93.28 6.53 | | | 2017 | 2020 | 2017 | 2020 | 2017 | 2020 | 2017 | 2020 | 2017 | 2020 | 2017 | 2020 | 2017 | 2020 | 2017 | 2020 | 2017 | 2020 |
| m 0.00% 0.0 | 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 |
| 2 Bellora-Naigao 398.6 64.80 8.81 53.02 9.13 35.02 35.02 9.13 12.24 91.53 12.24 91.53 12.08 15.70 15.70 15.70 15.70 15.70 15.70 13.224 41.81% 3 Ghonsa 278.68 278.68 0.00 7.28 0.00 0.00% 1.00% 4.657 64.57 64.57 64.57 64.57 67.7 67.7 7.20 0.00 1.278 4.81% 4 Ballarpur 54.94 24.24 67.87 87.97 12.99 12.00 67.73 84.94 48.48 7.84 3.84% 7.84% 3.54% 5.57 2.68 1.747 11.098 13.25 4.724 38.48 7.84% 3.56% 5.57 2.68 3.614 65.57 2.686 28.17 5.14 3.14 3.44 12.64 1.64 1.843 1.843 1.843 1.843 1.843 1.845 1.655 1.555 1.555 | | | | | 0.00% | 0.00% | 0.00% | 0.00% | | | | | 100.00% | 100.00% | | | 17.09% | 24.77% | 0.00% | 0.00% |
| Image 6.25% 33.73% 6.96% 8.11% m 86.78% 58.19% m 15.21% 11.63% 13.22% 11.23% 11.63% 13.22% 11.21% 11.63% 13.22% 11.21% 11.63% 13.22% 11.21% 11.63% 13.22% 11.23% 11.20% 12.24% < | 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 |
| 3 Schonsa 278.68 278.68 0.00 7.28 0.00 0.00 0.00% 0.0 | | | | | 6.25% | 33.71% | 6.96% | 8.11% | | | | | 86.78% | 58.19% | | | 15.21% | 11.63% | 13.22% | 41.81% |
| Image Image <th< td=""><td>3</td><td>Ghonsa</td><td>278.68</td><td>278.68</td><td>0.00</td><td>7.28</td><td>0.00</td><td>0.00</td><td>2.10</td><td>2.55</td><td>4.65</td><td>4.65</td><td>46.87</td><td>60.29</td><td>46.87</td><td>67.57</td><td>6.75</td><td>7.20</td><td>0.00</td><td>7.28</td></th<> | 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 |
| 4 Ballarpur 59.64 242.64 67.73 12.99 15.00 67.73 69.49 14.03 97.4 30.12 17.47 110.98 113.26 94.75 94.23 80.86 95.78 5 Junad EXTN 420.97 49.63 34.51 2.45 2.46 36.14 65.57 26.86 28.81 65.46 61.64 95.09 95.1 65.45 96.43 35.03 2.62% 2.50% 1.0 60.47% 62.47% 1.0 1.55% 21.54% 39.39% 3.73% 6 Urdnan 315.00 0.00 1.0.20% 8.00 0.00 3.34 5.79 0.00 6.647 21.46 19.45 1.1.64% 4.00 2.00 2.00% 1.0.2% 1.0.20% 88.18% 1.0.28% 1.0.28% 1.0.00% 88.18% 1.0.28% 1.0.28% 1.0.00% 88.18% 1.0.28% 1.0.28% 1.0.28% 1.0.28% 1.0.28% 1.0.28% 1.0.28% 1.0.28% 1.0.28% 1.0.28% < | | | | | 0.00% | 10.77% | 0.00% | 0.00% | | | | | 100.00% | 89.23% | | | 2.42% | 2.58% | 0.00% | 10.77% |
| Image Network 61.6% 71.33% 11.70% 13.24% 0 27.4% 15.42% 0 17.24% 38.49% 72.86% 84.58% 5 Junad EXTN 420.97 449.63 34.51 2.45 2.46% 2.57% 2.58% 28.81 56.54 61.54 93.50 95.55% 21.5 | 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 |
| 5 Junad EXTN 420.97 449.63 34.51 34.51 2.46 36.14 65.77 26.86 28.81 56.54 61.47% 97.50 98.51 65.45 96.84 36.96 36.973 6 Urdhan 315.00 0.000 0.00 2.360 0.000 0.000 3.34 5.79 0.00 6.87 21.46 19.45 11.653 21.54 30.300 2.000 10.82% 7 Telwasa 271.91 271.91 44.61 101.67 4.68 34.20 50.71 23.62 23.62 63.64 12.58 118.93 62.07 20.064 4.02% 0.007 10.82% 7 Telwasa 271.91 24.61 10.675 36.85 12.92 118.61 150.98 96.11 96.21 86.60 95.57 221.73 231.03 24.328 276.99 135.13 135.13 135.73 8 Gouri Expn(A) 676.53 676.53 106.57 10.69 12.62% 6.27 71.92 77.79 93.65 58.91 6.78.98 61.12 10.518< | | | | | 61.16% | 71.33% | 11.70% | 13.24% | | | | | 27.14% | 15.42% | | | 17.24% | 38.84% | 72.86% | 84.58% |
| Image Image <th< td=""><td>5</td><td>Junad EXTN</td><td>420.97</td><td>449.63</td><td>34.51</td><td>34.51</td><td>2.45</td><td>2.46</td><td>36.14</td><td>65.57</td><td>26.86</td><td>28.81</td><td>56.54</td><td>61.54</td><td>93.50</td><td>98.51</td><td>65.45</td><td>96.84</td><td>36.96</td><td>36.97</td></th<> | 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 |
| 6 Urdhan 315.00 315.00 0.00 2.36 0.00 0.0 | | | | | 36.91% | 35.03% | 2.62% | 2.50% | | | | | 60.47% | 62.47% | | | 15.55% | 21.54% | 39.53% | 37.53% |
| Image Image <th< td=""><td>6</td><td>Urdhan</td><td>315.00</td><td>315.00</td><td>0.00</td><td>2.36</td><td>0.00</td><td>0.00</td><td>3.34</td><td>5.79</td><td>0.00</td><td>6.87</td><td>21.46</td><td>19.45</td><td>21.46</td><td>21.81</td><td>3.34</td><td>12.66</td><td>0.00</td><td>2.36</td></th<> | 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 |
| 7 relwasa 271.91 271.91 44.61 101.67 4.68 34.20 50.71 23.62 23.62 69.64 12.88 118.93 62.00 79.01 49.29 8 Gouri Expn(A) 67.63 67.53 70.53 85.49% 3.94% 2.920 11.81 15.08 96.21 96.21 96.26 10.58 10.58 21.73 23.13 23.29 29.06% 41.448 89.29% 8 Gouri Expn(A) 67.64 86.59 10.58 10.58 10.58 10.58 21.73 23.13 23.29 29.06% 41.248 89.29% 9 Bhatadi 838.14 847.37 21.27 21.94 0.00 12.62% 10.7 73.47 23.66 76.98 10.157 93.86 58.91 40.83 23.38% 23.38% 0.00% 10.00 73.47 84.03 62.15 10.11 17.19 134.59 19.48 136.03 136.3 12.83 13.43 12.83 12.83% 12.83% 12.83% 12.83% 12.83% 12.83% 12.83% 12.83% <t< td=""><td></td><td></td><td></td><td></td><td>0.00%</td><td>10.82%</td><td>0.00%</td><td>0.00%</td><td></td><td></td><td></td><td></td><td>100.00%</td><td>89.18%</td><td></td><td></td><td>1.06%</td><td>4.02%</td><td>0.00%</td><td>10.82%</td></t<> | | | | | 0.00% | 10.82% | 0.00% | 0.00% | | | | | 100.00% | 89.18% | | | 1.06% | 4.02% | 0.00% | 10.82% |
| Image: bit in the state | 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 |
| 8 Gouri Expn(A) 676.53 676.53 106.57 106.53 28.68 29.20 118.61 150.98 96.11 96.21 86.00 92.173 21.30 243.28 27.639 135.13 135.73 9 Bhatadi 838.14 847.37 21.27 21.94 0.00 13.28 30.86 45.63 46.12 56.52 71.92 77.77 93.85 58.91 60.94 21.92 21.94 21.94 0.00 13.28 30.86 45.61 46.12 56.52 71.92 71.94 58.91 70.98 21.27 21.94 | | | | | 37.51% | 85.49% | 3.94% | 3.94% | | | | | 58.56% | 10.58% | | | 22.99% | 29.06% | 41.44% | 89.42% |
| Image: style styl | 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 |
| 9 Bhatadi 838.14 847.37 21.27 21.94 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 0 0 77.34% 23.38% 0.00% 0.00% 1 1 72.66% 76.62% 1 7.33% 9.08% 27.34% 23.38% 10 Gondegaon 917.00 791.40 32.88 42.29 0.00 0.00% 73.47 84.03 62.15 101.71 157.19 134.59 199.48 136.03 135.62 32.88 42.29 11 Kolarpimpri 1484.97 1488.42 7.54 0.00% 0.00% 1.555 7.74 8.11 137.70 140.37 147.10 155.10 9.4 4.43% 12.27% 14.43% 12.27% 14.43% 15.05 9.50% 140.37 147.10 155.10 9.4 4.43% 12.0% 14.39% 14.39% 14.78 9.6% 14.43% 12.7% 9.40 4.33% 12.7% 14.43% 12.7% 14.43% <t< td=""><td></td><td></td><td></td><td></td><td>48.06%</td><td>46.06%</td><td>12.88%</td><td>12.62%</td><td></td><td></td><td></td><td></td><td>39.06%</td><td>41.32%</td><td></td><td></td><td>35.96%</td><td>40.85%</td><td>60.94%</td><td>58.68%</td></t<> | | | | | 48.06% | 46.06% | 12.88% | 12.62% | | | | | 39.06% | 41.32% | | | 35.96% | 40.85% | 60.94% | 58.68% |
| Image: Normal and the state of the | 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 |
| 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 11 Kolarpimpri 1484.97 1484.47 7.54 0.0171 1.86 4.02 83.61 115.55 7.74 82.1 137.70 140.37 147.10 155.10 92.96 127.78 9.40 14.73 12 Chhinda 106.68 10.06 0.00 0.00 0.00 2.59% 10.7 1.86 4.02 83.61 15.55 7.74 82.1 137.70 140.37 147.10 155.10 92.96 127.78 9.40 14.73 12 Chhinda 106.68 10.06 0.00 0.00 0.00 2.044 2.80 2.87 22.78 23.29 23.24 23.31 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.000 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 | | | | | 27.34% | 23.38% | 0.00% | 0.00% | | | | | 72.66% | 76.62% | | | 7.03% | 9.08% | 27.34% | 23.38% |
| Image: Normal and the state of the | 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 |
| 11 Kolarpimpri 1488.497 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 9.40 147.37 10 106.68 106.68 0.00 0.00 0.00 2.59% 1 106.10 93.61% 90.50% 140.37 147.10 155.10 92.96 127.78 9.40 14.73 12 Chhinda 106.68 106.68 0.00 0.00 0.00 20.44 20.44 2.80 2.87 22.78 23.29 23.24 23.31 0.00 0 | | | | | 24.43% | 21.20% | 0.00% | 0.00% | | | | | 75.57% | 78.80% | | | 14.83% | 17.14% | 24.43% | 21.20% |
| Image: Normal and the second | 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 |
| 12 Chhinda 106.68 106.68 0.00 0.00 0.00 20.44 20.44 2.80 2.87 22.78 23.29 23.24 23.31 0.00 0.00% 10 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 100.00% 100.00% 100.00% 100.00% 21.78% 23.24 23.31 0.00 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 61.9 8.00 0.00% <td></td> <td></td> <td></td> <td></td> <td>5.13%</td> <td>6.91%</td> <td>1.26%</td> <td>2.59%</td> <td></td> <td></td> <td></td> <td></td> <td>93.61%</td> <td>90.50%</td> <td></td> <td></td> <td>6.26%</td> <td>8.58%</td> <td>6.39%</td> <td>9.50%</td> | | | | | 5.13% | 6.91% | 1.26% | 2.59% | | | | | 93.61% | 90.50% | | | 6.26% | 8.58% | 6.39% | 9.50% |
| Image: series of the series | 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 |
| 13 Gouri deep 356.11 339.10 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 0.00 0.00 6.19 8.00 44.29 51.04 44.29 51.04 44.29 51.04 6.19 8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 100.00% 100.00% 100.00% 1.74% 2.36% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 100.00% 100.00% 100.00% 1.74% 2.36% 0.00% < | | | | | 0.00% | 0.00% | 0.00% | 0.00% | | | | | 100.00% | 100.00% | | | 21.78% | 21.85% | 0.00% | 0.00% |
| Image: Normal system Image: No | 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 |
| 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 15 *Adasa UG to OC | | | | | 0.00% | 0.00% | 0.00% | 0.00% | | | | | 100.00% | 100.00% | | | 1.74% | 2.36% | 0.00% | 0.00% |
| Image: Normal system 24.03% 27.57% 0.00% 0.00% 0.00% 0.00% 0.00% 75.97% 72.43% 0.00 24.45% 33.26% 24.03% 27.57% 15 *Adasa UG to OC 564.40 0.00 <t< td=""><td>14</td><td>Juna-Kunada</td><td>325.87</td><td>325.87</td><td>13.25</td><td>23.92</td><td>0.00</td><td>0.00</td><td>35.98</td><td>66.18</td><td>43.71</td><td>42.20</td><td>41.90</td><td>62.84</td><td>55.15</td><td>86.76</td><td>79.69</td><td>108.38</td><td>13.25</td><td>23.92</td></t<> | 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 |
| 15 *Adasa UG to OC 564.40 0.00 0.00 0.00 0.00 0.00 0.00 8.48 0.00 | | | | | 24.03% | 27.57% | 0.00% | 0.00% | | | | | 75.97% | 72.43% | | | 24.45% | 33.26% | 24.03% | 27.57% |
| Image: Constraint of the constrated of the constraint of the constraint of the constraint of the | 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 |
| TOTAL 7289.16 7759.95 337.31 485.02 60.35 68.11 526.46 760.04 406.54 913.11 1275.29 1466.24 993.35 1230.65 397.66 553.13 0 0 26.45% 33.08% 4.73% 4.65% 0 68.82% 62.27% 17.50% 18.89% 13.63% 15.86% 31.18% 37.72% | | | | | 0.00% | 0.00% | 0.00% | 0.00% | | | | | 0.00% | 0.00% | | | 0.00% | 1.50% | 0.00% | 0.00% |
| 26.45% 33.08% 4.73% 4.65% 68.82% 62.27% 17.50% 18.89% 13.63% 15.86% 31.18% 37.72% | | TOTAL | 7289.16 | 7759.95 | 337.31 | 485.02 | 60.35 | 68.11 | 526.46 | 760.04 | 406.54 | 402.50 | 877.63 | 913.11 | 1275.29 | 1466.24 | 993.35 | 1230.65 | 397.66 | 553.13 |
| | | | | | 26.45% | 33.08% | 4.73% | 4.65% | | | | | 68.82% | 62.27% | 17.50% | 18.89% | 13.63% | 15.86% | 31.18% | 37.72% |

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

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

Leasehold boundary of Project like bellora-Naigaon and Gauri Deep OC ia as per keyplan provided by area . Note : In reference of the above Table-1, different parameters are classified as follows

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



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

1.0 Background

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

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

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

2.0 Objective

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

3.0 Methodology

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



Figure :2 Methodology for Land Reclamation Monitoring

- **3.1 Data Procurement:** After browsing the data quality and date of pass on internet, supply order for data is placed to NRSC. Secondary data like leasehold boundary, topo sheets are procured for creation of vector database.
- **3.2 Satellite Data Processing:** Satellite data are processed using ERDAS IMAGINE version 2017digital image processing s/w. Methodology involves the following major steps:
- Rectification & Geo-referencing: Inaccuracies in digital imagery may occur due to 'systematic errors' attributed to earth curvature and rotation as well as 'nonsystematic errors' attributed to satellite receiving station itself. Raw digital images contain geometric distortions, which make them unusable as maps. Therefore, georeferencing is required for correction of image data using ground control points (GCP) to make it compatible to Sol toposheet.
• Image enhancement:

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

• Training set selection

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

• Classification and Accuracy assessment

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

Area calculation

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

• Overlay of Vector data base

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

• Pre-field map preparation

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

3.3 Ground Truthing:

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

3.4 Land reclamation database on GIS:

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

4.0 Land Reclamation Status in Western Coalfields Ltd.

- **4.1** Following 15 opencast projects producing less than 5 million cubic m. (Coal + OB together) of Western Coalfields Ltd. have been taken up for land reclamation monitoring during the year 2020-21:
 - Kolgaon
 - Bellora-Naigaon
 - Ghonsa
 - Ballarpur
 - Junad Extension
 - Urdhan
 - Telwasa
 - Gauri Expn(A)
 - Bhatadi
 - Gondegaon
 - Kolarpimpri
 - Chhinda
 - Gouri Deep
 - Juna Kunda
 - Adasa UG to OC
- 4.2 Area statistics of different land use class present in the mine leasehold of the above projects for the year 2020 are shown in the Table 2. Land use maps derived from satellite data of year 2020 are shown in Plate 1 15. Changes in the different land use classes based on satellite data are depicted in Bar Charts in Fig. 3- 17.
- 4.3 Study reveals that out of total mine leasehold area of 7759.95 Hectare of the 15 projects Viz, Kolgaon,Bellora-Naigaon, Ghonsa ,Ballarpur ,Junad Extn , Telwasa ,Gauri Expn(A) ,Bhatadi, Gondegaon, Kolarpimpri ,Chhinda Gauri deep, Juna Kunda and Adasa UG to OC considered for monitoring during year 2020-21; total excavated area is 1466.24 Ha (18.89%) ,out of which 68.11 Ha(4.65%) area has

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

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

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

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

Area in Ha

| | | Kolg | gaon | Bellora - | Naigaon | Gh | onsa | Balla | ırpur | Junad | d Extn | Urd | han | Telw | vasa | Gouri E | Expn(A) | Bha | tadi | Gonde | egaon | Kolar-F | Pimpri | Chh | ninda | Gour | i Deep | Juna K | unada | Adasa U | G to OC | То | tal |
|--------------|--|--------|--------|-----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|
| | | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % |
| ESTS | Dense Forest | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FOR | Open Forest | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Total Forest | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| RUBS | Scrubs | 54.23 | 13.64 | 63.16 | 9.50 | 61.00 | 21.89 | 2.47 | 1.02 | 27.48 | 6.11 | 29.02 | 9.21 | 2.32 | 0.85 | 18.64 | 2.76 | 87.40 | 10.31 | 46.43 | 5.87 | 242.03 | 16.26 | 9.98 | 9.36 | 39.90 | 11.77 | 11.25 | 3.45 | 129.60 | 22.96 | 824.91 | 10.63 |
| sc | Total Scrubs | 54.23 | 13.64 | 63.16 | 9.50 | 61.00 | 21.89 | 2.47 | 1.02 | 27.48 | 6.11 | 29.02 | 9.21 | 2.32 | 0.85 | 18.64 | 2.76 | 87.40 | 10.31 | 46.43 | 5.87 | 242.03 | 16.26 | 9.98 | 9.36 | 39.90 | 11.77 | 11.25 | 3.45 | 129.60 | 22.96 | 824.91 | 10.63 |
| | Social Forestry | 25.63 | 6.45 | 28.94 | 4.35 | 4.65 | 1.67 | 9.74 | 4.01 | 28.81 | 6.41 | 6.87 | 2.18 | 23.62 | 8.69 | 96.21 | 14.22 | 46.12 | 5.44 | 62.15 | 7.85 | 8.21 | 0.55 | 2.87 | 2.69 | 8.00 | 2.36 | 42.20 | 12.95 | 8.48 | 1.50 | 402.50 | 5.19 |
| | Total Social Forest | 25.63 | 6.45 | 28.94 | 4.35 | 4.65 | 1.67 | 9.74 | 4.01 | 28.81 | 6.41 | 6.87 | 2.18 | 23.62 | 8.69 | 96.21 | 14.22 | 46.12 | 5.44 | 62.15 | 7.85 | 8.21 | 0.55 | 2.87 | 2.69 | 8.00 | 2.36 | 42.20 | 12.95 | 8.48 | 1.50 | 402.50 | 5.19 |
| ATION | Plantation on OB Dump | 72.83 | 18.32 | 35.62 | 5.36 | 2.55 | 0.92 | 69.49 | 28.64 | 65.57 | 14.58 | 5.79 | 1.84 | 50.71 | 18.65 | 150.98 | 22.32 | 30.86 | 3.64 | 73.47 | 9.28 | 115.55 | 7.76 | 20.44 | 19.16 | 0.00 | 0.00 | 66.18 | 20.31 | 0.00 | 0.00 | 760.04 | 9.79 |
| LANT | Total Plantation on OB Dump | 72.83 | 18.32 | 35.62 | 5.36 | 2.55 | 0.92 | 69.49 | 28.64 | 65.57 | 14.58 | 5.79 | 1.84 | 50.71 | 18.65 | 150.98 | 22.32 | 30.86 | 3.64 | 73.47 | 9.28 | 115.55 | 7.76 | 20.44 | 19.16 | 0.00 | 0.00 | 66.18 | 20.31 | 0.00 | 0.00 | 760.04 | 9.79 |
| Ч | Plantation on Backfill | 0.00 | 0.00 | 12.75 | 1.92 | 0.00 | 0.00 | 15.00 | 6.18 | 2.46 | 0.55 | 0.00 | 0.00 | 4.68 | 1.72 | 29.20 | 4.32 | 0.00 | 0.00 | 0.00 | 0.00 | 4.02 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 68.11 | 0.88 |
| | Total Plantation on backfill (Biological Reclamation) | 0.00 | 0.00 | 12.75 | 1.92 | 0.00 | 0.00 | 15.00 | 6.18 | 2.46 | 0.55 | 0.00 | 0.00 | 4.68 | 1.72 | 29.20 | 4.32 | 0.00 | 0.00 | 0.00 | 0.00 | 4.02 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 68.11 | 0.88 |
| | Total Green Cover generated | 98.46 | 24.77 | 77.31 | 11.63 | 7.20 | 2.59 | 94.23 | 38.83 | 96.84 | 21.54 | 12.66 | 4.02 | 79.01 | 29.06 | 276.39 | 40.86 | 76.98 | 9.08 | 135.62 | 17.13 | 127.78 | 8.58 | 23.31 | 21.85 | 8.00 | 2.36 | 108.38 | 33.26 | 8.48 | 1.50 | 1230.65 | 15.86 |
| | Total Vegetation | 152.69 | 38.41 | 140.47 | 21.13 | 68.20 | 24.48 | 96.70 | 39.85 | 124.32 | 27.65 | 41.68 | 13.23 | 81.33 | 29.91 | 295.03 | 43.62 | 164.38 | 19.39 | 182.05 | 23.00 | 369.81 | 24.84 | 33.29 | 31.21 | 47.90 | 14.13 | 119.63 | 36.71 | 138.08 | 24.46 | 2055.56 | 26.49 |
| | Coal Quarry | 40.87 | 10.28 | 72.28 | 10.87 | 50.89 | 18.26 | 16.73 | 6.89 | 60.22 | 13.39 | 12.12 | 3.85 | 1.84 | 0.68 | 75.01 | 11.09 | 71.40 | 8.43 | 150.76 | 19.05 | 100.35 | 6.74 | 16.28 | 15.26 | 43.62 | 12.86 | 51.12 | 15.69 | 0.00 | 0.00 | 763.49 | 9.84 |
| INING | Advance Quarry Site | 5.64 | 1.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.02 | 1.78 | 0.00 | 0.00 | 0.00 | 0.00 | 11.66 | 0.15 |
| VE M | Quarry Filled With Water | 1.52 | 0.38 | 19.25 | 2.89 | 9.40 | 3.37 | 0.74 | 0.30 | 1.32 | 0.29 | 7.33 | 2.33 | 10.74 | 3.95 | 20.56 | 3.04 | 0.52 | 0.06 | 6.43 | 0.81 | 40.02 | 2.69 | 7.01 | 6.57 | 1.40 | 0.41 | 11.72 | 3.60 | 0.00 | 0.00 | 137.96 | 1.78 |
| ACTI | Coal Dump | 3.66 | 0.92 | 5.96 | 0.90 | 3.17 | 1.14 | 5.40 | 2.23 | 2.26 | 0.50 | 5.10 | 1.62 | 2.57 | 0.95 | 1.33 | 0.20 | 6.87 | 0.81 | 5.14 | 0.65 | 3.68 | 0.25 | 0.31 | 0.29 | 3.90 | 1.15 | 2.70 | 0.83 | 0.00 | 0.00 | 52.05 | 0.67 |
| | Total Area under Active Mining | 51.69 | 13.00 | 97.49 | 14.66 | 63.46 | 22.77 | 22.87 | 9.42 | 63.80 | 14.18 | 24.55 | 7.80 | 15.15 | 5.58 | 96.90 | 14.33 | 78.79 | 9.30 | 162.33 | 20.51 | 144.05 | 9.68 | 23.60 | 22.12 | 54.94 | 16.20 | 65.54 | 20.12 | 0.00 | 0.00 | 965.16 | 12.44 |
| | Barren OB Dump | 77.74 | 19.56 | 90.35 | 13.59 | 23.50 | 8.43 | 22.24 | 9.17 | 124.27 | 27.64 | 64.91 | 20.61 | 51.09 | 18.79 | 98.71 | 14.59 | 159.34 | 18.80 | 179.07 | 22.63 | 263.42 | 17.70 | 22.50 | 21.09 | 96.76 | 28.53 | 77.51 | 23.79 | 0.00 | 0.00 | 1351.41 | 17.42 |
| | Barren Backfilled Area | 0.00 | 0.00 | 53.02 | 7.98 | 7.28 | 2.61 | 80.79 | 33.30 | 34.51 | 7.68 | 2.36 | 0.75 | 101.67 | 37.39 | 106.53 | 15.75 | 21.94 | 2.59 | 42.29 | 5.34 | 10.71 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 23.92 | 7.34 | 0.00 | 0.00 | 485.02 | 6.25 |
| | Total Area under backfill(Technical Reclamation) | 0.00 | 0.00 | 53.02 | 7.98 | 7.28 | 2.61 | 80.79 | 33.30 | 34.51 | 7.68 | 2.36 | 0.75 | 101.67 | 37.39 | 106.53 | 15.75 | 21.94 | 2.59 | 42.29 | 5.34 | 10.71 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 23.92 | 7.34 | 0.00 | 0.00 | 485.02 | 6.25 |
| (0 | Total Area Under Mine Operation | 129.43 | 32.56 | 240.86 | 36.23 | 94.24 | 33.81 | 125.90 | 51.89 | 222.58 | 49.50 | 91.82 | 29.16 | 167.91 | 61.76 | 302.14 | 44.67 | 260.07 | 30.69 | 383.69 | 48.48 | 418.18 | 28.10 | 46.10 | 43.21 | 151.70 | 44.73 | 166.97 | 51.25 | 0.00 | 0.00 | 2801.59 | 36.11 |
| LANDS | Waste Lands | 61.95 | 15.58 | 17.33 | 2.61 | 49.53 | 17.77 | 9.89 | 4.08 | 31.52 | 7.01 | 47.96 | 15.23 | 9.00 | 3.31 | 30.44 | 4.50 | 74.75 | 8.82 | 49.50 | 6.25 | 59.85 | 4.02 | 0.75 | 0.70 | 10.98 | 3.24 | 28.16 | 8.64 | 18.45 | 3.27 | 500.06 | 6.44 |
| IASTE | Fly Ash Pond / Sand Body | 3.85 | 0.97 | 5.19 | 0.78 | 0.00 | 0.00 | 2.81 | 1.15 | 3.53 | 0.79 | 0.00 | 0.00 | 1.55 | 0.57 | 12.54 | 1.85 | 5.09 | 0.60 | 1.39 | 0.18 | 3.07 | 0.21 | 0.24 | 0.22 | 0.24 | 0.07 | 1.24 | 0.38 | 3.76 | 0.67 | 44.50 | 0.57 |
| IES V | Total Wasteland | 65.80 | 16.55 | 22.52 | 3.39 | 49.53 | 17.77 | 12.70 | 5.23 | 35.05 | 7.80 | 47.96 | 15.23 | 10.55 | 3.88 | 42.98 | 6.35 | 79.84 | 9.42 | 50.89 | 6.43 | 62.92 | 4.23 | 0.99 | 0.92 | 11.22 | 3.31 | 29.40 | 9.02 | 22.21 | 3.94 | 544.56 | 7.01 |
| RBOD | Reservoir, nallah, ponds | 2.31 | 0.58 | 2.16 | 0.32 | 0.31 | 0.10 | 2.41 | 1.00 | 7.55 | 1.69 | 0.00 | 0.00 | 6.97 | 2.55 | 5.01 | 0.73 | 15.21 | 1.80 | 0.00 | 0.00 | 2.26 | 0.14 | 0.19 | 0.18 | 2.91 | 0.86 | 8.50 | 2.61 | 7.80 | 1.38 | 63.59 | 0.82 |
| WATE | Total Waterbodies | 2.31 | 0.58 | 2.16 | 0.32 | 0.31 | 0.10 | 2.41 | 1.00 | 7.55 | 1.69 | 0.00 | 0.00 | 6.97 | 2.55 | 5.01 | 0.73 | 15.21 | 1.80 | 0.00 | 0.00 | 2.26 | 0.14 | 0.19 | 0.18 | 2.91 | 0.86 | 8.50 | 2.61 | 7.80 | 1.38 | 63.59 | 0.82 |
| LURE | Crop Lands | 0.00 | 0.00 | 55.51 | 8.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28.47 | 9.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 62.47 | 4.20 | 11.54 | 10.82 | 8.41 | 2.48 | 0.00 | 0.00 | 99.68 | 17.67 | 266.08 | 3.43 |
| RICUL. | Fallow Lands | 44.60 | 11.22 | 202.95 | 30.53 | 65.62 | 23.55 | 2.96 | 1.22 | 57.73 | 12.84 | 101.93 | 32.36 | 3.61 | 1.33 | 28.81 | 4.26 | 321.09 | 37.89 | 168.87 | 21.34 | 557.02 | 37.42 | 13.54 | 12.70 | 115.77 | 34.14 | 0.00 | 0.00 | 289.45 | 51.28 | 1973.95 | 25.44 |
| AGI | Total Agriculture | 44.60 | 11.22 | 258.46 | 38.88 | 65.62 | 23.55 | 2.96 | 1.22 | 57.73 | 12.84 | 130.40 | 41.40 | 3.61 | 1.33 | 28.81 | 4.26 | 321.09 | 37.89 | 168.87 | 21.34 | 619.49 | 41.62 | 25.08 | 23.52 | 124.18 | 36.62 | 0.00 | 0.00 | 389.13 | 68.95 | 2240.03 | 28.87 |
| IS | Urban Settlement | 0.96 | 0.24 | 0.33 | 0.05 | 0.08 | 0.03 | 1.02 | 0.42 | 0.77 | 0.17 | 0.92 | 0.28 | 0.76 | 0.28 | 0.62 | 0.09 | 1.56 | 0.19 | 4.32 | 0.55 | 0.27 | 0.03 | 1.03 | 0.96 | 0.53 | 0.16 | 1.23 | 0.37 | 3.86 | 0.68 | 18.26 | 0.23 |
| EMEN | Rural Settlement | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.13 | 1.67 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 3.71 | 0.44 | 0.00 | 0.00 | 6.01 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.81 | 0.50 | 14.78 | 0.19 |
| ETTL | Industrial Settlement | 1.73 | 0.44 | 0.00 | 0.00 | 0.70 | 0.26 | 0.95 | 0.39 | 1.05 | 0.22 | 0.55 | 0.17 | 0.78 | 0.29 | 1.94 | 0.28 | 1.51 | 0.18 | 1.58 | 0.20 | 9.48 | 0.64 | 0.00 | 0.00 | 0.66 | 0.19 | 0.14 | 0.04 | 0.51 | 0.09 | 21.58 | 0.28 |
| s | Total Settlement | 2.69 | 0.68 | 0.33 | 0.05 | 0.78 | 0.29 | 1.97 | 0.81 | 2.40 | 0.52 | 3.14 | 0.98 | 1.54 | 0.57 | 2.56 | 0.37 | 6.78 | 0.81 | 5.90 | 0.75 | 15.76 | 1.07 | 1.03 | 0.96 | 1.19 | 0.35 | 1.37 | 0.41 | 7.18 | 1.27 | 54.62 | 0.70 |
| | Grand Total | 397.52 | 100.00 | 664.80 | 100.00 | 278.68 | 100.00 | 242.64 | 100.00 | 449.63 | 100.00 | 315.00 | 100.00 | 271.91 | 100.00 | 676.53 | 100.00 | 847.37 | 100.00 | 791.40 | 100.00 | 1488.42 | 100.00 | 106.68 | 100.00 | 339.10 | 100.00 | 325.87 | 100.00 | 564.40 | 100.00 | 7759.95 | 100.00 |





Figure-7







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

PART A

Company Information

Company Name

Application UAN number

Taluka

Wani

Scale

L.S.I.

Red

1998

Person Name

Fax Number

07239241357

G Rajendra Kumar

Industry Category

Consent Number

Format1.0/CC/UAN

Establishment Year

Western Coalfields Limited, Junad Deep Open Cast coal Mine Project

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

Capital Investment (In lakhs) 10243.8

Pincode 445304

Telephone Number 9607922288

Region SRO-Chandrapur

Last Environmental statement submitted online yes

Consent Valid Upto

2023-03-31

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

Submitted Date 30-09-2022

Village Ukni

City WANI

Designation Sub Area Manager, Ukni-Junad Sub Area

Email wclsamujsa@gmail.com

Industry Type R35 Mining and ore beneficiation

Consent Issue Date

2022-04-24

Date of last environment statement submitted Sep 21 2021 12:00:000AM

| | | roduct Information | | |
|------------------------------------|------------|-----------------------|--|--|
| Consent Quantity Actual Quantity U | Consent Qu | roduct Name | | |
| 0.9 0.739 M | 0.9 | Coal | | |
| | | w-product Information | | |

No.MPCBCONSENT-0000125726/CO/2204001617

By Product Name

Consent Quantity 0 **Actual Quantity** 0 **UOM** MT/A

Part-B (Water & Raw Material Consumption)

| 1) Water Cons Water Consun Process | sumption in m3/day nption for | Consent Qu 400.00 | antity in m3/d | lay | Actual Quantity 400.00 | in m3/day | / |
|--|---|---|----------------------------|---|----------------------------------|-------------------|-------------------|
| Cooling | | 0.00 | | | 0.00 | | |
| Domestic | | 14.00 | | | 14.00 | | |
| All others | | 0.00 | | | 0.00 | | |
| Total | | 414.00 | | | 414.00 | | |
| 2) Effluent Ge Particulars TRADE EFFLUEN | neration in CMD / MLD NT (Mine Discharge) | | Consent Qua 3056 | antity | Actual Quanti 2300 | ty | UOM CMD |
| 2) Product Wi | se Process Water Consun r per unit of product) | nption (cubic meter of | During | the Draview | During the | | uom |
| Name of Prod | ucts (Production) | | financi | ial Year | Financial y | e current vear | 00M |
| Coal (Cubic Met | cer/Tonne) | | 0.45 | | 0.20 | | CMD |
| 3) Raw Materi | ial Consumption (Consum | ption of raw material | | | | | |
| per unit of pro | oduct) | | | | _ · ., | | |
| Name of Raw | Materiais | | financial Yea | revious ar | Financial year | ent | ООМ |
| Explosives (Kg/ | Tonne) | | 2.34 | | 4.21 | | Kg/Annum |
| 4) Fuel Consu | mption | | | | | | |
| Fuel Name | | Consent q | uantity | Actual | Quantity | UC | ОМ |
| High Speed Die | sel | 0 | | 986.00 | | KL | /A |
| Part-C | | | | | | | |
| Pollution disc | harged to environment/u | nit of output (Paramet | ter as specified | d in the cons | ent issued) | | |
| Pollutants Detail | Quantity of Pollutants discharged (kL/day) Quantity 0 | Concentration of Pol discharged(Mg/Lit) E PH,Temp,Colour Concentration | lutants Except | Percentage from prese standards %variation | Standard | Reason | |
| - | U | U | | - | | - | - |

[B] Air (Stack)

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

Part-D

| 5.1 Used or spent oil | | 4.83 | 8. | 63 | KL/A |
|---|---|--|--------------|--|-----------|
| 5.2 Wastes or residues contain | ing oil | 0 | 2. | 5 | Ton/Y |
| 35.3 Chemical sludge from was | te water treatment | 0 | 10 |) | Ton/Y |
| 2) From Pollution Control Fa | acilities | | | | |
| Hazardous Waste Type | Total During Pre | vious Financial year | Total Durir | ng Current Financial year | UOM |
| 0 | 0 | | 0 | | Ton/Y |
| Part-E | | | | | |
| SOLID WASTES | | | | | |
| Non Hazardous Waste Type | Total During Pre | vious Financial year | Total Duri | ing Current Financial year | иом |
| - | 0 | | 0 | | Ton/Y |
| 2) From Pollution Control Fa | acilities | | | | |
| Non Hazardous Waste Type | Total Dui | ring Previous Financial ye | ar Total | During Current Financial year | UOM |
| - | 0 | | 0 | | Ton/Y |
| 3) Quantity Recycled or Re- | utilized within the | , | | | |
| unit | | | | | |
| Waste Type | | l otal During Previoi year | us Financial | Total During Current Financial year | и оом |
| 0 | | 0 | | 0 | Ton/Y |
| Part-F | | | | | |
| Please specify the character indicate disposal practice a | ristics(in terms of dopted for both th | concentration and quant nese categories of wastes | um) of hazar | dous as well as solid wastes an | <u>id</u> |
| 1) Hazardous Waste | onorated | Oty of Hazardous Waste | | 1 Concentration of Hazardous | Wasto |
| 5.1 Used or spent oil | cherateu | 8.63 | KL/A | - | HUSLE |
| 5.2 Wastes or residues contain | ing oil | 2.5 | Ton/ | Y - | |
| 35.3 Chemical sludge from was | te water treatment | 10 | Ton/ | Υ- | |
| 2) Solid Waste Type of Solid Waste Genera | ted | Oty 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 |

| Additional measures/investment proposa | I for environmental protection abatement of pollution, preven | tion of pollution. |
|--|--|----------------------------------|
| of Environmental Statement | | |
| Detail of measures for Environmental Protection | Environmental Protection Measures | Capital Investment (Lacks) |
| 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 | | | | | | | | |
|---|--|----------------------------|--|--|--|--|--|--|
| Detail of measures for Environmental Protection | Environmental Protection Measures | Capital Investment (Lacks) | | | | | | |
| 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