

**WESTERN COALFIELDS LIMITED**  
**OFFICE OF THE SUB AREA MANAGER**  
**GOURI CENTRAL SUB AREA, BALLARPUR AREA**

RefNo. WCL/BA/AGM/ENV/ 105

Date 25/11/2025

To  
Addl. Principal Chief Conservator of Forests,  
Ministry of Environment, Forest & Climate Change  
Integrated Regional Office, Ground Floor,  
East Wing, "New Secretariat Building", Civil Lines,  
Nagpur, Maharashtra- 440001

Sub: - Submission of Six-monthly EC Compliance Report in respect of **GOURI DEEP OC MINE**, Ballarpur Area, WCL for the period from 1<sup>st</sup> April 2025 to 30<sup>th</sup> September 2025.


Respected Sir,

Please find enclosed herewith the Six-Monthly EC Compliance Report in respect of Gouri Deep Opencast Project, Ballarpur Area for the period from 1<sup>st</sup> April 2025 to 30<sup>th</sup> September 2025.  
EC NO: J-11015/179/2014-IA. II(M) Dated: - 13.03.2015

Thanking you.

Encl. Environment Compliance Report

Yours Faithfully,

  
Sub Area Manager  
Gouri Central Sub Area

Copy To,

1. Regional Officer, MPCB Chandrapur.
2. AGM, Ballarpur Area , WCL
3. The General Manager (Env) WCL, Nagpur
4. GM (Environment), CMPDIL RI - IV, Nagpur
5. Area Nodal Officer (Env), Wani Area.
6. Office Copy

No. J-11015/179/2014-IA-II (M)  
Government of India  
Ministry of Environment, Forests & Climate Change  
IA-II (Coal Mining) Division

Indira Paryavaran Bhawan,  
Jorbagh Road,  
New Delhi-110003

Dated: 13<sup>th</sup> March, 2015

To,

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

**Sub. : Expansion of Gouri Deep Expansion Mine Project (from 0.40 MTPA to 0.60 MTPA in an ML area of 356.11 Ha); latitude 19° 46' 33" -19° 47' 56" N and longitude 79° 16' 46.5" -79° 18' 53.6" E of M/s Western Coalfield Limited, located at dist. Chandrapur, Maharashtra - EC under 7(ii) of EIA Notification 2006 – Environmental Clearance - reg.**

Sir,

This is with reference to letter no. 43011/09/2014-CPAM dated 30.04.2014 with the application and subsequent letter no. WCL/ENV/HQ/6-1/ dated 05.01.2015; 15.01.2015 and 18.01.2015 for Environmental Clearance for Expansion under 7(ii) of EIA Notification 2006 for the above-mentioned project.

2. The Ministry of Environment, Forests & Climate Change has considered the application. It is noted that the proposal is for grant of Environmental Clearance for **Expansion of Gouri Deep Expansion Mine Project (from 0.40 MTPA to 0.60 MTPA in an ML area of 356.11 Ha); latitude 19° 46' 33" -19° 47' 56" N and longitude 79° 16' 46.5" -79° 18' 53.6" E of M/s Western Coalfield Limited, located at dist. Chandrapur, Maharashtra under 7(ii) of EIA Notification 2006.** The proposal was considered in the 29<sup>th</sup> EAC meeting held on 15<sup>th</sup> -16<sup>th</sup> January, 2015. The proponent has informed that:

- i. The project was accorded EC vide letter no. J-11015/338/2008-1A.II(M) dated 18.02.2011 for 0.40 MTPA.
- ii. The latitude and longitude of the project are 19° 46' 33" to 19° 47' 56" and 79° 16' 46.5" to 79° 18' 53.6" respectively.
- iii. Joint Venture: No Joint Venture.
- iv. Coal Linkage: Linked to M/s Ultra Tech Cements.
- v. The land usage of the project will be as follows:

**Pre-Mining:**

S.No	Land particulars	CBA Act 1957 (ha)	Forest Act 1980 (ha)	Total Land (ha)
1	Agriculture	339.43	Nil	339.43
2	Govt/Other	16.68	Nil	16.68
3	Forest	Nil	Nil	Nil





	Total	356.11	Nil	356.11
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**Land use during Mining:**

S.No	Head	Land Requirement (ha)
1.	Excavation Area	92.45
2.	External OB Dump	94.12
3.	Infrastructure	05.00
4.	Project Township	10.00
5.	Boundary Adjustment & Miscellaneous	154.54
	<b>TOTAL</b>	<b>356.11</b>

**Post- Mining:**

S.No	Particulars	Land in ha
1	Afforested Area: a) Backfilled Area – 33.72 b) External OB Dump – 94.12	127.84
2	Water Body / Void	58.73
3	Vacant land to be released with plantation	154.54
4	Infrastructure	05.00
5	Township	10.00
	<b>TOTAL</b>	<b>356.11</b>

- vi. The total geological reserve is 15.24 MT. The mineable reserve 7.66 MT, extractable reserve is 7.66 MT. The per cent of extraction would be 50.3%.
- vii. The coal grade is 4462 Kcal / kg; G10 .The stripping ratio is 1:6.11. The average Gradient is 1 in 4 in Q- I & 1 in 3 in Q-II. There will be One Composite Seam with thickness ranging 14.00 m in Quarry-I & 13.50m in Quarry-II.
- viii. The total estimated **water requirement** is 6048 m<sup>3</sup>/day. The level of ground water ranges from 2.00m bgl to 19.55m bgl.
- ix. The Method of mining would be opencast with shovel-dumper combination.
- x. There are 2 external OB dumps with Quantity of 22.87Mbcm in an area of 94.12ha with height of 42 m (A) &60 m (B) above the surface level and 1 internal dump with Quantity of 23.94 Mbcm in an area of 33.72ha.
- xi. The final mine void would be in 58.73 Ha with depth of 130m. and the Total quarry area is 92.45 Ha. Backfilled quarry area of 33.72 Ha shall be reclaimed with plantation. A void of 58.73 ha with depth of 130 m which is proposed to be converted into a water body
- xii. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- xiii. **The life of mine** is 15 Years.
- xiv. **Transportation:** Coal transportation in pit by Dumpers, Surface to Siding by Dumpers and loading at siding by Pay loader.
- xv. There is **R & R** involved. There are 297 PAFs.
- xvi. **Cost:** Total capital cost of the project is Rs. 86.21 Crores. CSR Cost Rs. 2.00 per tonne. R&R Cost 4.78 Crores. Environmental Management Cost (capital cost Rs. 1.855 crores, annual recurring cost Rs. 0.12 crores).
- xvii. **Water body:** Gouri & Sasti Nullah flows near to the site. Wardha River flows at a distance of 5 km north – east of the project site.

- xviii. **Approvals:** Board's approval obtained on 28.02.2014. Mining plan has been approved on 28.02.2014. Mine Closure Plan approval on 15.02.2014
- xix. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xx. **Forestry issues:** There is no forest area involved.
- xxi. **Total afforestation** plan shall be implemented covering an area of 94.12ha at the end of mining. Green Belt over an area of 3.00ha. Density of tree plantation 2500 trees/ ha of plants.
- xxii. There are no **court cases/violation** pending with the project proponent.
- xxiii. **Public Hearing:** Public Hearing is not applicable as the applied under 7 (ii) of EIA Notification, 2006.

3. The proponent further submitted that

a) Revised Post Mining Land use plan

S.No.	Particulars	Land (in ha)
1)	Reclaimed and Afforested area: a) Backfilled area – 33.72	33.72
2)	Backfilled area (to be completed after rehandling of OB- to be reclaimed biologically during closure period)	58.73
3)	Land with plantation developed on plains, avenue, around infrastructure and block plantation	154.54
4)	Land released after rehandling of OB dump ( which will be biologically reclaimed during closure period)	94.12
5)	Infrastructure	5.0
6)	Township	10.00
	<b>Total</b>	<b>356.11</b>

4. **EC Compliance report:** The compliance report of the, Regional Office, MoEFCC at Bhopal vide letter no. 3-17/2011/(ENV)/376 dated 08.12.2014 was deliberated in the EAC meeting. The Committee has noted the Action Taken for compliance by the Project which, inter alia, are as follows:

- i. The catch drains will continue to be maintained along with adequate plantation so as to arrest any flow of silt and sediments. The balance catch drain of 400 mtr length will be completed before onset of 2015 Monsoon. Retaining wall with sand bags and boulder pitching in wire crafts shall be constructed additionally by May 2015.
- ii. Assistance to villages for meeting water requirement shall be rendered as committed.
- iii. CSR will be continued as per the approved Policy of the Company.

5. The proposal was considered in the Expert Appraisal Committee (EAC) (Thermal & Coal Mining) and recommended in 29<sup>th</sup> EAC meeting held on 15<sup>th</sup> -16<sup>th</sup> January, 2015 for granting Environmental Clearance. The Ministry of Environment, Forests and Climate Change hereby accords Environmental Clearance for the above-mentioned **Expansion of Gouri Deep Expansion Mine Project (from 0.40 MTPA to 0.60 MTPA in an ML area of 356.11 Ha); latitude 19° 46' 33" -19° 47' 56" N and longitude 79° 16' 46.5" -79° 18' 53.6" E of M/s Western Coalfield Limited, located at dist. Chandrapur, Maharashtra under 7(ii) of EIA Notification 2006** under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto subject to the compliance of the terms and conditions mentioned below:



**A. Specific Conditions:**

- i. The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.
- ii. The validity of the EC is for the life of the Mine or as specified in the EIA Notification, 2006, whichever is earlier.
- iii. Coal transportation in pit by Tippers, Surface to Siding by Tippers and loading at siding by Pay loader.
- iv. Toe wall will be constructed with boulder.
- v. Plantation should be made along the boundary of the OBD.
- vi. The catch drains will continue to be maintained along with adequate plantation so as to arrest any flow of silt and sediments. The balance catch drain of 400 mtr length will be completed before onset of the Monsoon. Retaining wall with sand bags and boulder pitching in wire crafts shall be constructed additionally by May 2015.
- vii. Assistance to villagers for meeting water requirement shall be rendered as committed.
- viii. CSR will be continued as per the approved Policy of the Company and Social Audit conducted as per GOI Guidelines/Notification.
- ix. The depth of the internal void shall be 35 m from the ground level and should be adequate for fishery purpose.
- x. All safety measures shall be taken as per CMR, 1957 & related Circulars
- xi. The production shall be within the same Mining Lease area.
- xii. The OB shall be completely re-handled at the end of the mining and will be back filled upto the ground level and covered with about a meter thick top soil and put to use. The land after mining shall be brought back for agriculture purpose.
- xiii. Garland drains be provided.
- xiv. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine.
- 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 surrounded 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.
- xxx. A Progressive afforestation plan shall be implemented covering an area of 94.12 ha at the end of mining, which includes reclaimed External OB dump area (94.12 ha), Internal OB dump area (33.72 ha), along roads and Green belt (3.00 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 46.81 Mm<sup>3</sup> of OB will be generated during the entire life of the mine. Out of which 22.87 Mm<sup>3</sup> of OB will be dumped in two external OB Dumps an earmarked area covering 94.12 ha of land with height of 60 m. 23.94 Mm<sup>3</sup> of will be one internal OB dump in covering an area of 33.72 ha with height of 60 m. The maximum height of external OB dump for hard OB will not exceed 90 m. The maximum slope of the dump shall not exceed 28 degrees. Monitoring and management of reclaimed dump sites shall continue till the vegetation becomes self- sustaining and compliance status shall be submitted to MOEF and its Regional Office on yearly basis.
- 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. No extra over burden dumps are permitted.
- xxxv. No groundwater shall be used for mining operations.
- xxxvi. Of the total quarry area of 92.45 ha. the backfilled quarry area of 33.72 ha shall be reclaimed with plantation and a void of 58.73 ha at a **depth of 35 m** which is proposed to be converted into a water body shall be gently sloped and the upper benches shall be terraced and stabilised with plantation/afforestation by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- 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 the Central Pollution Control Board quarterly within one month of monitoring.
- xxxviii. The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring indicates a decline in water table. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- xxxix. Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.

- xl. Besides carrying out regular periodic health check-up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through an specialised agency /institution within the District/State and the results reported to this Ministry and to DGMS.
- xli. Land oustees shall be compensated as per the norms laid out R&R Policy of CIL or the National R&R Policy or R&R Policy of the State Government whichever is higher.
- xl.ii. For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF&CC and its concerned Regional office
- xl.iii. 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.
- xl.ii. 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.
- xl.ii. Corporate Environment Responsibility:
  - a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.
  - b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
  - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.
  - d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

## **B. General Conditions**

- i. No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forests & 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 PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub> monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.
- iv. Data on ambient air quality (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub>) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its concerned Regional Office and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EPA rules, 1986 shall be furnished as part of compliance report.
- v. Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
- vi. Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May 1993 and 31<sup>st</sup>

December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.

- vii. Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.
- viii. Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EPA Rules, 1986.
- ix. Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.
- x. Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.
- xi. A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.
- xii. The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its concerned Regional Office.
- xiii. The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the Ministry of Environment, Forests & 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 PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub> (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.





6. The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report so also during their presentation to the EAC.
7. The commitment made by the Proponent to the issue raised during Public Hearing shall be implemented by the Proponent
8. 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.
9. The Ministry or any other competent authority may stipulate any further condition for environmental protection.
10. The Proponent shall setup an Environment Audit cell with responsibility and accountability to ensure implementation of all the EC Conditions.
11. 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.
12. 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.
13. 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.
14. This EC supersedes the earlier EC, vide letter no. letter J-11015/338/2008-1A.II(M) dated 18.02.2011 for 0.40 MTPA.

  
(Dr. Manoranjan Hota)  
Director

**Copy to:**

1. Secretary, Ministry of Coal, New Delhi.
2. Secretary, Department of Environment, Government of Maharashtra, 15th Floor, New Admn. Bldg., Madam Cama Road, MUMBAI – 400032.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, E-2/240 Arera Colony, Bhopal – 462016.
4. Member Secretary, Maharashtra State Pollution Control Board, Kalapataru Point, 3rd & 4<sup>th</sup> Floors, Sion, Matunga Scheme Road No. 8, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai – 400002.

5. Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi -110032.
6. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. District Collector, Chandrapur, Government of Maharashtra.
8. Monitoring File    9.      Guard File      10.      Record File      11. Notice Board

  
(Dr. Manoranjan Hota)  
Director

**COMPLIANCE REPORT OF EC OF 0.60 MTPA AT GOURI DEEP OCP, GRANTED PERMISSION REF NO.J11015/179/2014-IA.II (M) Dated, 13TH MARCH 2015**

**A. Specific Conditions**

S. NO.	Condition	Status of Compliance			
i)	The maximum production from mine at any given time shall not exceed the limit as prescribed in EC	Complied and the production doesn't exceed 0.6 MTPA. Production details for last 5 years is as follows:			
		Sr no.	Year	Production (MTPA)	EC capacity (MTPA)
		1	2019-20	0.60	0.60
		2	2020-21	0.536	0.60
		3	2021-22	0.60	0.60
		4	2022-23	0.56	0.60
		5	2023-24	0.378	0.60
		6	2024-25	0.60	0.60
ii)	The validity of the EC is for the life of the mine or as specified in EIA notification, 2006, whichever is earlier	Noted.			
iii)	Coal Transportation in pit by Dumpers, surface to siding by Tippers and loading to siding by Pay Loaders	The coal transportation in the pit is carried out by dumpers upto surface. From surface to siding, transportation is done through tippers. Payloaders load coal from stock yard to wagons.			
iv)	Toe wall will be constructed with boulder.	The OB dump will be biologically reclaimed and stabilized with native species, as such there will be no siltation and flow of sediments from this dumps. As such construction of Toe wall may not be required. However, retaining wall may be constructed as per requirement.			
v)	Plantation should be made along the boundary of OBD	27000 no of plants have been planted till date.			
vi)	Catch Drains will continue to be maintained along with adequate plantation so as to arrest any flow of silt and sediments. The balance catch drain of same size for about 400m length will be completed before onset of 2015 monsoon.	Catch drains / garland drains of appropriate sizes have been constructed all around the OB dump to arrest silt and sediments into natural water course. The cross sectional area of catch drain is 2.5 m x 1.7 m. Total length of catch drain is 8.8 km. These catch drains are cleaned before onset of every monsoon.			



	Retaining wall with sand bags and boulder pitching in wire crafts shall be constructed additionally by May 2015e balance catch drain of same size for about 400m length has been completed before onset																						
vii)	Assistance to villagers for meeting water requirement shall be rendered as committed.	No shortage of water exists in the area. Villagers will be assisted if shortage occurs.																					
viii)	CSR will be continued as per the approved policy of the company and Social audit conducted as per GOI guidelines/notifications	<p>Noted and is being complied. CSR expenditure for last 5 years is as follows:</p> <table border="1"> <thead> <tr> <th>Sr no.</th><th>Year</th><th>Expenditure (lakhs)</th></tr> </thead> <tbody> <tr> <td>1</td><td>2019-20</td><td>237.35</td></tr> <tr> <td>2</td><td>2020-21</td><td>43.56</td></tr> <tr> <td>3</td><td>2021-22</td><td>2.17</td></tr> <tr> <td>4</td><td>2022-23</td><td>2.368</td></tr> <tr> <td>5</td><td>2023-24</td><td>25.32</td></tr> <tr> <td>6</td><td>2024-25</td><td>379.54</td></tr> </tbody> </table>	Sr no.	Year	Expenditure (lakhs)	1	2019-20	237.35	2	2020-21	43.56	3	2021-22	2.17	4	2022-23	2.368	5	2023-24	25.32	6	2024-25	379.54
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ix)	The depth of the void shall be 35 m from the ground level and should be adequate for fishery purpose.	Noted.																					
x)	All safety measures shall be taken as per CMR, 1957 and related circulars.	The permission from DGMS has been obtained & all safety measures are taken accordingly. Copy enclosed																					
xi)	The production shall be within the same Mining Lease area	The production is contained within the same mining lease area.																					
xii)	The OB shall be completely re-handled at the end of the mining. The rest of the area will be backfilled upto the ground level and covered with about a meter thick top soil and put to use. The land after mining shall be brought back for agricultural purpose.	Noted and will be complied.																					
xiii)	Garland drains should be provided	Catch drains / garland drains of appropriate sizes have been constructed all around the OB dump to arrest silt and sediments into natural water course. The cross sectional area of catch drain is 2.5 m x 1.7 m. Total length of catch drain is 8.8 km. These catch																					

		drains are cleaned before onset of every monsoon.		
xiv)	Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine.	As the mine surface is above HFL, there is no need of embankment. And there is no river/nallah nearby the mine.		
xv)	The CSR cost should be Rs 5/tonnes of coal produced which should be adjusted as per the annual inflation.	Sr no.	Year	Expenditure (lakhs)
		1	2018-19	7.8166
		2	2019-20	237.35
		3	2020-21	47.05
		4	2021-22	2.17
		5	2022-23	2.368
		6	2023-24	25.32
		7	2024-25	379.54
xvi)	Everybody in the core area should be provided with mask for protection against fugitive dust emissions	Dust masks are provided to the workers operating in mine. PPE kit distribution attached		
xvii)	Dust mask to be provided to everyone working in the mine area	Dust masks are provided to the workers operating in mine. PPE kit distribution attached		
xviii)	The supervisory staff should be periodically responsible for ensuring compulsory regarding wearin of dust mask in the core area.	It is being followed		
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.	Every worker in the mine is examined in 5 years- up to the age of 45; the workers who are above 50 years are subjected to periodic medical examination at two and a half years interval. IME/PME data attached.		
xx)	The mining area should be surrounded by green belt having thick canopy of the tree cover.	Noted and will be Complied.		
xxi)	The embankment constructed along the 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	As the mine surface is above HFL, there is no need of embankment. And there is no river/nallah nearby the mine.		

	inundation.	
xxii)	There shall be no 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.	There is no chance of flow of OB into the river or agricultural fields.
xxiii)	Ob shall be stacked at one external OB dumpsite(s) only. The ultimate slope of the dump shall not exceed 28 degree. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self sustaining. Compliance status shall be submitted to the MoEFCC and its concerned RO on yearly basis.	Excavated OB is now being dumped entirely on surface as external OB Dump at earmarked site.. The mine is in 5th year of operation only and the external OB dump is in active stage.  The biological reclamation of external OB dump is yet to start as the same is in active stage. Once the maximum height is attained, the reclamation process will start firstly with technical reclamation like grading, making proper slope. Thereafter, biological reclamation will be taken up.
xxiv)	Catch drains and siltation ponds of appropriate size shall be constructed to arrest the silt and sediment flows from soil, OB and at one external OB dumpsite only. 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.	Catch drains / garland drains of appropriate sizes have been constructed all around the OB dump to arrest silt and sediments into natural water course. The cross sectional area of catch drain/length is 2.5 m x 1.7 m of length 8.8 km. These catch drains are cleaned before onset of every monsoon.  A sump is constructed at the quarry floor with a capacity of 29.95 MG that collects all the silt and sediments from OB benches through "X" drainages.  The sump capacity is adequate, considering sudden rain fall and it is sufficient to allow settlement of suspended particles. The water pumped out of the mine sump is used for water spraying in the mine premises, roads and also for Green belt development.
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.	The OB dump will be biologically reclaimed and stabilized with native species, as such there will be no siltation and flow of sediments from this dumps. As such construction of Toe wall may not be required. However, retaining wall may be constructed as per requirement.
xxvi)	Crushers at the CHP of adequate capacity for the expansion project shall be operated with high efficiency	Noted and will be complied. Siding has been set up at Gourideep OC to reduce the road transportation load. Side cladding has been provided to arrest dust



	bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.	at siding along with 2 nos. trolley mounted mist foggers. Also, 16 nos. rainguns have been installed at Gourideep siding.
xxvii)	Drills shall be wet operated.	Noted and will be complied.
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 roads.	Noted and will be complied.  The coal transportation road is 3.8 km. The entire road is black topped.  59500 nos plantation has been done till date in and around the project.  The density of the plantation will be maintained at 2500 plants/ha.
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.	Using cord relays to reduce ground vibration and fly rocks.
xxx)	A progressive afforestation plan shall be implemented covering an area of 94.12 ha at the end of mining, which includes reclaimed External OB dump area (94.12 ha), internal OB dump area (33.72 ha), along roads and green belt (3.00 ha) in township located outside the lease by planting native species in consultation with local DFO. The density of the trees shall be around 2500 plants/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 mine.	Noted and will be complied.:  59500 nos plantation has been done till date.  The coal transportation road is 3.8 km. The entire road is black topped.
xxxi)	An estimated total of 46.81 Mm <sup>3</sup> of OB generated during the entire life of the mine. Out of which 22.87 Mm <sup>3</sup> of OB will be dumped into two external OB Dumps an ear marked area covering 94.12 ha of land with height of 60 m. The maximum height of External OB dump for hard OB will not exceed 90 m. Maximum slope of	Excavated OB is now being dumped entirely on surface as external OB Dump at earmarked site.. The mine is in 6th year of operation only and the external OB dump is in active stage. The total OB removed till date is 22.1 Mm <sup>3</sup>

	the mine shall not exceed 28 degrees.	
xxxii)	The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.	The restoration & reclamation plan for degraded area will be in line with the approved EMP.
xxxiii)	Compensatory ecological & restoration of waste land, other degraded land and OB dumps in lieu of breasking open the land be carried out.	The restoration & reclamation plan for degraded area will be in line with the approved EMP.
xxxiv)	The mining should be phased out in sustainable manner. No extra OB dumps are permitted.	The mining will be carried out as per plan . No extra OB dumps will be made.
xxxv)	No groundwater shall be used for mining operations.Application for approval of CGWA for ground water abstraction made on 09/01/2017. Application no: 21-4/686/MH/MIN/2017	NOC for ground water abstraction has been obtained valid from 13/08/2023 to 12/08/2025. Application for renewal of CGWA NOC has been made and EAC meeting awaited. Requisite fees for abstraction against quantum to be extracted for renewal period has been made to CGWA.
xxxvi)	Of the total quarry area of 92.45 ha the backfilled quarry area of 33.72 ha shall be reclaimed with plantation and a void of 58.73 ha at a a depth of 35 m which is proposed to be converted into a wter body shall be gently sloped and the upper benches shall be terraced and stabilised with plantation/afforestation by planting native plant species in consulation with the local DFO. Density shall be 2500 plants per	The restoration & reclamation plan for degraded area will be in line with the approved EMP.
xxxvii )	Regular monitoring of GW level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers Monitoring shall be done 4 times a year. Data is submitted to MOEF and CPCB quarterly with in one month of monitoring.	The groundwater level monitoring is being carried out by CMPDIL, 4 times a year in pre-monsoon (May), Monsoon (August), Post-monsoon (November) and Winter (January) seasons and for quality once in a year. Reports attached.
xxxvii i)	The company shall put up artificial GW recharge measures for augmentation of Gw resource in case monitoring indicates a decline	The nearby villages have no shortage of water, however regular supply of water is ensured in case of scarcity. The groundwater level monitoring has not indicated any decline in water level till date.

	in water table.	Report for ground water monitoring attached.									
xxxix)	STP shall be installed in existing colony. ETP shall also be provided for workshop and CHP wastewater.	The existing requirement of residential accommodation is made at Sasti township, which is outside the mine lease of gauri deep project. STP at Sasti township is of capacity 1 MLD. One ETP is provided with a capacity of 75 cum /day for work shop									
xl)	Besides carrying out PME of 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.	Periodical health check-up of mine workers are carried out once in 5 years with the purpose of detecting occupational diseases & hearing impairment. Every worker in the mine is examined in 5 years- up to the age of 45; the workers who are above 50 years are subjected to periodic medical examination at two and a half years interval.									
xli)	Land oustees shall be compensated as per the norms laid out R & R policy of CIL or National R&R policy whichever is higher	Entire land has been acquired and R & R has been already settled. No house oustees involved. Total Land acquired = 334.13 ha Employment provided=227nos. Total land compensation paid = Rs 27128805.00 Balance with tribunal = Rs 4939555.00									
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 core zone and buffer zone, from start of project until end shall be prepared once in 3 years and report should be submitted to MoEFCC and its concerned Regional authority.	Noted and is being complied.									
xlili)	A detailed final mine closure plan along with details of Corpus fund shall be submitted to MoEFCC within 6 months of Environmental clearance	Mine closure plan has been prepared and duly approved by WCL Board. Progressive balance in escrow account as on 31/03/2025 is  Rs: 20,80,17,073.00  Escrow account No. -0897107600001072									
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.	<p>The CSR activities are undertaken after due consultation with the local villagers. The details of CSR expenditure for last 5 years is as follows:</p> <table border="1"> <thead> <tr> <th>Sr no.</th><th>Year</th><th>Expenditure (lakhs)</th></tr> </thead> <tbody> <tr> <td>1</td><td>2020-21</td><td>47.05</td></tr> <tr> <td>2</td><td>2021-22</td><td>2.17</td></tr> </tbody> </table>	Sr no.	Year	Expenditure (lakhs)	1	2020-21	47.05	2	2021-22	2.17
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		3	2022-23	2.368
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xIv)	<p>Corporate Environment responsibility:</p> <p>a) The company shall have a well laid down Environment policy approved by the Board of Directors</p> <p>b) The Environment policy shall prescribe for standard operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or Forest norms/conditions.</p> <p>c) The hierarchial system or administrative order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>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 stake holders at large.</p>	<p>Complied. Attached</p> <p>It is being followed</p> <p><b>At HQ, WCL-</b> The cell is headed by GM (Env) reporting to Director (Technical). The team comprises of multi-disciplinary trained executive.</p> <p><b>At Area level</b> – General Manager heads the Environment Department &amp; assisted by GM (oprn) &amp; ANO with Assistant Managers of Environment discipline</p> <p><b>At Unit Level-</b> Environment Management Cell is headed by Sub-Area Manager and is assisted by Project Nodal Officer (Env) at unit level.</p> <p>It is being followed.</p>		

## B. General Conditions

S. NO.	Condition	Status of Compliance
i)	No change in Mining technology and scope of working shall be made without prior approval of the MOEF & CC	No change in Mining technology envisaged.
ii)	No change in calendar plan of production for quantum of	Noted

	mineral coal shall be made	
iii)	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM 10, PM 2.5, SO2 and NOX.	<p>Four ambient air quality monitoring stations are -</p> <p>(i) Manager Office</p> <p>(ii) Mutra village</p> <p>(iii) Goyegaon</p> <p>(iv) Antragaon village</p> <p>and it is in consultation with MPCB, Chandrapur. It is being monitored by CMPDIL regularly. Copy of monitoring reports attached.</p>
iv)	Data on ambient air quality monitoring and heavy metals such as Hg, As, Ni, Cd, Cr tc shall be regularly submitted to Ministry including its concerned Regional office and to SPCB and CPCB once in 6 months.	<p>It is being monitored by CMPDIL regularly.</p> <p>Copy of monitoring reports attached.</p>
v)	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged with blasting and drilling operations, operation of HEMM etc shall be provided with ear plugs/muffs	Adequate measures are taken for control of Noise pollution. Workers engaged in blasting and drilling operations, operation of HEMM, etc are provided with ear plugs/muffs. PPE kit distribution attached.
vi)	Industrial wastewater (workshop and WW from mine) shall be properly collected, treated so as to conform the prescribed standards	For proper treatment of Industrial wastewater-One ETP of capacity 75 cum./day has been provided in the workshop and 1 nos of Sedimentation tank have been constructed near the mine for treatment of mine pumped out water. The quality of discharge is being monitored so as to ensure compliance of prescribed norms before discharging. Oil and grease traps installed at the WETP.
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.	<p>Coal transportation vehicles are covered with tarpaulins and are optimally loaded.</p> <p>Vehicular emissions are kept under control PUC certificate for all light &amp; passenger vehicles are taken.</p> <p>Siding has been set up at Gourideep OC to reduce the road transportation load. Side cladding has been provided to arrest dust at siding along with 2 nos. trolley mounted mist foggers. Also, 16 nos. rainguns have been installed at Gourideep siding.</p>

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 SPCB and data analysed through a lab recognised under EPA rules, 1986.	Monitoring of environmental quality parameters is done by CMPDIL, Nagpur. There is a full fledged NABL accredited Env. Laboratory of CMPDIL. The Monitoring is done through this laboratory at fortnightly interval. Mine has procured a portable testing kit for field monitoring of pH, TDS etc. Copy of monitoring reports attached.
ix)	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.	Protective respiratory devices are provided to workmen exposed to dust area. Workers are also regularly given training on safety and health aspects at VTC (this is the statutory requirement under mines safety act). Periodical medical examination of every worker is being done every five years in our area hospital to detect any disease so that the appropriate action can be taken up at project level.  Details of IME/PME and VTC attached.
x)	Occupational health surveillance programme of the workers shall be taken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof.	It was submitted that every worker in mine was examined once in 5 years upto the age of 45 years; the workers who are above 50 years are subjected to periodical medical examination at two and a half years as per law. Details of IME and PME attached. As per the records available, no notifiable (as specified in the Mine's Rules, 1985) disease has been identified till date.
xi)	A separate environmental management cell with suitable qualified personnel shall be setup under the control of Senior Executive, who will report directly to the Head of the company.	<b>At HQ, WCL-</b> The cell is headed by GM (Env) reporting to Director (Technical). The team comprises of multi-disciplinary trained executive. <b>At Area level –</b> General Manager heads the Environment Department & assisted by GM (opr) & ANO with a 1 Assistant Managers of Environment discipline. <b>At Unit Level-</b> Environment Management Cell is headed by Sub-Area Manager and is assisted by Project Nodal Officer (Env) at unit level.
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 the Ministry and its concerned RO	The funds earmarked for environment protection measures are kept in separate account and it is not used for any other purpose. Expenditure statement are shown in every six monthly compliance reports sent to MoEF&CC
xiii)	The project authorities shall	Complied.



	<p>advertise at least in 2 local newspapers widely circulated around the project, one of which shall be in the vernacular language of locality concerned within 7 days of the clearance letter informing that the project has been accorded environmental clearance and a copy of EC is available at SPCB and may also be seen at website of MoEFCC.</p>	<p>LOKMAT (Marathi) on 21-03-2015 HITAVADA (English) on 21-03-2015</p>
xiv)	<p>A copy of EC 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 recieved while processing the proposal.</p>	<p>The environment clearance copy has been sent to panchayat but no suggestion has been received.</p>
xv)	<p>A copy pf EC letter shall also be displayed on website of the concerned SPCB. The EC letter shall also be displayed at Regional Office, district industry sector and Collector's Office/Tehsildar's Office for 30 days.</p>	<p>Complied</p>
xvi)	<p>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 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.</p>	<p>The clearance letter has been uploaded on website of Western Coalfields Limited.</p> <p>The compliance report is being uploaded. Website link to access EC is</p> <p><a href="http://westerncoal.nic.in/?q=node/271">http://westerncoal.nic.in/?q=node/271</a></p>

xvii)	The project proponent shall be submit six monthly compliance reports on status of Compliance of the stipulated EC conditions (both in hard copy and email) to the respective Regional Office of Ministry, respective Zonal offices of CPCB and SPCB.	Noted and will consistently comply.
xviii)	The regional office of this ministry located in the region shall monitor compliance of the stipulated conditions. The project authorities shall extend full co-operation to the office(s) of the Regional Office by furnishing the requisite data/information/ monitoring reports	Noted
xix)	The environment statement for each financial year ending 31 <sup>st</sup> March in Form-V is mandated to be submitted by the project proponent for the concerned SPCB as prescribed under the EP Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with status of compliance of EC conditions and shall be sent to the respective Regional offices of the MoEF&CC by e-mail.	The Form V of the project for the year 2021-22 has been submitted to MPCB before 30.09.2023 via EC MPCB portal.
6	The proponent shall abide by the commitments and recommendations made in EIA/EMP report so also during their presentation to EAC.	Noted and will be complied
7	The commitment made by the proponent to the issue raised during the Public Hearing shall be implemented by the proponent.	This project has been covered u/s 7 (ii) with exemption from Public Hearing
8	The proponent is required to obtain all necessary clearances that may be required before the start of project.	Noted and will be followed.

9	The Ministry or any other competent authority may stipulate any further condition for environmental protection	Noted.
10	The proponent shall setup an Environment Audit Cell with responsibility and accountability to ensure implementation of all EC conditions.	<p>A team for Internal Monitoring of compliances of Environment clearance conditions have been set up which comprises of:</p> <ol style="list-style-type: none"> <li>1. Area Nodal Officer [Env] , Ballarpur Area.</li> <li>2. S.O. Civil, Ballarpur Area</li> <li>3. Area Finance Manager, Ballarpur Area.</li> <li>4. S.O. Mining, Ballarpur Area.</li> <li>5. Area Survey Officer, Ballarpur Area.</li> </ol>
11	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 may attract action under the provisions of EPA, 1986.	Noted.
12	<p>The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention &amp; Control of Pollution) Act, 1974, the Air (Prevention &amp; Control of Pollution) Act, 1981, The environment (Protection_ Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules.</p> <p>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</p>	Noted and will be followed.

13	Any appeal against this EC shall lie with the NGT, if preferred, with in a period of 30 days as prescribed under section 16 of NGT Act, 2010	Noted.
14	This EC supersedes the earlier EC, vide letter no. Letter J-11015/338/2008-1A.II(M) dated 18.02..2011 for 0.40MTPA	Noted.



भारत सरकार  
जल शक्ति मंत्रालय  
जल संसाधन, नदी विकास  
और गंगा संरक्षण विभाग  
केन्द्रीय भूमि जल प्राधिकरण  
Government of India  
Ministry of Jal Shakti  
Department of Water Resources,  
River Development & Ganga Rejuvenation  
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)  
**NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION**

Project Name:		Gauri Deep Oc Expn. Mine					
Project Address:		Near Village Gauri, Wardha Valley Colafield, Ballarpur Area Of Wcl					
Village:		Gowari		Block:		Rajura	
District:		Chandrapur		State:		Maharashtra	
Pin Code:							
Communication Address:		Gauri Deep Opencast Mine Of Wcl Ballarpur Area, Village Gowari, Tehsil Rajura, District Chandrapur, Maharashtra, Rajura, Chandrapur, Maharashtra - 442905					
Address of CGWB Regional Office :		Central Ground Water Board Central Region, N.s. Building, Civil Lines, Nagpur, Maharashtra - 440001					

1. <b>NOC No.:</b>	CGWA/NOC/MIN/REN/1/2025/11666	2. <b>Date of Issuance</b>	03/06/2025
3. Application No.:	21-4/740/MH/MIN/2017	4. Category: (GWRE 2024)	Safe
5. Project Status:	Existing With Additional Ground Water Requirment	6. NOC Type:	Renewal
7. <b>Valid from:</b>	13/08/2023	8. <b>Valid up to:</b>	12/08/2025

9. Ground Water Abstraction Permitted:							
Fresh Water		Saline Water		Dewatering		Total	
m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year
0.00	0.00			2815.00	1027475.00	2815.00	1027475.00

10. Details of ground water abstraction /Dewatering structures													
Total Existing No							Total Proposed No						
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu	
Dewatering Structure*	0	0	0	0	2	2	0	0	0	0	0	0	

\*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

11. Ground Water Abstraction/Restoration Charges paid (Rs.):	3779131.00
12. Environment Compensation (if applicable) paid (Rs.):	0.00

13. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
		Manual	DWLR**	DWLR With Telemetry
**DWLR - Digital Water Level Recorder	2	0	1	1

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये  
SAVE WATER - SAVE LIFE

CENTRAL GROUND WATER AUTHORITY

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पानी बचाये – जीवन बचाये  
SAVE WATER - SAVE LIFE

**(Compliance Conditions given overleaf)**

This is an auto generated document & need not to be signed.

CENTRAL GROUND WATER AUTHORITY

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18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: [cgwa-noc.gov.in](http://cgwa-noc.gov.in)

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**Validity of this NOC shall be subject to compliance of the following conditions:**

**Mandatory conditions:**

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website ([www.cgwa-noc.gov.in](http://www.cgwa-noc.gov.in)) within one year from the date of issue of this NOC.
- 8) Industries abstracting ground water in excess of 100 m<sup>3</sup>/d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

**General conditions:**

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m<sup>3</sup>/day, the firm/entity shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).
- 31) In the self-compliance report, the PP shall submit details of Drilling Agency/ Agencies, which has/ have constructed BW(s)/ TW(s) along with undertaking to the effect that all necessary measures have been taken as per directions of Hon'ble Supreme Court provided in Annexure-VII of guidelines dated 24.09.2020 in respect of abandoned/ failed BW(s)/ TW(s)/Piezometer(s), if any. The PP is advised to engage registered drilling agency/ agencies. In the event of any mishap/ unfortunate incident due to negligence in taking measures for prevention of accident due to falling in Bore Well, both PP and concerned drilling agency shall jointly be held responsible and penal action as per extant Government rules shall be taken.

**(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)**

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# CENTRAL GROUND WATER AUTHORITY

Department of Water Resources, River Development and Ganga Rejuvenation  
Ministry of Jal Shakti, Govt. of India

## Receipt

(As per the guideline Gazette Notification S.O. 3281(E) regarding the New Guidelines dated 24.09.2020 of CGWA, MoJS, Govt. of India)  
<https://cgwa-noc.gov.in>

Application No.:	21-4/740/MH/MIN/2017	Date of Issuance:	03/06/2025
Name of Firm:	GAURI DEEP OC EXPN. MINE		
AppType Category:	Coal		
Application Type:	Mining		
PAN/GSTIN No. of Firm/Individual:	/		

S N	Description	Amount (Rs.)
1.	Application Processing Fee	5000.00
2.	Ground Water Abstraction charges	3779131.00
3.	Ground Water Restoration charges	0
4.	Environmental Compensation Charges (ECRGW) (Date From to ) Days-	
5.	Penalty for non-Compliance of NOC conditions Condition to be mentioned	410000.00
6.	Adjustment Charges	
7.	Rebate	
8.	Charges for correction/modification in the existing issued No Objection Certificate	
S.No.	Description	Rate
(i)	Change in User ID	Rs. 1000
(ii)	Change in firm Name	Rs. 5000
(iii)	Extension of No Objection Certificate	Rs. 5000
(iv)	Issuance of duplicate No Objection Certificate	Rs. 5000
(v)	Issuance of corrigendum to No Objection Certificate	Rs. 5000
(vi)	Any other items/correction etc.	Rs. 500
Rs. Rupees Forty One Lakh Ninty Four Thousand One Hundred Thirty One Only		4194131.00

This is an system generated invoice, hence, does not require ink signed.

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Term and conditions:

- i. All disputes are subject to Delhi Jurisdiction.
- ii. Any complaint in regard to the rates will not be entertained.

Member-Secretary  
CGWA, New Delhi

CENTRAL GROUND WATER AUTHORITY

# MAHARASHTRA POLLUTION CONTROL BOARD

Tel: 24010706/24010437  
Fax: 24023516  
Website: <http://mpcb.gov.in>  
Email: [cac-cell@mpcb.gov.in](mailto:cac-cell@mpcb.gov.in)



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

RED/L.S.I (R35)  
No:- Format1.0/CC/UAN  
No.0000164784/CR/2308000921

Date: 11/08/2023

To,  
M/s. Gourideep Opencast mine,  
(with temporary railway siding),  
Gouri Sub Area, At Post- Gouri,  
Tal- Rajura, Dist- Chandrapur



**Sub: Renewal of Consent to Operate with temporary railway siding**

**Ref:** 1. Previous Consent vide No:- Format1.0/CC/UAN  
No.0000109251/CR/2204000650 dtd. 12.04.2022 valid upto 31.03.2023.  
2. MoM of 7th Consent Committee meeting dtd. 07.06.2023

Your application No.MPCB-CONSENT-0000164784 Dated 10.03.2023

For: grant of Consent to Operate under Section 26 of the Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization under Rule 6 and Rule 18(7) 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:

- The consent to renewal is granted for a period up to 31/03/2025**
- The capital investment of the project is Rs.100.348 Crs. (As per C.A Certificate submitted by industry )**
- Consent is valid for the manufacture of:**

Sr No	Product	Maximum Quantity	UOM
Products			
1	Coal mining on mining lease area 356.11 Hectare with temporary railway siding	0.6	MT/A

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

Sr No	Description	Permitted (in CMD)	Standards to	Disposal Path
1.	Trade effluent	1237	As per Schedule-I	(Including mine discharge) Recycle to the maximum extent for fire fighting, dust suppression and remaining utilised on land for gardening/ plantation/ irrigation

<b>Sr No</b>	<b>Description</b>	<b>Permitted</b>	<b>Standards to</b>	<b>Disposal</b>
2.	Domestic effluent	8	As per Schedule-I	Soaked in soak pit

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

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

6. **Non-Hazardous Wastes:**

<b>Sr No</b>	<b>Type of Waste</b>	<b>Quantity</b>	<b>UoM</b>	<b>Treatment</b>	<b>Disposal</b>
1	Overburden	1061000	m3/month	-	Backfilling & Reclamation of land

7. **Conditions under Hazardous & Other Wastes (M & T M) Rules 2016 for Collection, Segregation, Storage, Transportation, Treatment and Disposal of hazardous waste:**

<b>Sr No</b>	<b>Category No./ Type</b>	<b>Quantity</b>	<b>UoM</b>	<b>Treatment</b>	<b>Disposal</b>
1	35.3 Chemical sludge from waste water treatment	18	Ton/Y	Landfill	CHWTSDf
2	5.1 Used or spent oil	3	Ton/Y	Incineration	CHWTSDf
3	5.2 Wastes or residues containing oil	18	Ton/Y	Recycle	Sale to authorised party / 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 MoEF, GoI vide letter No. J-11015/179/2014-IA.II(M) dtd. 13.03.2015.
11. Industry shall provide Sewage Treatment Plant within 3 months.
12. Industry shall connect online CMS data as per CPCB guidelines to CPCB & MPCB Servers.
13. PP shall provide dry deshelling / manual picking of stray material arrangement also submit a plan for installation of Coal washery within a month.
14. PP shall install minimum 3 CAAQMS arrangement within 3 months.
15. PP shall convert existing water sprinkling arrangement into chemical fogging arrangement (MgCl<sub>2</sub>) within 3 months period.

16. PP shall install real-time coal ash analyser on pilot basis.
  17. PP shall provide tar road in remaining area within in mining premises.
  18. PP shall carry out over burden dump management as per CPCB guidelines.
  19. PP shall carry out plantation as per EC condition before ensuing monsoon.
  20. PP shall provide treatment plant for mine water discharge and submit sedimentation tank design details.
  21. PP shall obtain NOC/clarification from CGWA within 03 months.
  22. Industry shall extend all existing BGs towards O&M of pollution control systems and towards compliance of the Consent conditions.
  23. This consent is issued as per the 7th Consent Committee meeting dated 07.06.2023.
  24. The permission for with temporary railway siding is only upto December, 2024, please note.
  25. The applicant shall make an application for renewal of consent 60 days prior to date of expiry of the consent.
- . This consent is issued as per communication letter dated 03/11/2022 which is approved by competent authority of the board.



**Received Consent fee of -**

<b>Sr.No</b>	<b>Amount(Rs.)</b>	<b>Transaction/DR.No.</b>	<b>Date</b>	<b>Transaction Type</b>
1	1397088.00	MPCB-DR-18310 A	11/04/2023	NEFT

**Copy to:**

1. Regional Officer, MPCB, Chandrapur and Sub-Regional Officer, MPCB, Chandrapur  
- They are directed to ensure the compliance of the consent conditions.
2. Chief Accounts Officer, MPCB, Sion, Mumbai

### **SCHEDULE-I**

#### **Terms & conditions for compliance of Water Pollution Control:**

1. A] As per your application, you have provided ETP having 75 CMD capacity comprising of Collection tank, Oil & Grease trap- Sedimentation tank, Hopper bottom tank, Clear water sump & SDB. Sedimentation tank - 600CMD provided for treatment of Mine water discharge.
- B] The Applicant shall operate the effluent treatment plant (ETP) to treat the trade effluent so as to achieve the following standards prescribed by the Board or under EP Act, 1986 and Rules made there under from time to time, whichever is stringent:

<b>Sr.No</b>	<b>Parameters</b>	<b>Limiting concentration not to exceed in mg/l, except for pH</b>
(1)	pH	5.5 to 9.0
(2)	Oil & Grease	10
(3)	BOD (3 days 27°C )	30
(4)	COD	250
(5)	Total Suspended solids	100
(6)	Total Dissolved solids	2100

- C] The Industry shall provide separate energy meter for pollution control system.
  - D] The treated effluent shall be used for spraying mine 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 Septic Tank followed by Soak pit for the treatment of 8 CMD of sewage.
  - B] The Applicant shall operate the sewage treatment system to treat the sewage so as to achieve the following standards.

<b>Sr.No</b>	<b>Parameters</b>	<b>Standards (mg/l)</b>	
1	BOD (3 days 27°C )	Not to exceed	30
2	SS	Not to exceed	100

- 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:

<b>Sr. No.</b>	<b>Purpose for water consumed</b>	<b>Water consumption quantity (CMD)</b>
1.	Industrial Cooling, spraying in mine pits or boiler feed	252.00
2.	Domestic purpose	10.00
3.	Processing whereby water gets polluted & pollutants are easily biodegradable	0.00
4.	Processing whereby water gets polluted & pollutants are not easily biodegradable and are toxic	110.00
5.	Gardening	60

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



## **SCHEDULE-II**

### **Terms & conditions for compliance of Air Pollution Control:**

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

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

2. The Applicant shall provide Specific Air Pollution control equipments as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance / CREP guidelines.
3. The Applicant shall obtain necessary prior permission for providing additional control equipment with necessary specifications and operation thereof or alteration or replacement/alteration well before its life come to an end or erection of new pollution control equipment.
4. The Board reserves its rights to vary all or any of the condition in the consent, if due to any technological improvement or otherwise such variation (including the change of any control equipment, other in whole or in part is necessary).
5. Control Equipments
- Coal handling plant provided with dust collector & automatic water sprinkler shall be operated
  - Scientific spraying of water on all working area, dump area, stock piles with the help of appropriate dust suppression system.
  - Minerals shall be properly covered during transportation.
  - The applicant shall carry out tree plantation along road side, around dumps or compulsory afforestation as per proposal approved by Forest Department. The tree plantation programme shall be taken up well in advance of the actual mining activity, so that green belt of sufficient width & height is developed between mining area/road and surrounding environment.
  - Black topped metal roads provided shall be well maintained to prevent dust formation.
  - Overloading of dumpers shall be avoided to prevent spillages.
  - Correct type & quantity of explosive shall be used to avoid excess dust formation & vibration in the surrounding area.
  - The slope of the over burden shall have slope not more than 28° to the horizontal. The overburden shall be properly covered by vegetation for stabilization.
  - Minerals transportation shall be done by installing conveyors wherever possible & mechanically covered closed trucks shall be used for transportation.

6. Standards for Ambient Air Pollutants:

The Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM), Sulphur dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>x</sub>) 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.



<b>Pollutant</b>	<b>Time weighted average</b>	<b>Concentration in Ambient Air</b>
Suspended Particulates Matter (SPM)	Annual Average	360 µg/m <sup>3</sup>
	24 hours	500 µg/m <sup>3</sup>
Respirable Particulate Matter (size less than 10 µm) (RPM)	Annual Average	180 µg/m <sup>3</sup>
	24 hours	250 µg/m <sup>3</sup>
Sulphur Dioxide (SO <sub>2</sub> )	Annual Average	80 µg/m <sup>3</sup>
	24 hours	120 µg/m <sup>3</sup>
Oxides of Nitrogen as NO <sub>x</sub>	Annual Average	80 µg/m <sup>3</sup>
	24 hours	120 µg/m <sup>3</sup>

- i. In case of any residential or commercial or industrial place falls within 500 metres of any dust generating sources, the National Ambient Air Quality Standards notified vide MOEFCC GOI notification dtd 16.11.2009 as ammended shall be made applicable.
- ii. The applicant shall provide minimum three ambient air quality monitoring stations within mining area which should be monitored for SPM, RSPM, SO<sub>2</sub>, NO<sub>x</sub>, 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:

<b>Sr. No</b>	<b>Location</b>	<b>Permissible Norms [in dB (A)]</b>	<b>Desired minimum thickness of green belt (m)</b>
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:**

<b>Sr. No</b>	<b>Consent (C2E/ C2O /C2R)</b>	<b>Amt of BG Imposed</b>	<b>Submission Period</b>	<b>Purpose of BG</b>	<b>Compliance Period</b>	<b>Validity Date</b>
1	C2R	Rs. 5.0 Lakh	15 days	Provision/up-gradation of sedimentations tanks of appropriate size for the mine discharge treatment with some pitching lining / lined sedimentation tank.	Continuous	31/07/2025
2	C2R	Rs.5.0 Lakh	15 days	Provision / Up-gradation of Effluent Treatment Plant (ETP) for effluent generated from workshops / vehicle washing activity & reuse of effluent in the process	2 Months	31/07/2025
3	C2R	Rs.25.0 Lakh	15 days	Coal transportation shall be done by mechanically closed trucks. Overloading of shall be avoided to prevent spillages. 10% of total fleet available to be replaced every six month	6 Months	31/07/2025
4	C2R	Rs.5.0 Lakh	15 days	Coal Handling Plant (CHP) & loading / unloading area will be provided with Dust Collector and Automatic Water Sprinkler.	2 Months	31/07/2025
5	C2R	Rs.10.0 Lakh	15 days	To provide tar road in remaining area and to be well maintain to prevent dust formation (As decided in hearing with WCL authority extended On 07.07.2018 and on the basis of the presentation made by WCL authority they have agreed to comply the consent conditions in time bound manner.)	6 Months	31/07/2025
6	C2R	Rs.5.0 Lakh	15 days	Adoption and installation of tyre wash system to mining transportation at entry and exit point of mining area.	3 Months	31/07/2025

Sr. No.	Consent (C2E/C2O/C2R)	Amt of BG Imposed	Submission Period	Purpose of BG	Compliance Period	Validity Date
7	C2R	Rs.25.0 Lakh	15 days	Operation and Maintenance of pollution control system so as to maintain consented standards prescribed as per Air(Prevention & Control of pollution) Act, 1974 Water (Prevention & Control of Pollution) Act, 1981 & HW (MH & TM) Rules 2008 and also adhering to compliance of specific / general condition of Environment Clearance.	Regular Activity	31/07/2025

**\*\*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](http://www.mpcb.gov.in)).
13. The industry shall constitute an Environmental cell with qualified staff/personnel/agency to see the day to day compliance of consent condition towards Environment Protection.

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

24. The industry shall ensure that fugitive emissions from the activity are controlled so as to maintain clean and safe environment in and around the factory premises
25. The industry shall submit official e-mail address and any change will be duly informed to the MPCB.
26. The industry shall achieve the National Ambient Air Quality standards prescribed vide Government of India, Notification dtd. 16.11.2009 as amended.

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This certificate is digitally & electronically signed.

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# Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

## FORM V

(See Rule 14)

Environmental Audit Report for the financial Year ending the 31st March 2025

### Unique Application Number

MPCB-ENVIRONMENT\_STATEMENT-0000088083

### Submitted Date

30-09-2025

## PART A

### Company Information

#### Company Name

Western Coal Fields Ltd Gouri Deep Opencast Mine

#### Application UAN number

164784

#### Address

Plot no: 62 110 189 of antargaon, 165 141 of goyegaon etc, Gouri Deep Opencast Mine, WCL, Ballarpur Area, Taluka: Rajura, Dist: Chandrapur: 442706

#### Plot no

62 110 189 of antargaon, 165 141 of goyegaon

#### Taluka

Rajura

#### Village

-

#### Capital Investment (In lakhs)

10034.8

#### Scale

L.S.I

#### City

Chandrapur

#### Pincode

442905

#### Person Name

Shri Ranjeet Kumar

#### Designation

Sub Area Manager

#### Telephone Number

8208796869

#### Fax Number

07173230076

#### Email

envgourideep@gmail.com

#### Region

SRO-Chandrapur

#### Industry Category

Red

#### Industry Type

R35 Mining and ore beneficiation

#### Last Environmental statement submitted online

yes

#### Consent Number

Format1.0/CC/UAN  
No.0000164784/CR/2308000921

#### Consent Issue Date

2023-08-11

#### Consent Valid Upto

2025-03-31

#### Establishment Year

2012

#### Date of last environment statement submitted

Sep 28 2024 12:00:00:000AM

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

### Product Information

#### Product Name

COAL

#### Consent Quantity

0.378

#### Actual Quantity

0.60

#### UOM

MT/A

### By-product Information

#### By Product Name

NA

#### Consent Quantity

0

#### Actual Quantity

0

#### UOM

CMD

Part-B (Water & Raw Material Consumption)

<b>1) Water Consumption in m3/day</b>			
<b>Water Consumption for Process</b>	<b>Consent Quantity in m3/day</b>	<b>Actual Quantity in m3/day</b>	
	252.00	222.00	
<b>Cooling</b>	0.00	0.00	
<b>Domestic</b>	10.00	10.00	
<b>All others</b>	170.00	30.00	
<b>Total</b>	432.00	262.00	

<b>2) Effluent Generation in CMD / MLD</b>			
<b>Particulars</b>	<b>Consent Quantity</b>	<b>Actual Quantity</b>	<b>UOM</b>
daily trade effluent (CGWA NOC)	1499	1237	CMD

<b>2) Product Wise Process Water Consumption (cubic meter of process water per unit of product)</b>			
<b>Name of Products (Production)</b>	<b>During the Previous financial Year</b>	<b>During the current Financial year</b>	<b>UOM</b>
coal (CUBIC METER/TONNE)	0.214	0.135	CMD

<b>3) Raw Material Consumption (Consumption of raw material per unit of product)</b>			
<b>Name of Raw Materials</b>	<b>During the Previous financial Year</b>	<b>During the current Financial year</b>	<b>UOM</b>
EXPLOSIVES (KG/TONNE)	1.384	0.981	

<b>4) Fuel Consumption</b>			
<b>Fuel Name</b>	<b>Consent quantity</b>	<b>Actual Quantity</b>	<b>UOM</b>
Diesel	3164	2902	KL/A

Part-C

<b>Pollution discharged to environment/unit of output (Parameter as specified in the consent issued)</b>					
<b>[A] Water</b>					
<b>Pollutants Detail</b>	<b>Quantity of Pollutants discharged (kL/day)</b>	<b>Concentration of Pollutants discharged(Mg/Lit) Except PH,Temp,Colour</b>	<b>Percentage of variation from prescribed standards with reasons</b>	<b>Standard</b>	<b>Reason</b>
	<b>Quantity</b>	<b>Concentration</b>	<b>%variation</b>		
WATER REPORT ATTACHED IN PART I	0	0	-	-	-
<b>[B] Air (Stack)</b>					
<b>Pollutants Detail</b>	<b>Quantity of Pollutants discharged (kL/day)</b>	<b>Concentration of Pollutants discharged(Mg/NM3)</b>	<b>Percentage of variation from prescribed standards with reasons</b>	<b>Standard</b>	<b>Reason</b>
	<b>Quantity</b>	<b>Concentration</b>	<b>%variation</b>		
NO AIR STACK MONITORING	0	0	-	-	-

Part-D

<b>HAZARDOUS WASTES</b>			
<b>1) From Process</b>			
<b>Hazardous Waste Type</b>	<b>Total During Previous Financial year</b>	<b>Total During Current Financial year</b>	<b>UOM</b>



5.2 Wastes or residues containing oil	0	1	Ton/Y
5.1 Used or spent oil	33.33	263.45	KL/A

2) From Pollution Control Facilities

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
35.3 Chemical sludge from waste water treatment	1	1	Ton/Y

Part-E

SOLID WASTES

1) From Process

Non Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
OVERBURDEN	1506000	1532000	M3/Anum

2) From Pollution Control Facilities

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

3) Quantity Recycled or Re-utilized within the unit

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

Part-F

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

1) Hazardous Waste

Type of Hazardous Waste Generated	Qty of Hazardous Waste	UOM	Concentration of Hazardous Waste
0	0	KL/A	-

2) Solid Waste

Type of Solid Waste Generated	Qty of Solid Waste	UOM	Concentration of Solid Waste
OVERBURDEN	1532000	M3/Anum	-

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	0	0.717	-24000	225000	0	0

Part-H

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

**[A] Investment made during the period of Environmental Statement**

<b><i>Detail of measures for Environmental Protection</i></b>	<b><i>Environmental Protection Measures</i></b>	<b><i>Capital Investment (Lacks)</i></b>
CAAQMS	VARIOUS AIR, WATER AND NOISE CONTROL MEASURES INCLUDING CESS.	87
Warp wall	VARIOUS AIR, WATER AND NOISE CONTROL MEASURES INCLUDING CESS.	175

**[B] Investment Proposed for next Year**

<b><i>Detail of measures for Environmental Protection</i></b>	<b><i>Environmental Protection Measures</i></b>	<b><i>Capital Investment (Lacks)</i></b>
Trolley mounted fogging machine	-	15

**Part-I**

**Any other particulars for improving the quality of the environment.**

**Particulars**

-

**Name & Designation**

Shri. Nazimuddin

**UAN No:**

MPCB-ENVIRONMENT\_STATEMENT-0000088083

**Submitted On:**

30-09-2025



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## ENVIRONMENTAL MONITORING REPORT

### GOURI DEEP OC

BALLARPUR AREA

WESTERN COALFIELDS LTD.


JOB NO. 4094423068



MAY 2025

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

AN ISO 9001:2015 COMPANY

<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	 TC-7102
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TEST REPORT NO.	RIN/TR/MAY-25/43	DATE OF ISSUE	25.06.2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-05-25 TO 15-06-25

MANAGER OFFICE				BGDO1			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
08.05.2025	09.05.2025	345	210	65	26	14	Sunny /Light Breeze
22.05.2025	23.05.2025	290	185	60	22	12	Sunny /Light Breeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	

MUTRA VILLAGE BGDO2						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )				ENVIRONMENT CONDITIONS (Sky/Wind)
		PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	2	6	10	
02.05.2025	03.05.2025	60	28	8	BDL	Sunny /Light Breeze
03.05.2025	04.05.2025	71	35	10	BDL	Sunny /Light Breeze
09.05.2025	10.05.2025	76	30	14	BDL	Sunny /Light Breeze
10.05.2025	11.05.2025	64	26	12	BDL	Sunny /Light Breeze
16.05.2025	17.05.2025	59	25	14	BDL	Sunny /Light Breeze
17.05.2025	18.05.2025	78	37	13	BDL	Sunny /Light Breeze
23.05.2025	24.05.2025	75	42	14	BDL	Sunny /Light Breeze
24.05.2025	25.05.2025	66	40	12	BDL	Sunny /Light Breeze
28.05.2025	29.05.2025	59	27	11	BDL	Sunny /Light Breeze
29.05.2025	30.05.2025	71	32	10	BDL	Sunny /Light Breeze
NAAQS, 2009		100	60	80	80	

GOYEGAON VILLAGE BGDO3						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )				ENVIRONMENT CONDITIONS (Sky/Wind)
		PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	2	6	10	
02.05.2025	03.05.2025	76	30	10	BDL	Sunny /Light Breeze
03.05.2025	04.05.2025	70	29	14	BDL	Sunny /Light Breeze
09.05.2025	10.05.2025	68	36	12	BDL	Sunny /Light Breeze
10.05.2025	11.05.2025	82	43	10	BDL	Sunny /Light Breeze
16.05.2025	17.05.2025	70	34	11	BDL	Sunny /Light Breeze
17.05.2025	18.05.2025	78	43	9	BDL	Sunny /Light Breeze
23.05.2025	24.05.2025	68	30	8	BDL	Sunny /Light Breeze
24.05.2025	25.05.2025	58	28	12	BDL	Sunny /Light Breeze
28.05.2025	29.05.2025	69	39	10	BDL	Sunny /Light Breeze
29.05.2025	30.05.2025	76	43	11	BDL	Sunny /Light Breeze
NAAQS, 2009		100	60	80	80	

RAILWAY SIDDING				BGDO4			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in µg/m³)					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
08.05.2025	09.05.2025	356	241	70	28	16	
22.05.2025	23.05.2025	386	265	65	25	14	
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	



Analysed by

<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	
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SAMPLE DESCRIPTION	Water sample	
Test Required	pH: IS 3025 -(Part 11), TSS: IS 3025-(Part 17), COD: APHA (24th Edition) 5220 C , O & G: IS 3025-(Part 39) & BOD: IS 3025 (Part 44)	
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 16-05-25 TO 15-06-25

MINE WATER DISCHARGE: BGDW1		ANALYSIS RESULTS		
DATE OF SAMPLE COLLECTION	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08.05.2025	7.35	22	36	BDL
22.05.2025	7.49	24	44	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP(WORKSHOP) DISCHARGE: BGDW2		ANALYSIS RESULTS		
DATE OF SAMPLE COLLECTION	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08.05.2025	7.22	28	40	BDL
22.05.2025	7.61	24	40	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



Analysed by


<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	
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**NOISE LEVEL MONITORING DATA**

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

MANAGER OFFICE:		BGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAY'25	11.05.2025	63.8	57.7
MAY'25	28.05.2025	64.9	56.9
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

MUTHRA VILLAGE :		BGON2	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
MAY'25	11.05.2025	45.3	41.4
MAY'25	28.05.2025	46.8	42.8
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

  
Yogesh Pidurkar  
Reviewed by

  
Amol Kamble  
Authorised by

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

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



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**ENVIRONMENTAL MONITORING REPORT**

**GOURI DEEP OC**

**BALLARPUR AREA**

**WESTERN COALFIELDS LTD.**

JOB NO. 4094423068



**APRIL 2025**



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

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<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	
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TEST REPORT NO.	RIN/TR/APRIL-25/43	DATE OF ISSUE	25-05-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-04-25 TO 15-05-25

MANAGER OFFICE BGDO1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
08-04-2025	09-04-2025	305	198	56	18	11	clear sky / light breeze
22-04-2025	23-04-2025	324	205	64	22	14	clear sky / light breeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	

MUTRA VILLAGE BGDO2							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )				ENVIRONMENT CONDITIONS (Sky/Wind)	
		PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>		
FROM	TO	5	2	6	10		
02-04-2025	03-04-2025	69	35	9	BDL	clear sky / light breeze	
03-04-2025	04-04-2025	72	29	8	BDL	clear sky / light breeze	
09-04-2025	10-04-2025	74	34	9	BDL	clear sky / light breeze	
10-04-2025	11-04-2025	83	31	11	BDL	clear sky / light breeze	
16-04-2025	17-04-2025	72	28	9	BDL	clear sky / light breeze	
17-04-2025	18-04-2025	68	32	10	BDL	clear sky / light breeze	
23-04-2025	24-04-2025	75	39	11	BDL	clear sky / light breeze	
24-04-2025	25-04-2025	69	27	8	BDL	clear sky / light breeze	
NAAQS, 2009		100	60	80	80		

GOYEGAON VILLAGE BGDO3							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )				ENVIRONMENT CONDITIONS (Sky/Wind)	
		PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>		
FROM	TO	5	2	6	10		
02-04-2025	03-04-2025	70	30	12	BDL	clear sky / light breeze	
03-04-2025	04-04-2025	76	33	9	BDL	clear sky / light breeze	
09-04-2025	10-04-2025	88	38	9	BDL	clear sky / light breeze	
10-04-2025	11-04-2025	79	32	10	BDL	clear sky / light breeze	
16-04-2025	17-04-2025	65	25	8	BDL	clear sky / light breeze	
17-04-2025	18-04-2025	70	30	9	BDL	clear sky / light breeze	
23-04-2025	24-04-2025	58	18	5	BDL	clear sky / light breeze	
24-04-2025	25-04-2025	73	30	8	BDL	clear sky / light breeze	
NAAQS, 2009		100	60	80	80		

RAILWAY SIDDING BGDO4							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )				ENVIRONMENT CONDITIONS (Sky/Wind)	
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
08-04-2025	09-04-2025	340	210	63	26	16	clear sky / light breeze
22-04-2025	23-04-2025	290	185	65	24	16	clear sky / light breeze
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	



Analysed by



<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	
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**FUGITIVE DUST MONITORING**

TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24)		
SAMPLE DESCRIPTION	Air sample(Fugitive)		
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-04-25 TO 15-05-25

WEIGH BRIDGE			BGDOF1	
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	
FROM	TO	5	5	
19-04-2025	20-04-2025	530	410	Cloudy / Light Breeze
CHP			BGDOF2	
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	
FROM	TO	5	5	
19-04-2025	20-04-2025	452	326	Cloudy / Light Breeze



Analysed by

<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	
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SAMPLE DESCRIPTION	Water sample		
Test Required	pH: IS 3025 -Part 11, TSS: IS 3025-Part 17, COD: APHA (24th Edition) 5220 C ,O&G: IS 3025-Part 39 & BOD: IS 3025 (Part 44)		
SAMPLING METHOD	LSOP 5	PERIOD OF PERFORMANCE OF LAB ACTIVITIES :	16-04-25 TO 15-05-25

MINE WATER DISCHARGE: BGDW1				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-04-2025	7.73	36	56	BDL
22-04-2025	7.69	24	28	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP(WORKSHOP) DISCHARGE: BGDW2				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
08-04-2025	7.55	20	32	BDL
22-04-2025	7.94	22	36	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



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**NOISE LEVEL MONITORING DATA**

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

MANAGER OFFICE:		BGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
APRIL'25	11-04-2025	58.8	55.8
APRIL'25	25-04-2025	64.8	58.9
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

MUTHRA VILLAGE :		BGON2	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
		DAY TIME	NIGHT TIME
	DETECTION LIMIT	20	20
APRIL'25	11-04-2025	42.0	40.1
APRIL'25	25-04-2025	46.1	43.4
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

  
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## ENVIRONMENTAL MONITORING REPORT

### GOURI DEEP OC

BALLARPUR AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



JULY 2025

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

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<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	
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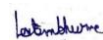
TEST REPORT NO.	RIN/TR/JULY-25/43	DATE OF ISSUE	25-08-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:	16-07-25 TO 15-08-25	

MANAGER OFFICE				BGDO1			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
07-07-2025	08-07-2025	163	96	32	12	10	RAINY/CALM
21-07-2025	22-07-2025	213	132	39	15	12	CLOUDY/CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	

MUTRA VILLAGE BGDO2						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
01-07-2025	02-07-2025	83	30	10	BDL	CLOUDY/CALM
02-07-2025	03-07-2025	79	24	9	BDL	CLOUDY/CALM
08-07-2025	09-07-2025	67	20	8	BDL	RAINY/CALM
09-07-2025	10-07-2025	58	17	7	BDL	RAINY/CALM
13-07-2025	14-07-2025	88	25	10	BDL	CLOUDY/CALM
14-07-2025	15-07-2025	75	21	9	BDL	CLOUDY/CALM
22-07-2025	23-07-2025	68	19	8	BDL	RAINY/CALM
23-07-2025	24-07-2025	70	22	7	BDL	RAINY/CALM
27-07-2025	28-07-2025	74	27	7	BDL	CLOUDY/CALM
28-07-2025	29-07-2025	80	30	10	BDL	CLOUDY/CALM
NAAQS, 2009		100	60	80	80	

GOYEGAON VILLAGE BGDO3						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
01-07-2025	02-07-2025	75	24	9	BDL	CLOUDY/CALM
02-07-2025	03-07-2025	70	20	8	BDL	CLOUDY/CALM
08-07-2025	09-07-2025	67	18	7	BDL	RAINY/CALM
09-07-2025	10-07-2025	60	16	7	BDL	RAINY/CALM
13-07-2025	14-07-2025	77	20	9	BDL	CLOUDY/CALM
14-07-2025	15-07-2025	70	22	8	BDL	CLOUDY/CALM
22-07-2025	23-07-2025	62	19	8	BDL	RAINY/CALM
23-07-2025	24-07-2025	58	15	7	BDL	RAINY/CALM
27-07-2025	28-07-2025	70	23	8	BDL	CLOUDY/CALM
28-07-2025	29-07-2025	66	21	7	BDL	CLOUDY/CALM
NAAQS, 2009		100	60	80	80	

RAILWAY SIDDING				BGDO4			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
07-07-2025	08-07-2025	287	196	42	15	12	RAINY/CALM
21-07-2025	22-07-2025	312	224	51	18	14	CLOUDY/CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	



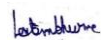
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**FUGITIVE DUST MONITORING**

TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24)		
SAMPLE DESCRIPTION	Air sample(Fugitive)		
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-07-25 TO 15-08-25

WEIGH BRIDGE BGDOF1				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	
FROM	TO	S	S	
01-07-2025	02-07-2025	319	208	CLOUDY/CALM
CHP BGDOF2				
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )		ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	
FROM	TO	S	S	
01-07-2025	02-07-2025	347	257	CLOUDY/CALM



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SAMPLE DESCRIPTION	Water sample
Test Required	pH: IS 3025 -(Part 11), TSS: IS 3025-(Part 17), COD: APHA (24th Edition) 5220 C, O & G: IS 3025-(Part 39) & BOD: IS 3025 (Part 44)
SAMPLING METHOD	LSOP 5 PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 16-07-25 TO 15-08-25

MINE WATER DISCHARGE: BGDW1				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
13-07-2025	8.00	22	36	BDL
28-07-2025	7.70	26	40	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP(WORKSHOP) DISCHARGE: BGDW2				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
13-07-2025	7.96	30	44	BDL
28-07-2025	8.10	26	40	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



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**NOISE LEVEL MONITORING DATA**

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

MANAGER OFFICE:		BGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
	DETECTION LIMIT	DAY TIME	NIGHT TIME
JULY'25	12-07-2025	58.6	53.7
JULY'25	28-07-2025	59.8	55.7
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

MUTHRA VILLAGE :		BGON2	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
	DETECTION LIMIT	DAY TIME	NIGHT TIME
JULY'25	12-07-2025	45.7	41.6
JULY'25	28-07-2025	46.7	43.6
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

  
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## ENVIRONMENTAL MONITORING REPORT

### GOURI DEEP OC

BALLARPUR AREA

WESTERN COALFIELDS LTD.

JOB NO. 4094423068



AUGUST 2025

Environment Laboratory  
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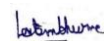
TEST REPORT NO.	RIN/TR/AUG-25/43	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-08-25 TO 15-09-25

MANAGER OFFICE				BGDO1			
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
09-08-2025	10-08-2025	187	105	30	13	10	RAINY/CALM
23-08-2025	24-08-2025	251	179	38	16	14	CLOUDY/CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	

MUTRA VILLAGE BGDO2						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
04-08-2025	05-08-2025	74	24	8	BDL	CLOUDY/CALM
05-08-2025	06-08-2025	82	29	10	BDL	CLOUDY/CALM
10-08-2025	11-08-2025	70	20	8	BDL	CLOUDY/CALM
11-08-2025	12-08-2025	77	26	9	BDL	CLOUDY/CALM
18-08-2025	19-08-2025	55	16	6	BDL	RAINY/CALM
19-08-2025	20-08-2025	78	24	8	BDL	CLOUDY/CALM
25-08-2025	26-08-2025	70	20	7	BDL	CLOUDY/CALM
26-08-2025	27-08-2025	74	23	8	BDL	CLOUDY/CALM
NAAQS, 2009		100	60	80	80	

GOYEGAON VILLAGE BGDO3						
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )				ENVIRONMENT CONDITIONS (Sky/Wind)
FROM	TO	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
04-08-2025	05-08-2025	71	20	9	BDL	CLOUDY/CALM
05-08-2025	06-08-2025	79	27	10	BDL	CLOUDY/CALM
10-08-2025	11-08-2025	54	15	7	BDL	RAINY/CALM
11-08-2025	12-08-2025	59	18	8	BDL	RAINY/CALM
18-08-2025	19-08-2025	86	27	9	BDL	CLOUDY/CALM
19-08-2025	20-08-2025	74	21	8	BDL	CLOUDY/CALM
25-08-2025	26-08-2025	77	26	8	BDL	CLOUDY/CALM
26-08-2025	27-08-2025	69	18	7	BDL	CLOUDY/CALM
NAAQS, 2009		100	60	80	80	

RAILWAY SIDDING							BGDO4
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
09-08-2025	10-08-2025	256	182	41	14	10	RAINY/CALM
23-08-2025	24-08-2025	331	229	50	17	15	CLOUDY/CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	




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<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	
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SAMPLE DESCRIPTION	Water sample
Test Required	pH: IS 3025 -(Part 11), TSS: IS 3025-(Part 17), COD: APHA (24th Edition) 5220 C, O & G: IS 3025-(Part 39) & BOD: IS 3025 (Part 44)
SAMPLING METHOD	LSOP 5 PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 16-08-25 TO 15-09-25

MINE WATER DISCHARGE: BGDW1				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
09-08-2025	7.90	24	36	BDL
23-08-2025	7.86	26	44	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP(WORKSHOP) DISCHARGE: BGDW2				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
09-08-2025	7.65	22	32	BDL
23-08-2025	8.04	28	40	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



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**NOISE LEVEL MONITORING DATA**

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

MANAGER OFFICE:		BGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
	DETECTION LIMIT	DAY TIME	NIGHT TIME
AUG'25	12-08-2025	58.7	54.8
AUG'25	26-08-2025	56.1	53.8
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

MUTHRA VILLAGE :		BGON2	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
	DETECTION LIMIT	DAY TIME	NIGHT TIME
AUG'25	12-08-2025	46.6	42.7
AUG'25	26-08-2025	45.8	41.7
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

  
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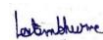
TEST REPORT NO.	RIN/TR/SEPT-25/43	DATE OF ISSUE	25-10-2025
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		
TEST REQUIRED	SPM: IS 5182 (Part-4), PM-10: IS-5182 (Part 23), PM2.5: IS 5182 (Part 24), NO2: IS 5182 (Part-06), SO2:IS 5182 (Part-2)		
SAMPLE DESCRIPTION	AIR SAMPLE	SAMPLING PLAN :	LQR 47
SAMPLING METHOD : LSOP 4	PERIOD OF PERFORMANCE OF LAB ACTIVITIES:		16-09-25 TO 15-10-25

MANAGER OFFICE BGDO1							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
07-09-2025	08-09-2025	272	189	45	14	12	CLOUDY/CALM
21-09-2025	22-09-2025	234	155	30	11	BDL	CLOUDY/CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	

MUTRA VILLAGE BGDO2							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>		
FROM	TO	5	2	6	10		
01-09-2025	02-09-2025	55	17	7	BDL		RAINY/CALM
02-09-2025	03-09-2025	61	20	8	BDL		RAINY/CALM
08-09-2025	09-09-2025	57	16	8	BDL		RAINY/CALM
09-09-2025	10-09-2025	76	24	9	BDL		CLOUDY/CALM
13-09-2025	14-09-2025	64	21	7	BDL		RAINY/CALM
16-09-2025	17-09-2025	77	24	8	BDL		CLOUDY/CALM
21-09-2025	22-09-2025	80	29	10	BDL		CLOUDY/CALM
22-09-2025	23-09-2025	72	19	8	BDL		CLOUDY/CALM
27-09-2025	28-09-2025	51	15	6	BDL		RAINY/CALM
28-09-2025	29-09-2025	65	19	7	BDL		RAINY/CALM
NAAQS, 2009		100	60	80	80		

GOYEGAON VILLAGE BGDO3							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>		
FROM	TO	5	2	6	10		
01-09-2025	02-09-2025	74	28	9	BDL		RAINY/CALM
02-09-2025	03-09-2025	65	19	7	BDL		RAINY/CALM
08-09-2025	09-09-2025	60	16	7	BDL		RAINY/CALM
09-09-2025	10-09-2025	76	22	9	BDL		CLOUDY/CALM
13-09-2025	14-09-2025	55	15	6	BDL		RAINY/CALM
16-09-2025	17-09-2025	82	29	10	BDL		CLOUDY/CALM
21-09-2025	22-09-2025	76	24	9	BDL		CLOUDY/CALM
22-09-2025	23-09-2025	70	22	9	BDL		CLOUDY/CALM
27-09-2025	28-09-2025	59	19	6	BDL		RAINY/CALM
28-09-2025	29-09-2025	66	23	8	BDL		RAINY/CALM
NAAQS, 2009		100	60	80	80		

RAILWAY SIDING BGDO4							
DATE(dd:mm:yy) OF SAMPLING		PARAMETERS (24 hourly values in $\mu\text{g}/\text{m}^3$ )					ENVIRONMENT CONDITIONS (Sky/Wind)
		SPM	PM <sub>10</sub>	PM <sub>2.5</sub>	No <sub>x</sub>	So <sub>x</sub>	
FROM	TO	5	5	2	6	10	
07-09-2025	08-09-2025	324	240	59	20	15	CLOUDY/CALM
21-09-2025	22-09-2025	299	188	49	16	13	CLOUDY/CALM
STANDARDS FOR COAL MINE, GSR 742(E), dt. 25 <sup>TH</sup> September 2000		600	300	-	120	120	



Analysed by

<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	
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SAMPLE DESCRIPTION	Water sample
Test Required	pH: IS 3025 -(Part 11), TSS: IS 3025-(Part 17), COD: APHA (24th Edition) 5220 C, O & G: IS 3025-(Part 39) & BOD: IS 3025 (Part 44)
SAMPLING METHOD	LSOP 5 PERIOD OF PERFORMANCE OF LAB ACTIVITIES : 16-09-25 TO 15-10-25

MINE WATER DISCHARGE: BGDW1				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
07-09-2025	8.78	30	48	BDL
21-09-2025	9.06	22	46	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10

ETP(WORKSHOP) DISCHARGE: BGDW2				
DATE OF SAMPLE COLLECTION	ANALYSIS RESULTS			
	pH	TSS (in mg/l)	COD(in mg/l)	O & G(in mg/l)
DETECTION LIMIT	2	10	4	2
07-09-2025	9.17	24	32	BDL
21-09-2025	9.10	20	36	BDL
STANDARDS FOR COAL MINE, GSR 742E, dt. 25/09/2000	5.5 - 9.0	100	250	10



Analysed by


<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b>	
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**NOISE LEVEL MONITORING DATA**

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

MANAGER OFFICE:		BGON1	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
	DETECTION LIMIT	DAY TIME	NIGHT TIME
SEPT'25	12-09-2025	59.7	54.8
SEPT'25	26-09-2025	58.8	53.7
NOISE POLLUTION (REGULATION AND CONTROL) RULES		75	70

MUTHRA VILLAGE :		BGON2	
MONTH	DATE OF SAMPLE COLLECTION	NOISE LEVEL IN dB(A)	
	DETECTION LIMIT	DAY TIME	NIGHT TIME
SEPT'25	12-09-2025	45.6	41.7
SEPT'25	26-09-2025	46.7	42.8
NOISE POLLUTION (REGULATION AND CONTROL) RULES		55	45

  
Yogesh Pidurkar  
Reviewed by

  
Amol Kamble  
Authorised by

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## DRINKING WATER MONITORING REPORT

### BALLARPUR AREA

**WESTERN COALFIELDS LTD.**


JOB NO.4094423068






**QE-SEPTEMBER 2025**

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

AN ISO 9001:2015 COMPANY

<b>Environment Laboratory CMPDI RI-IV, NAGPUR</b>		<b>Test Report Drinking water quality monitoring data</b>		 TC-7102		
TEST REPORT NO.	RIN/TR/SEPT-25/DW16		DATE OF ISSUE	25-10-2025		
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR		SAMPLE DESCRIPTION	WATER SAMPLE		
NAME OF AREA	BALLARPUR		SAMPLING METHOD: LSOP 5			
NAME OF PROJECT	AMALAGAMATED OF GOURI PAUNI OC		SAMPLING PLAN: LQR 47			
NO. OF PAGES	2					
NAME OF LOCATION: FILTER PLANT			SAMPLING DATE:	13-07-2025		
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	IS 10500:2012	
					REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method	1	1	5	15
2	Odour	IS 3025 Part-5	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Nephelometric Method	1	1	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method	2	7.95	6.5 to 8.5	No relaxation
5	Total Hardness (as CaCO <sub>3</sub> ) - mg/l	IS 3025 Part-21 EDTA Method	4	292	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl <sup>-</sup> ) - mg/l	IS 3025 Part-32 Argentometric Method	2	58	250	1000
8	Residual Chlorine -mg/l	APHA, 24th Edition 4500-G DPD Colorimetric method	0.02	BDL	0.2	1
9	Fluoride (as F <sup>-</sup> ) - mg/l	APHA, 24th Edition 4500-FD SPADNS Method	0.02	0.45	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method	25	590	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40	1.6	60.8	75	200
12	Magnesium (as Mg) -mg/l	APHA (24th Ed.) 3500 B, Calculation Method	3	34.02	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method	0.02	BDL	0.1	0.3
15	Sulphate (as SO <sub>4</sub> <sup>-2</sup> ) -mg/l	APHA (24th Edition) 4500E Turbidimetric Method	2	88.47	200	400

16	Nitrates (as NO <sub>3</sub> ) - mg/l	APHA (24th Edition) 4500-NO <sub>3</sub> -B UV Spectrophotometric method	0.5	12.43	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 24th Edition 3113 B AAS GTA Method	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 24th Edition 3113 B AAS GTA Method	0.005	BDL	0.01	No relaxation
19	Selenium (Se) -mg/l	IS 3025 P 56	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 24th Edition 3114 C AAS-VGA Method	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 24th Edition 4500 B-C Carmine Method	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23	4	120	200	600
25	Nickel-mg/l	APHA, 24th Edition 3113 B AAS FLAME Method	0.005	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	IS 3025 P 55	0.005	BDL	0.1	0.2
<p style="text-align: right;"><b>BDL: BELOW DETECTION LIMIT</b></p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">   SCIENTIFIC ASSISTANT </div> <div style="text-align: center;">   Amol Kamble  AUTHORIZED SIGNATORY </div> </div>						
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<b>Environment Laboratory</b> <b>CMPDI RI-IV, NAGPUR</b>		<b>Test Report</b> <b>Drinking water quality monitoring data</b>			 TC-7102	
TEST REPORT NO.	RIN/TR/SEPT-25/DW17			DATE OF ISSUE	25-10-2025	
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			SAMPLE DESCRIPTION	WATER SAMPLE	
NAME OF AREA	BALLARPUR			SAMPLING METHOD: LSOP 5		
NAME OF PROJECT	SASTI OC			SAMPLING PLAN: LQR 47		
NO. OF PAGES	2					
NAME OF LOCATION: FILTER PLANT				SAMPLING DATE: 13-07-2025		
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	IS 10500:2012	
					REQUIREMENT (ACCEPTABLE)	PERMISSIBLE LIMIT IN THE ABSENCE OF
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method	1	1	5	15
2	Odour	IS 3025 Part-5	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Nephelometric Method	1	2	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method	2	7.94	6.5 to 8.5	No relaxation
5	Total Hardness (as CaCO <sub>3</sub> ) - mg/l	IS 3025 Part-21 EDTA Method	4	464	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl <sup>-</sup> ) - mg/l	IS 3025 Part-32 Argentometric Method	2	48	250	1000
8	Residual Chlorine -mg/l	APHA, 24th Edition 4500-G DPD Colorometric method	0.02	BDL	0.2	1
9	Fluoride (as F <sup>-</sup> ) - mg/l	APHA, 24th Edition 4500-FD SPADNS Method	0.02	0.80	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method	25	760	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40	1.6	118.4	75	200
12	Magnesium (as Mg) -mg/l	APHA (24th Ed.) 3500 B, Calculation Method	3	41.8	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method	0.03	BDL	0.05	1.5
14	Manganese as (Mn) - mg/l	IS 3025 Part-59, AAS Flame Method	0.02	0.024	0.1	0.3
15	Sulphate (as SO <sub>4</sub> <sup>-2</sup> ) -mg/l	APHA (24th Edition) 4500E Turbidimetric Method	2	90.68	200	400

16	Nitrates (as NO <sub>3</sub> ) - mg/l	APHA (24th Edition) 4500-NO <sub>3</sub> -B UV Spectrophotometric method	0.5	15.52	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 24th Edition 3113 B AAS GTA Method	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 24th Edition 3113 B AAS GTA Method	0.005	BDL	0.01	No relaxation
19	Selenium (Se) -mg/l	IS 3025 P 56	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 24th Edition 3114 C AAS-VGA Method	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method	< 0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 24th Edition 4500 B-C Carmine Method	< 0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23	220	64	200	600
25	Nickel-mg/l	APHA, 24th Edition 3113 B AAS FLAME Method	BDL	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	IS 3025 P 55	BDL	BDL	0.1	0.2

**BDL: BELOW DETECTION LIMIT**

*Amol Kamble*

SCIENTIFIC ASSISTANT

*Amol Kamble*

Amol Kamble  
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TEST REPORT NO.	RIN/TR/SEPT-25/DW18			DATE OF ISSUE	25-10-2025	
NAME OF CUSTOMER	GM(ENV.), WCL(HQ), NAGPUR			SAMPLE DESCRIPTION	WATER SAMPLE	
NAME OF AREA	BALLARPUR			SAMPLING METHOD: LSOP 5		
NAME OF PROJECT	NEW DHOPTALA OC			SAMPLING PLAN: LQR 47		
NO. OF PAGES	2					
NAME OF LOCATION: MANAGER OFFICE				SAMPLING DATE:		13-07-2025
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	IS 10500:2012	
					REQUIREMENT (ACCEPTABLE)	PERMISSIBLE LIMIT IN THE ABSENCE OF
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method	1	2	5	15
2	Odour	IS 3025 Part-5	Qualitative	Unobjectionable	Agreeable	Agreeable
3	Turbidity (NTU)	IS 3025 Part-10 Nephelometric Method	1	2	1	5
4	pH Value	IS 3025 Part-11 Electrometric Method	2	7.93	6.5 to 8.5	No relaxation
5	Total Hardness (as CaCO <sub>3</sub> ) - mg/l	IS 3025 Part-21 EDTA Method	4	536	200	600
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method	0.06	BDL	0.3	No relaxation
7	Chlorides (as Cl <sup>-</sup> ) - mg/l	IS 3025 Part-32 Argentometric Method	2	70	250	1000
8	Residual Chlorine -mg/l	APHA, 24th Edition 4500-G DPD Colorimetric method	0.02	BDL	0.2	1
9	Fluoride (as F <sup>-</sup> ) - mg/l	APHA, 24th Edition 4500-FD SPADNS Method	0.02	1.08	1	1.5
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method	25	890	500	2000
11	Calcium (as Ca) -mg/l	IS 3025 Part-40	1.6	128	75	200
12	Magnesium (as Mg) -mg/l	APHA (24th Ed.) 3500 B, Calculation Method	3	52.49	30	100
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method	0.03	BDL	0.05	1.5
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method	0.02	0.029	0.1	0.3
15	Sulphate (as SO <sub>4</sub> <sup>-2</sup> ) -mg/l	APHA (24th Edition) 4500E Turbidimetric Method	2	93.46	200	400

16	Nitrates (as NO <sub>3</sub> ) - mg/l	APHA (24th Edition) 4500-NO <sub>3</sub> -B UV Spectrophotometric method	0.5	17.31	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 24th Edition 3113 B AAS GTA Method	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 24th Edition 3113 B AAS GTA Method	0.005	BDL	0.01	No relaxation
19	Selenium (Se) -mg/l	IS 3025 P 56	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 24th Edition 3114 C AAS-VGA Method	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method	0.01	BDL	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 24th Edition 4500 B-C Carmine Method	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23	4	92	200	600
25	Nickel-mg/l	APHA, 24th Edition 3113 B AAS FLAME Method	0.005	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	IS 3025 P 55	0.005	BDL	0.1	0.2

**BDL: BELOW DETECTION LIMIT**


*Amol Kamble*

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TEST REPORT NO.		RIN/TR/SEPT-25/DW19		DATE OF ISSUE		25-10-2025	
NAME OF CUSTOMER		GM(ENV.), WCL(HQ), NAGPUR		SAMPLE DESCRIPTION		WATER SAMPLE	
NAME OF AREA		BALLARPUR		SAMPLING METHOD: LSOP 5			
NAME OF PROJECT		BALLARPUR UG		SAMPLING PLAN: LQR 47			
NO. OF PAGES		2					
NAME OF LOCATION: FILTER PLANT				SAMPLING DATE: 13-07-2025			
SL. NO.	PARAMETER	TEST METHOD	DETECTION LIMIT	ANALYSIS RESULT	IS 10500:2012		
					REQUIREMENT (ACCEPTABLE LIMIT)	PERMISSIBLE LIMIT IN THE ABSENCE OF ALTERNATE SOURCE	
1	Colour (Hazen)	IS 3025 Part-4 Pt-Co Method	1	1	5	15	
2	Odour	IS 3025 Part-5	Qualitative	Unobjectionable	Agreeable	Agreeable	
3	Turbidity (NTU)	IS 3025 Part-10 Nephelometric Method	1	1	1	5	
4	pH Value	IS 3025 Part-11 Electrometric Method	2	8.13	6.5 to 8.5	No relaxation	
5	Total Hardness (as CaCO <sub>3</sub> ) - mg/l	IS 3025 Part-21 EDTA Method	4	236	200	600	
6	Iron (as Fe) -mg/l	IS 3025 Part-53 AAS Flame Method	0.06	BDL	0.3	No relaxation	
7	Chlorides (as Cl <sup>-</sup> ) - mg/l	IS 3025 Part-32 Argentometric Method	2	62	250	1000	
8	Residual Chlorine -mg/l	APHA, 24th Edition 4500-G DPD Colorimetric method	0.02	BDL	0.2	1	
9	Fluoride (as F <sup>-</sup> ) - mg/l	APHA, 24th Edition 4500-FD SPADNS Method	0.02	0.42	1	1.5	
10	TDS -mg/l	IS 3025 Part-16 Gravimetric Method	25	550	500	2000	
11	Calcium (as Ca) -mg/l	IS 3025 Part-40	1.6	46.4	75	200	
12	Magnesium (as Mg) -mg/l	APHA (24th Ed.) 3500 B, Calculation Method	3	29.16	30	100	
13	Copper (as Cu) -mg/l	IS 3025 Part-42 AAS Flame Method	0.03	BDL	0.05	1.5	
14	Manganese as (Mn)- mg/l	IS 3025 Part-59, AAS Flame Method	0.02	BDL	0.1	0.3	
15	Sulphate (as SO <sub>4</sub> <sup>-2</sup> ) -mg/l	APHA (24th Edition) 4500E Turbidimetric Method	2	68.39	200	400	



16	Nitrates (as NO <sub>3</sub> ) - mg/l	APHA (24th Edition) 4500-NO <sub>3</sub> -B UV Spectrophotometric method	0.5	11.77	45	No relaxation
17	Cadmium as (Cd)- mg/l	APHA, 24th Edition 3113 B AAS GTA Method	0.0005	BDL	0.003	No relaxation
18	Lead as (Pb) -mg/l	APHA, 24th Edition 3113 B AAS GTA Method	0.005	BDL	0.01	No relaxation
19	Selenium (Se) –mg/l	IS 3025 P 56	0.005	BDL	0.01	No relaxation
20	Arsenic (As)-mg/l	APHA, 24th Edition 3114 C AAS-VGA Method	0.005	BDL	0.05	No relaxation
21	Zinc as (Zn) -mg/l	IS 3025 Part-49 AAS Flame Method	0.01	0.015	5	15
22	Total Chromium -mg/l	IS 3025 Part-52 Clause 6, AAS Flame Method	0.03	BDL	0.05	No relaxation
23	Boron as (B) -mg/l	APHA, 24th Edition 4500 B-C Carmine Method	0.002	BDL	0.5	1
24	Alkalinity -mg/l	IS 3025 Part-23	4	112	200	600
25	Nickel-mg/l	APHA, 24th Edition 3113 B AAS FLAME Method	0.005	BDL	0.02	No relaxation
26	Aluminum (Al)-mg/l	IS 3025 P 55	0.005	BDL	0.1	0.2
<p style="text-align: right;"><b>BDL: BELOW DETECTION LIMIT</b></p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">   SCIENTIFIC ASSISTANT </div> <div style="text-align: center;">   Amol Kamble  AUTHORIZED SIGNATORY </div> </div>						
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**ENVIRONMENTAL MONITORING REPORT**  
**w.r.t. HEAVY METALS IN AMBIENT AIR**  
**BALLARPUR AREA**

**WESTERN COALFIELDS LTD.**



**HALF YEARLY (APR 25 - SEPT 25)**

**Environment Laboratory**  
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**CMPDI**

**REGIONAL INSTITUTE-IV, KASTURBA NAGAR,**  
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<b>Environment Laboratory</b> <b>CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b> <b>Ambient Air Quality Monitoring Data</b> <b>For Heavy Metals</b>	 <b>TC-7102</b>
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TEST REPORT NO.	RIN/TR/JUNE /HM46	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	GOURI DEEP	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	MANAGER OFFICE	BGDOA-1	08-04-2025
2	MUTRA VILLAGE	BGDOA-2	02-04-2025
3	GOYEGAON VILLAGE	BGDOA-3	02-04-2025
4	RAILWAY SIDING	BGDOA-4	08-04-2025

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

BDL: BELOW DETECTION LIMIT



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TEST REPORT NO.	RIN/TR/JUNE /HM48	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	PAUNI II OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	MINE OFFICE	BP2OA-1	13-04-2025
2	SUBSTATION	BP2OA-2	13-04-2025
3	SAKHRI VILLAGE	BP2OA-3	04-04-2025
4	WORKSHOP PAUNI OC	BP2OA-4	13-04-2025

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value				National Ambient Air Quality Standard NAAQS, 2009
				BP2OA-1	BP2OA-2	BP2OA-3	BP2OA-4	
1	Arsenic, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	BDL	0.006 $\mu\text{g}/\text{m}^3$ (Annual average)
2	Lead, $\mu\text{g}/\text{m}^3$	IS 5182 PART 22	7.0 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	BDL	1.0 $\mu\text{g}/\text{m}^3$ (24 Hourly average)
3	Nickle, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.007 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	BDL	0.02 $\mu\text{g}/\text{m}^3$ (Annual average)
4	Total Chromium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0045 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	BDL	**
5	Cadmium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0015 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	BDL	**
6	Mercury, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	BDL	**

BDL: BELOW DETECTION LIMIT



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TEST REPORT NO.	RIN/TR/JUNE /HM49	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	Amagamalation Gouri I & Pauni OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	MANAGER OFFICE -GOURI -I O/C	BGOA-1	08-04-2025
2	SAM OFFICE -GOURI SUB AREA	BGOA-2	08-04-2025
3	GOURI VILLAGE	BGOA-4	02-04-2025

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value			National Ambient Air Quality Standard NAAQS, 2009
				BGOA-1	BGOA-2	BGOA-4	
1	Arsenic, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	0.006 $\mu\text{g}/\text{m}^3$ (Annual average)
2	Lead, $\mu\text{g}/\text{m}^3$	IS 5182 PART 22	7.0 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	1.0 $\mu\text{g}/\text{m}^3$ (24 Hourly average)
3	Nickle, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.007 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	0.02 $\mu\text{g}/\text{m}^3$ (Annual average)
4	Total Chromium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0045 $\mu\text{g}/\text{m}^3$	0.0048	BDL	BDL	**
5	Cadmium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0015 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	**
6	Mercury, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	**

BDL: BELOW DETECTION LIMIT



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TEST REPORT NO.	RIN/TR/JUNE /HM51	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	SASTI OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	GOURI COLONY /FILTER PLANT	BSOA-3	04-04-2025
2	SAM OFFICE -SASTI OC	BSOA-1	06-04-2025
3	AREA STORE	BSOA-2	06-04-2025

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

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TEST REPORT NO.	RIN/TR/JUNE /HM52	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	SASTI UG	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	SASTI COLONY	BSUOA-3	04-04-2025
2	SASTI VILLAGE	BSUOA-4	04-04-2025

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

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TEST REPORT NO.	RIN/TR/JUNE /HM53	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	NEW DHOPTALA OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	SAM OFFICE DHOPTALA SUB AREA	BDOA-1	06-04-2025
2	MANAGER OFFICE - DHOPTALA OC	BDOA-2	06-04-2025

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

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TEST REPORT NO.	RIN/TR/JUNE /HM54	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	BALLARPUR UG	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	MANAGER OFFICE -BALLARPUR UG	BBUOA-1	07-04-2025
2	FILTER PLANT COLONY	BBUOA-4	02-04-2025

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

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TEST REPORT NO.	RIN/TR/JUNE /HM55	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	BALLARPUR OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	PREMISES OF SUB AERA OFFICE	BBOA-3	07-04-2025
2	SUBSTATION -BALLARPUR OC	BBOA-2	07-04-2025

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

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TEST REPORT NO.	RIN/TR/JUNE /HM57	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	Amagamalation Gouri & Pauni OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	CHP/ Coal unloading point	BGOF-1	19-04-2025
2	W. Bridge	BGOF-2	19-04-2025

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value		National Ambient Air Quality Standard NAAQS, 2009
				BGOF-1	BGOF-2	
1	Arsenic, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	0.006 $\mu\text{g}/\text{m}^3$ (Annual average)
2	Lead, $\mu\text{g}/\text{m}^3$	IS 5182 PART 22	7.0 $\mu\text{g}/\text{m}^3$	BDL	BDL	1.0 $\mu\text{g}/\text{m}^3$ (24 Hourly average)
3	Nickle, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.007 $\mu\text{g}/\text{m}^3$	0.0078	0.0076	0.02 $\mu\text{g}/\text{m}^3$ (Annual average)
4	Total Chromium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0045 $\mu\text{g}/\text{m}^3$	0.0047	BDL	**
5	Cadmium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0015 $\mu\text{g}/\text{m}^3$	BDL	BDL	**
6	Mercury, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	**

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TEST REPORT NO.	RIN/TR/JUNE /HM58	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	SASTI OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	Main CHP	BSOF-1	25-04-2025
2	W. Bridge	BSOF-2	25-04-2025

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value		National Ambient Air Quality Standard NAAQS, 2009
				BSOF-1	BSOF-2	
1	Arsenic, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	0.006 $\mu\text{g}/\text{m}^3$ (Annual average)
2	Lead, $\mu\text{g}/\text{m}^3$	IS 5182 PART 22	7.0 $\mu\text{g}/\text{m}^3$	BDL	BDL	1.0 $\mu\text{g}/\text{m}^3$ (24 Hourly average)
3	Nickle, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.007 $\mu\text{g}/\text{m}^3$	0.0079	0.0072	0.02 $\mu\text{g}/\text{m}^3$ (Annual average)
4	Total Chromium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0045 $\mu\text{g}/\text{m}^3$	BDL	BDL	**
5	Cadmium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0015 $\mu\text{g}/\text{m}^3$	BDL	BDL	**
6	Mercury, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	**

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TEST REPORT NO.	RIN/TR/JUNE /HM60	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	BALLARPUR OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	CHP/Coal moni. Point	BBOF-1	18-04-2025
2	W. Bridge	BBOF-2	18-04-2025
3	Rly. Siding	BBOF-3	18-04-2025

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value			National Ambient Air Quality Standard NAAQS, 2009
				BBOF-1	BBOF-2	BBOF-3	
1	Arsenic, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	0.006 $\mu\text{g}/\text{m}^3$ (Annual average)
2	Lead, $\mu\text{g}/\text{m}^3$	IS 5182 PART 22	7.0 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	1.0 $\mu\text{g}/\text{m}^3$ (24 Hourly average)
3	Nickle, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.007 $\mu\text{g}/\text{m}^3$	0.0078	0.0084	0.0079	0.02 $\mu\text{g}/\text{m}^3$ (Annual average)
4	Total Chromium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0045 $\mu\text{g}/\text{m}^3$	BDL	0.0048	BDL	**
5	Cadmium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0015 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	**
6	Mercury, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	BDL	**

BDL: BELOW DETECTION LIMIT



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<b>Environment Laboratory</b> <b>CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b> <b>Ambient Air Quality Monitoring Data</b> <b>For Heavy Metals</b>	 TC-7102
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TEST REPORT NO.	RIN/TR/JUNE /HM61	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	GOURI DEEP OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	WEIGH BRIDGE	BGDOF1	19-04-2025
2	CHP	BGDOF2	19-04-2025

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value		National Ambient Air Quality Standard NAAQS, 2009
				BGDOF1	BGDOF2	
1	Arsenic, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	0.006 $\mu\text{g}/\text{m}^3$ (Annual average)
2	Lead, $\mu\text{g}/\text{m}^3$	IS 5182 PART 22	7.0 $\mu\text{g}/\text{m}^3$	BDL	BDL	1.0 $\mu\text{g}/\text{m}^3$ (24 Hourly average)
3	Nickle, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.007 $\mu\text{g}/\text{m}^3$	0.0075	0.0073	0.02 $\mu\text{g}/\text{m}^3$ (Annual average)
4	Total Chromium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0045 $\mu\text{g}/\text{m}^3$	BDL	BDL	**
5	Cadmium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0015 $\mu\text{g}/\text{m}^3$	BDL	BDL	**
6	Mercury, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	**

BDL: BELOW DETECTION LIMIT



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<b>Environment Laboratory</b> <b>CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b> <b>Ambient Air Quality Monitoring Data</b> <b>For Heavy Metals</b>	 TC-7102
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TEST REPORT NO.	RIN/TR/JUNE /HM59	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	PAUNI II OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	CHP/ Coal unloading point	BP2OF-1	20-04-2025
2	W. Bridge	BP2OF-2	20-04-2025

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value		National Ambient Air Quality Standard NAAQS, 2009
				BP2OF-1	BP2OF-2	
1	Arsenic, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	0.006 $\mu\text{g}/\text{m}^3$ (Annual average)
2	Lead, $\mu\text{g}/\text{m}^3$	IS 5182 PART 22	7.0 $\mu\text{g}/\text{m}^3$	BDL	BDL	1.0 $\mu\text{g}/\text{m}^3$ (24 Hourly average)
3	Nickle, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.007 $\mu\text{g}/\text{m}^3$	0.0081	0.0083	0.02 $\mu\text{g}/\text{m}^3$ (Annual average)
4	Total Chromium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0045 $\mu\text{g}/\text{m}^3$	0.0048	0.0046	**
5	Cadmium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0015 $\mu\text{g}/\text{m}^3$	BDL	BDL	**
6	Mercury, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	**

BDL: BELOW DETECTION LIMIT




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<b>Environment Laboratory</b> <b>CMPDI RI-IV, NAGPUR</b>	<b>Test Report</b> <b>Ambient Air Quality Monitoring Data</b> <b>For Heavy Metals</b>	 TC-7102
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TEST REPORT NO.	RIN/TR/JUNE /HM59a	DATE OF ISSUE	25-09-2025
NAME OF CUSTOMER	GM(ENV.),WCL(HQ), NAGPUR	SAMPLE DESCRIPTION	AIR SAMPLE
CUSTOMER LETTER REFERENCE NO.	WCL/HQ/ENV/14-I/206-220 DATED: 25.03.2022		
TEST REQUIRED	Heavy metals (As, Pb, Ni, Cr & Cd ) in air samples (ASTM D 4185)		
NAME OF AREA	BALLARPUR	SAMPLING METHOD : LSOP 4	
NAME OF PROJECT	NEW DHOPTALA OC	SAMPLING PLAN : LQR 47	
No. of Pages	1		

Sl No.	Name of location	Location Code	Date of sampling
1	WEIGH BRIDGE	BNDOF-1	18-04-2025
2	CHP /COAL MINE POINT	BNDOF-2	25-04-2025

Sl. No.	Parameter	Method of analysis	Detection limit	Observed Value		National Ambient Air Quality Standard NAAQS, 2009
				BNDOF-1	BNDOF-2	
1	Arsenic, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	0.006 $\mu\text{g}/\text{m}^3$ (Annual average)
2	Lead, $\mu\text{g}/\text{m}^3$	IS 5182 PART 22	7.0 $\mu\text{g}/\text{m}^3$	BDL	BDL	1.0 $\mu\text{g}/\text{m}^3$ (24 Hourly average)
3	Nickle, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.007 $\mu\text{g}/\text{m}^3$	0.0082	0.0077	0.02 $\mu\text{g}/\text{m}^3$ (Annual average)
4	Total Chromium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0045 $\mu\text{g}/\text{m}^3$	BDL	BDL	**
5	Cadmium, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0015 $\mu\text{g}/\text{m}^3$	BDL	BDL	**
6	Mercury, $\mu\text{g}/\text{m}^3$	ASTM D 4185	0.0007 $\mu\text{g}/\text{m}^3$	BDL	BDL	**

BDL: BELOW DETECTION LIMIT



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**REPORT ON**  
**MONITORING OF GROUND WATER LEVEL**  
**OF**  
**EXPN. OF GAURI DEEP OC MINE,**  
**BALLARPUR AREA**  
**(M.S)**  
**WESTERN COALFIELDS LTD.**



**PERIOD- MAY-2025 (PRE-MONSOON)**



**M/s Anacon Laboratories Pvt. Ltd., Nagpur**

**MoEF&CC (GOI) Recognized Laboratory**  
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Website: [www.anaconlaboratories.com](http://www.anaconlaboratories.com)  
Report No. ANqr /PD/20A/2023/199

**2025-26**

## Certificate

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

The report includes the monitoring of groundwater levels and water quality analysis of observation wells pertaining to the EXPN. OF GAURI DEEP OC Mine in the Ballarpur Area of Chandrapur District, Maharashtra.

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

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



**Krupali Raut**  
(Geologist)



**Gyanchand Bohra**  
NABET Accredited EIA Expert  
for Hydrogeology & Geology

Nagpur  
May-2025



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

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I-TABLE	EXPN. OF GAURI DEEP OC MINE	PERIOD- MAY-2025 (PRE-MONSOON)	8
Analysis Report	EXPN. OF GAURI DEEP OC MINE	Water Analysis Report	12



*Gauri*



## **INTRODUCTION**

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 Chhindawara Districts). It has been divided into 10 administrative areas. The Company is a major source of supplies of coal to the industries located in Western India in the States of Maharashtra, Madhya Pradesh, Gujarat and also in Southern India in the States of Andhra Pradesh, Tamil Nadu, Karnataka and Kerala. A large numbers of Power Houses under Maharashtra, Madhya Pradesh, Gujarat, Karnataka, Punjab and Uttar Pradesh - Electricity Boards are major consumers of its coal along with cement, steel, chemical, fertilizer, paper and brick Industries in these states.

M/s Anacon Laboratories Pvt. Ltd. has been awarded the Work of "Groundwater level Monitoring ( i.e. bore well / piezometer Water levels ) and Water quality analysis ( as per IS10500 ) for 76 projects / mines of WCL ( situated in the state of Madhya Pradesh – Chhindwara & Betul districts and Maharashtra – Nagpur, Chandrapur & Yeotmal districts) for one year as per condition stipulated in Environmental Clearance letters issued by MoEF & CC & NOC issued by CGWA" vide work order वेकोलि/मुख्यालय/पर्यावरण/14-L/1122-1148, dated 19.04.2025 for the May 2025 (Pre-monsoon) Period.

This Ground Water Level Monitoring report is prepared for EXPN. OF GAURI DEEP OC MINE, of Ballarpur Area of WCL for 1 season i.e. **PERIOD- MAY 2025(PRE MONSOON)**. This mine is located in Chandrapur District of Maharashtra.

## **GENERAL HYDROGEOLOGICAL CONDITION**

The major water bearing formations in the district are Alluvium, Lower Gondwana Sandstones, Deccan Trap Basalt, Vindhyan Limestone and Archean metamorphic. Amongst these, the lower Gondwana Sandstones, particularly Kamthi Sandstone forms the most potential aquifer.

### **A. HARD ROCK FORMATIONS**

#### **ARCHEAN METAMORPHICS**

Archeans, which comprise granite and granitic gneiss, occur in most of the eastern part of the district extending north-south from Nagbhid to Gondpipri. 6 These rocks are generally devoid of primary porosity, but weathering, jointing, fracturing, shearing etc., create secondary porosity, within which the ground water generally occurs in phreatic conditions. The depth of weathering ranges from 4 to 12 m bgl and dugwells are generally tapping this zone with yields of up to 30 m<sup>3</sup> /day. Contrary to the general perception, the possibility of deep-seated fracture zone exists in the area because of tectonic disturbances manifested in the form of dykes observed in the area. Therefore, borewells in the depth range of 40-70 m bgl are also successful in this formation at suitable places with yield of 1000 to 35000 lph. High yielding dugwells are generally located in fractured granites.

## **VINDHYAN LIMESTONE**

In Vindhyan, Limestones are water bearing formation while Sandstone due to their hard and compact nature, has poor ground water potential. The Vindhyan sedimentaries mainly occur in north central part of the district around Tadoba and Nagbhid in parts of Chimur, Sindewahi, Bhadravati and Nagbhid talukas and in south eastern part of the district in parts of Chandur and Rajura talukas. Limestones as such are massive but wherever they are cavernous and fractured they are capable of holding water and the ground water generally occurs under phreatic condition in these formations and the discharge in general is poor (up to 15 m<sup>3</sup> /day). The borewells drilled by State Govt. agencies in the depth range of 30 to 40 m bgl are successful only at few places where discharge of 10000 lph or above has been observed.

## **DECCAN TRAP BASALT**

Deccan Trap Basalt is observed in small area in the north eastern and south eastern peripheral parts of the district and does not form a promising aquifer in the district. Weathered, jointed and fractured Massive and Vesicular Basalt forms the aquifer in the area. Ground water occurs in phreatic conditions within the depth of 10-15 m, however, borewells drilled have shown presence of fracture zones and thus forming deeper confined and semi-confined aquifers at places. The dugwells yield varies from 15-30 m<sup>3</sup> /day when favourably located, whereas borewells yield 1 to 3 lps.

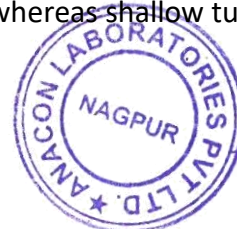
## **B. SOFT ROCK FORMATIONS**

### **GONDWANA SANDSTONE**

Gondwana formation comprising of Kamthi and Barakar Sandstone and Maleri and Talchir Shale occupy north-south extending elongated stretch in central and southern parts of the district in parts of Warora, Bhadravati, Chandrapur, Ballarpur, Rajura and Gondpipri 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 phreatic as well as confined conditions in Kamthi Sandstone up to the depth of 80 to 120 m bgl with thickness varying from 34 to 102 m. Barakar Sandstone occurs below Kamthi formation and three granular zones are observed with cumulative thickness of about 72 m within a 300 m thick sandstone-shale sequence. Comparatively Kamthi Sandstone has more ground water potential with yields of up to 20 lps. The other Gondwana formations i.e., Maleri Series (upper Gondwana) and Talchirs (lower Gondwana) have very poor ground water potential and ground water occurs in phreatic condition.

### **ALLUVIUM**

Alluvium of fluvial origin occurs in narrow patches along the banks of Wardha and Wainganga Rivers and consists of clay, silt with lenticular bodies of sand and gravel. Ground water generally occurs under phreatic conditions down to the depth of 10-15 m. The area in the north eastern part of the district near Brahmapuri along the western bank of Wainganga River and having a spread of about 100 sq. km. forms the most potential alluvial area. The Alluvium in this part is occurs down to 30-35 m and the basement is reported to be formed by Granitic Gneisses. The dugwells yield up to 50 m<sup>3</sup> /day when favourably located, whereas shallow tubewells yield varies from 5 to 15 lps.



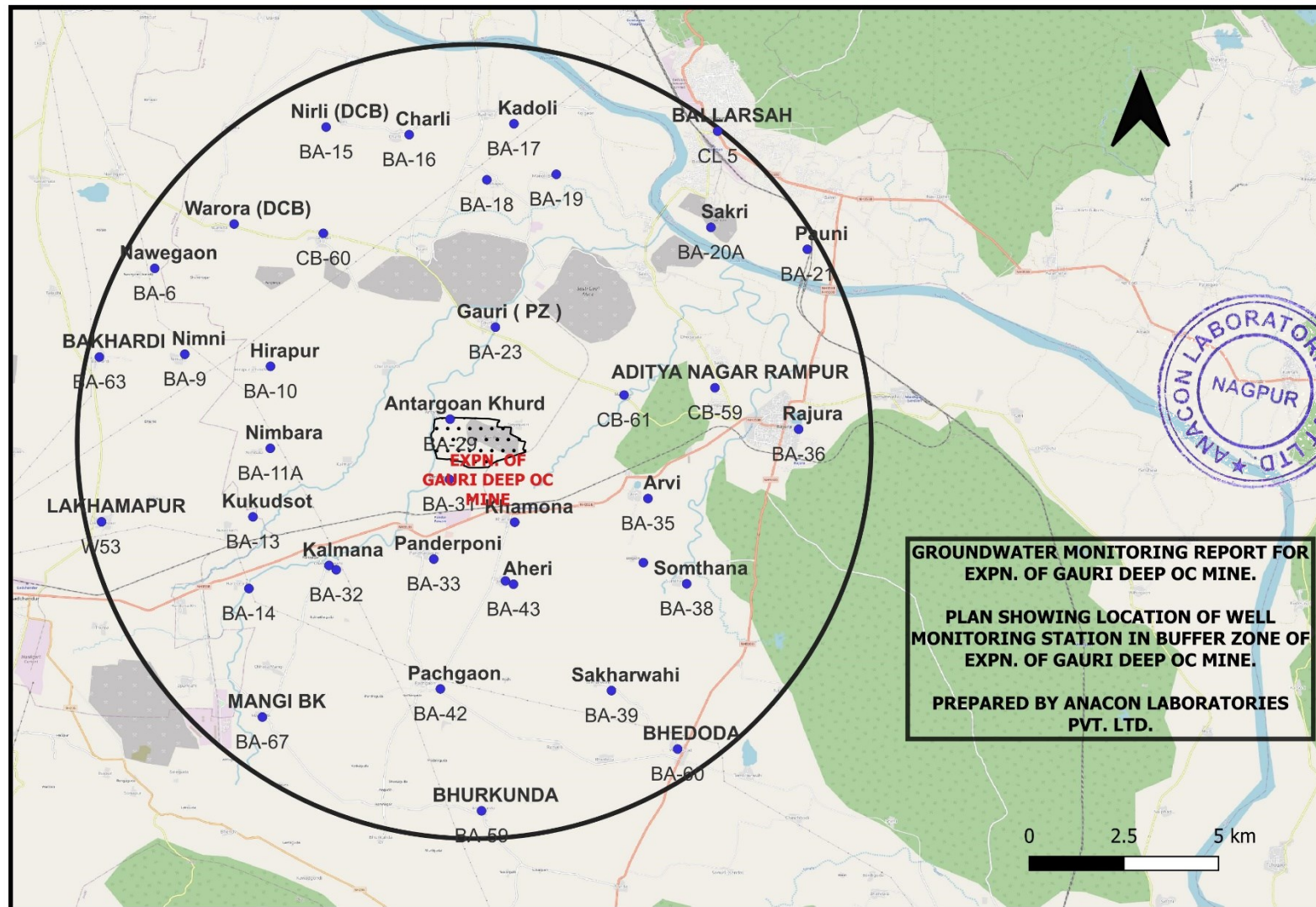
A handwritten signature in blue ink, appearing to read "D. Gawar", written over the stamp.

**EXPN. OF GAURI DEEP OC MINE,  
BALLARPUR AREA  
WESTERN COALFIELDS LTD.  
PERIOD- MAY 2025(PRE-MONSOON)**



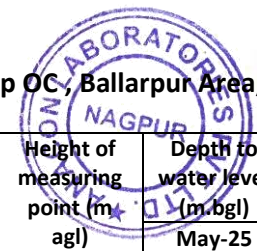
*Gauray*





**FIGURE I: GROUND WATER MONITORING STATION (OBSERVATION WELLS IN AND AROUND OF GAURI DEEP OC EXPN.)**

**Table-I: Ground Water Level Monitoring Data from Dugwells/Piezometers In Buffer Zone of Expansion of Gauri Deep OC, Ballarpur Area, WCL**



SR. NO	Well No. BA	Name of village	Well location	Latitude	Longitude	R.L. in m	Well depth (m bmp)	Well dia (m)	Height of measuring point (m agl)	Depth to water level (m.bgl) May-25	UTILITY	G/F
1	BA-5A	Warora (DCB)	About 500 m NW of village in the field, near to cross road, 15 m N of the road.	19°49'48.5"	79°13'38"	185	12.47	2.56	0.76	6.5	Domestic	basalt
2	BA-6	Nawegaon	SE corner of the village near primary school	19°49'8.3"	79°12'26"	199	10.76	2.71	0.86	5.9	agriculture	laterite
3	BA-9	Nimni	About 700 m S of village, outside in the field, adjacent to village road	19°47'50.5"	79°12'53.3"	237	13.16	2.91	0.61	7.5	agriculture	basalt
4	BA-10	Hirapur	West of the village, outside in field	19°47'39.5"	79°14'11"	215	11.42	1.68	0.72	3.5	agriculture	laterite
5	BA-11A	Nimbara	Northern edge of village, near to Primary School	19°46'25.2"	79°14'10.8"	249	8.66	2.14	0.71	5.4	agriculture	limestone
6	BA-13	Kukudsot	Centre of the village	19°45'23.1"	79°13'55.1"	192	7.19	3.77	0.51	5.3	agriculture	laterite
7	BA-14	Hardona Bhuzung	About 70 m SE of the village outside in the field	19°44'18.1"	79°13'51.4"	244	8.95	3.91	0.61	4.5	agriculture	limestone
8	BA-15	Nirli (DCB)	East side of village , about 20m west of the road to Didsi	19°51'16.4"	79°15'1.4"	229	15.45	2.84	0.41	6.5	agriculture	laterite
9	BA-16	Charli	Near Bajarang Bali Mandir, Southern edge of the village	19°51'9.5"	79°16'16.7"	234	14.83	4.28	0.77	7.3	agriculture	basalt
10	BA-17	Kadoli	East of village, outside near Mata mandir, 150 m S of Kadoli-Kolgaon Road	19°51'19.4"	79°17'51.7"	186	6.44	3.94	0.81	4.9	agriculture	laterite

SR. NO	Well No. BA	Name of village	Well location	Latitude	Longitude	R.L. in m	Well depth (m bmp)	Well dia (m)	Height of measuring point (m agl)	Depth to water level (m.bgl)		
										May-25	UTILITY	G/F
11	BA-18	Babapur	N of the village near the temple	19°50'28.6"	79°17'27.1"	187	7.33	2.88	0.89	5.2	agriculture	limestone
12	BA-19	Manoli	E of the village near to Gram Panchayat office	19°50'33.6"	79°18'30.1"	191	9.26	2.31	0.71	6.1	agriculture	basalt
13	BA-20A	Sakri	West of the village near to school	19°49'45.5"	79°20'50.3"	236	12.27	2.79	1.13	7.6	Domestic	limestone
14	BA-21	Pauni	N edge of the village, about 70 m south of Gauri -Nandgaon road.	19°49'25.6"	79°22'17.7"	219	8.39	3.42	0.96	6.9	Domestic	basalt
15	BA-23	Gauri ( PZ )	About 200m east of the village, near to village road junction in agricultural field	19°48'15"	79°17'34.9"	188	9.68	3.15	0.76	5.8	Domestic	limestone
16	BA-28A	Goigaon(Hand pump tw)	Ghyarvi Vidhate House	19°44'25"	79°17'44"	231	7.15	2.95	0.75	5.5	agriculture	laterite
17	BA-29	Antargoan Khurd	NE side ,at the entrance of village	19°46'51.6"	79°16'53.8"	178	9.45	3.49	0.73	6.1	agriculture	laterite
18	BA-30B	Kalmana	70 m S of village located in nalla bed, near temple	19°44'39"	79°15'4"	192	7.96	3.18	0.69	6.06	agriculture	basalt
19	BA-31	Mutra	SW side of village, near to school	19°45'57.1"	79°16'53.1"	186	8.14	4.17	0.54	7	agriculture	laterite
20	BA-32	Chandanvahi	West of the village, 50 m west of the village road, outside in field	19°44'35.1"	79°15'10.6"	215	7.19	2.73	0.19	6.4	agriculture	basalt

SR. NO	Well No. BA	Name of village	Well location	Latitude	Longitude	R.L. in m	Well depth (m bmp)	Well dia (m)	Height of measuring point (m agl)	Depth to water level (m.bgl)		
										May-25	UTILITY	G/F
21	BA-33	Panderponi	Centre of village, near Ganesh Krishi Kendra	19°44'44.8"	79°16'39"	205	13.88	2.88	0.45	6.2	agriculture	laterite
22	BA-34	Khamona	Northern side of the village(outside). About 120 m S of culvert on Rajura-Chandur road	19°45'18.2"	79°17'52.4"	171	11.42	4.65	0.67	7.9	agriculture	limestone
23	BA-35	Arvi	Northern side of village, adjacent to school compound.	19°45'39.7"	79°19'53.2"	176	9.14	1.96	0.83	7.7	agriculture	limestone
24	BA-36	Rajura	Near Bhgawani Mandir, 50 m south of Rajura-Awarpur road, near Nala Bridge	19°46'42.5"	79°22'9.8"	243	10.88	2.83	0.93	6.1	agriculture	laterite
25	BA-37	Botgaon (DCB)	Western side of the village, near Chaupal (imli tree)	19°44'41.6"	79°19'49"	217	9.42	2.76	0.56	8.1	Domestic	limestone
26	BA-38	Somthana	Near Panchayat office, center of the village	19°44'22.4"	79°20'28.3"	189	12.91	3.14	0.56	6.5	limestone	Domestic
27	BA-39	Sakharwahi	Centre of the village near Sri Tukdojee Maharaj Chowk	19°42'45.6"	79°19'20.1"	228	9.49	2.47	0.64	7.5	agriculture	basalt
28	BA-42	Pachgaon	Western edge of the village, about 15 mt.south of Panderpaoni road	19°42'47.1"	79°16'45"	214	10.75	2.83	0.97	6.1	agriculture	laterite
29	BA-43	Aheri	Eastern side of village near Hanuman temple	19°44'22"	79°17'51.3"	178	10.45	2.19	0.76	6.8	Domestic	limestone

SR. NO	Well No. BA	Name of village	Well location	Latitude	Longitude	R.L. in m	Well depth (m bmp)	Well dia (m)	Height of measuring point (m agl)	Depth to water level (m.bgl)		
										May-25	UTILITY	G/F
30	BA-59	BHURKUNDA	NORTH-EAST 300M FROM BHURKUNDA BK PRIMARY HEALTH SUB CENTRE IN THE AGRICULTURE LAND.	19°40'56.62"	79°17'22.33'	190	12.5	5	0.2	7.1	agriculture	laterite
31	BA-60	BHEDODA	WEST 100M FROM SHRIKRUPA KRISHIKENDRA	19°41'52.62"	79°20'20.06'	215	10.7	4.2	0.4	7.25	Domestic	limestone
32	BA-63	BAKHARDI	NEAR HANUMAAN MANDIR	19°47'47.97"	79°11'35.88'	225	8.7	4	0.3	5.8	agriculture	basalt
33	BA-67	MANGI BK	OUTSIDE THE VILLAGE IN THE NORTH-EAST DIRECTION ADJACENT TO THE MAIN ROAD.	19°42'21.64"	79°14'3.63"	218	14.5	4.6	0.5	6.7	agriculture	laterite
34	CL 5	BALLARSAH	In church campus in front of Nagar Parishad	19°51'12.7"	79°20'56.4"	179	7.68	2.96	0.72	5.8	Domestic	basalt
35	CB-59	ADITYA NAGAR RAMPUR	CENTER OF THE VILLAGE NEAR CHOUDARY KIRANA STORE	19°47'20.11"	79°20'53.95'	220	10.6	4.8	0.4	5.90	domestic	basalt
36	CB-60	SAKHARI	SOUTH 100M FROM PODE KIRANA STORE.	19°49'40.08"	79°14'58.92'	245	8.9	4.6	0.4	6.90	domestic	basalt
37	CB-61	MATHARA	NORTH-WEST 300M FROM VILLAGE, IN THE AGRICULTURE LAND.	19°47'13.49"	79°19'31.56'	205	9.6	4.2	0.3	7.10	agriculture	basalt
38	W53	LAKHAMAPUR	NEAR RUKMANI VITTHALA MANDIR	19°45'18.58"	79°11'37.82'	222	4.5	12.5	0.4	8.0	shelly limestone	domestic





# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003753F

Test Report No.: ALPL/23062025/01-4

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-4 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025			
<b>Sample Description</b> Ground Water		<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking		<b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 21.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Warora (DCB) (Well No.-BA-5A)			
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).							

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	119.17
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	122.08
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	89.6
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	18.95
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	5.45
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.67
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	33.53
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	674
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	302
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
Technical Manager

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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TC-12998

## Test Report

ULR No.- TC129982500003753F  
Test Report No.: ALPL/23062025/01-4

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-4 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025			
<b>Sample Description</b> Ground Water		<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking		<b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 21.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Warora (DCB) (Well No.-BA-5A)			
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)							

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.27
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No.4, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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## Test Report

ULR No.- TC129982500003755F  
 Test Report No.: ALPL/23062025/01-6

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-6 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan <b>Sampling Method:</b> ANtd/7.2/MON-01		<b>Sampling Date</b> 21.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Nawegaon (Well No.-BA-6)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	51.07
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	62.22
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	31.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	20.41
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	5.34
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.57
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	10.16
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	296
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	162
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
 Technical Manager

Dhanashree Hiwani  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003755F  
Test Report No.: ALPL/23062025/0 -6

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-6 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANTd/7.2/MON-01		<b>Sampling Date</b> 21.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Nawegaon (Well No.-BA-6)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)					

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.41
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is complying with IS 10500(2012).

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC12998250003756F

Test Report No.: ALPL/23062025/01-7

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-7 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025			
<b>Sample Description</b> Ground Water		<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking		<b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 21.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Nimni (Well No.-BA-9)			
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).							

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	68.1
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	78.37
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	107.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	26.73
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	9.87
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	6.97
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	24.31
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	687
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	378
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks

● Please refer last Page for Note and remarks.

Verified By

*Snehal Raut*

Snehal Raut  
Technical Manager

*Dhanashree Hiwanj*

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

*Chinmay Garway*

Chinmay Garway  
Deputy Quality Manager

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TC-12998

### Test Report

ULR No.- TC129982500003756F

Test Report No.: ALPL/23062025/01-7

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-7 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 21.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Nimni (Well No.-BA-9)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)			

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.59
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● BLQ= below limit of quantification. ● LOQ= limit of quantification. ● Environmental condition – Satisfactory & Clear ● Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05). ● pH Value was measured at 25°C.

REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 4,12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003757F

Test Report No.: ALPL/23062025/01-8

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-8	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANTd/7.2/MON-01		<b>Sampling Date</b>	22.05.2025	<b>Sampling Location</b> Hirapur (Well No.-BA-10)	
		<b>Sampling Time</b>	Not Mentioned		
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
 Technical Manager

Dhanashree Hiwanj  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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*Test Report*

ULR No.- TC129982500003757F

Test Report No.: ALPL/23062025/01-8

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-8 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 22.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Hirapur (Well No.-BA-10)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.20
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 4, 7, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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Test Report

ULR No.- TC129982500003758F

Test Report No.: ALPL/23062025/01-9

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-9 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
	<b>Sample Description</b> Ground Water <b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area) <b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan <b>Sampling Method:</b> ANtd/7.2/MON-01	<b>Sampling Date</b> 22.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Nimbara (Well No.-BA-11A)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron (as B), Copper (as Cu).		

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	102.15
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	109.73
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	51.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	23.81
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	8.18
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.37
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	32.39
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	402
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	226
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
 Technical Manager

Dhanashree Hiwani  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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Test Report

ULR No.- TC129982500003758F

Test Report No.: ALPL/23062025/01-9

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-9 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 22.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Nimbara (Well No.-BA-11A)	
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.22
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 14

Verified By

Dhanashree Hiwanj  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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

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Test Report

ULR No.- TC129982500003759F

Test Report No.: ALPL/23062025/01-10

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-10	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b>	22.05.2025	<b>Sampling Location</b> Kukudsot (Well No.-BA-13)	
		<b>Sampling Time</b>	Not Mentioned		
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	119.17
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	112.10
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	55.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	25.27
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	7.03
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.13
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	20.32
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	397
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	242
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
Technical Manager

Dhanashree Hiwari  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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Test Report

ULR No.- TC129982500003759F

Test Report No.: ALPL/23062025/01-10

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-10 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
	<b>Sample Description</b> Ground Water <b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area) <b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan <b>Sampling Method:</b> ANtd/7.2/MON-01	<b>Sampling Date</b> 22.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Kukudsot (Well No.-BA-13)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)		

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.08
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the test Sr. No. 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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TC-12998

### Test Report

ULR No.- TC129982500003760F

Test Report No.: ALPL/23062025/01-11

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-11	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b>	22.05.2025	<b>Sampling Location</b> Hardona Bhuzung (Well No.-BA-14)	
		<b>Sampling Time</b>	Not Mentioned		
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	136.2
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	106.88
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	67.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	28.67
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	7.31
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.85
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	34.67
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	417
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	286
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
Technical Manager

Dhanashree Hiwaj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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Test Report

ULR No.- TC129982500003760F

Test Report No.: ALPL/23062025/01-11

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-11 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 22.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Quantity Received</b> 1 Ltr <b>Sampling Location</b> Hardona Bhuzung (Well No.-BA-14)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)			

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.19
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the test Sr. No. 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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## Test Report



TC-12998

ULR No.- TC129982500003761F

Test Report No.: ALPL/23062025/01-12

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-12 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 22.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Nirli (DCB) (Well No.-BA-15)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
 Technical Manager

Dhanashree Hiwanj  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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TC-12998

## Test Report

ULR No.- TC129982500003761F

Test Report No.: ALPL/23062025/01-12

Dated 23.06.2025

Page 2 of 2

Issued To : M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		Sample Inward No. ALPL/110625/W-2/64-12 Inward Date 11.06.2025 Reference WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 Inv. No. 25	Analysis Start 12.06.2025 Analysis End 23.06.2025	
Sample Description Ground Water	Sample Details As Provided By Client Ground Water (Ballarpur Area)		Purpose of analysis Drinking	Quantity Received 1 Ltr
Sampling By Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		Sampling Date 22.05.2025 Sampling Time Not Mentioned	Sampling Location Nirli (DCB) (Well No.-BA-15)	
Tests Required Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.36
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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Test Report

ULR No.- TC129982500003762F

Test Report No.: ALPL/23062025/01-13

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-13	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b>	22.05.2025	<b>Sampling Location</b> Charli (Well No.-BA-16)	
		<b>Sampling Time</b>	Not Mentioned		
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	136.2
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	142.98
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	171.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	46.17
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	10.62
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.13
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	51.10
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	1021
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	618
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut  
Technical Manager

Dhanashree Hiwari  
Sr. Technical Assistant

Chinmay Garway  
Deputy Quality Manager

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Test Report

ULR No.- TC129982500003762F

Test Report No.: ALPL/23062025/01-13

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-13		<b>Analysis Start</b> 12.06.2025		
		<b>Inward Date</b> 11.06.2025		<b>Analysis End</b> 23.06.2025		
		<b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025				
		<b>Inv. No.</b> 25				
<b>Sample Description</b> Ground Water		<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 22.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Charli (Well No.-BA-16)		
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)						

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	BLQ(LOQ-0.02)
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No.4, 7, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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## Test Report

ULR No.- TC129982500003763F

Test Report No.: ALPL/23062025/01-14

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-14 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
	<b>Sample Description</b> Ground Water <b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area) <b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan <b>Sampling Method:</b> ANtd/7.2/MON-01	<b>Sampling Date</b> 22.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Kadoli (Well No.-BA-17)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).		

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	130.52
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	149.63
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	97.6
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	39.85
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	9.90
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.63
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	46.54
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	816
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	408
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut  
 Technical Manager

Dhanashree Hiwari  
 Sr. Technical Assistant

Chinmay Garway  
 Deputy Quality Manager

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Test Report

ULR No.- TC129982500003763F

Test Report No.: ALPL/23062025/01-14

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-14 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)	<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan <b>Sampling Method:</b> ANtd/7.2/MON-01		<b>Sampling Date</b> 22.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Kadoli (Well No.-BA-17)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)			

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.09
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

**NOTE:** ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● BLQ= below limit of quantification. ● LOQ= limit of quantification. ● Environmental condition – Satisfactory & Clear ● Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05). ● pH Value was measured at 25°C.

**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No.4, 7, 12 & 14

Verified By

Dhanashree Hiwanj  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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

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TC-12998

### Test Report

ULR No.- TC129982500003764F

Test Report No.: ALPL/23062025/01-15

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-15 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Babapur (Well No.-BA-18)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					
	Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	141.87
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	80.28
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	46.4
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	16.03
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	4.61
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.37
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	20.32
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	296
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	182
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical					
	Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
Technical Manager

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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Test Report

ULR No.- TC12998250003764F

Test Report No.: ALPL/23062025/01-15

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-15 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Babapur (Well No.-BA-18)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.20
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is complying with IS 10500(2012).

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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## Test Report

ULR No.- TC129982500003765F

Test Report No.: ALPL/23062025/01-16

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-16 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Manoli (Well No.-BA-19)	
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	73.77
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	68.87
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	68
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	24.78
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	4.61
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.92
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	48.25
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	416
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	276
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

• Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
 Technical Manager

Dhanashree Hiwanj  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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Test Report

ULR No.- TC129982500003765F

Test Report No.: ALPL/23062025/01-16

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-16 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 <b>Inv. No.</b> Dt 19 Apr 2025 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
	<b>Sample Description</b> Ground Water <b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area) <b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan <b>Sampling Method:</b> ANtd/7.2/MON-01	<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Manoli (Well No.-BA-19)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)		

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.12
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the test Sr. No. 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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TC-12998

## Test Report

ULR No.- TC129982500003766F

Test Report No.: ALPL/23062025/01-17

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-17 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
	<b>Sample Description</b> Ground Water <b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area) <b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan <b>Sampling Method:</b> ANtd/7.2/MON-01	<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Sakri (Well No.-BA-20A)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron (as B), Copper (as Cu).		

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	107.82
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	117.33
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	53.6
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	22.35
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	4.61
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.64
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	30.58
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	397
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	226
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
 Technical Manager

Dhanashree Hiwari  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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TC-12998

### Test Report

ULR No.- TC129982500003766F

Test Report No.: ALPL/23062025/01-17

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-17	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b>	23.05.2025	<b>Sampling Location</b> Sakri (Well No.-BA-20A)	
		<b>Sampling Time</b>	Not Mentioned		
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)					

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.48
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the test Sr. No. 14

Verified By

Dharaashree Hiwani  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003767F

Test Report No.: ALPL/23062025/01-18

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-18 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Pauni (Well No.-BA-21)	
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).				

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	102.15
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	69.82
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	54.4
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	19.92
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	4.82
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.54
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	18.42
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	310
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	218
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

*Snehal Raut*

Snehal Raut  
Technical Manager

*Dhanashree Hiwari*

Dhanashree Hiwari  
Sr. Technical Assistant

Authorized Signatory

*Chinmay Garway*

Chinmay Garway  
Deputy Quality Manager

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003767F

Test Report No.: ALPL/23062025/01-18

Dated 23.06.2025

Page 2 of 2

Page 2 of 2

<b>Issued To :</b> M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-18 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Pauni (Well No.-BA-21)	
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.45
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the test Sr. No. 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003768F

Test Report No.: ALPL/23062025/01-19

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-19	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 23.05.2025	<b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Gauri (PZ) (Well No.-BA-23)	
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	104.03
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	122.08
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	54.4
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	41.31
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	10.49
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.54
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	65.44
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	849
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	426
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut  
Technical Manager

Dhanashree Hiwari  
Sr. Technical Assistant

Chinmay Garway  
Deputy Quality Manager

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Test Report

ULR No.- TC129982500003768F

Test Report No.: ALPL/23062025/01-19

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-19 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Gauri (PZ) (Well No.-BA-23)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)					

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.33
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No.7, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003770F

Test Report No.: ALPL/23062025/01-21

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-21 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Goigaon (Hand pump tw) (Well No.-BA-28A)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	85.12
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	134.90
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	28
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	12.63
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	5.24
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.36
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	20.13
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	304
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	122
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut  
Technical Manager

Dhanashree Hiwanj  
Sr. Technical Assistant

Chinmay Garway  
Deputy Quality Manager

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TC-12998

### Test Report

ULR No.- TC129982500003770F

Test Report No.: ALPL/23062025/01-21

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-21 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Goigaon (Hand pump tw) (Well No.-BA-28A)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)					

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.09
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

**NOTE:** ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● BLQ= below limit of quantification. ● LOQ= limit of quantification. ● Environmental condition – Satisfactory & Clear ● Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05). ● pH Value was measured at 25°C.

**REMARKS:** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is complying with IS 10500(2012).

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC12998250003771F

Test Report No.: ALPL/23062025/01-22

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-22 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
	<b>Sample Description</b> Ground Water <b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area) <b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01	<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Antargaon Khurd (Well No.-BA-29)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).		

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	136.2
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	134.90
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	155.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	11.66
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	9.83
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.58
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	51.67
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	713
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	436
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

*[Signature]*

Snehal Raut  
Technical Manager

*[Signature]*

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

*[Signature]*

Chinmay Garway  
Deputy Quality Manager

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TC-12998

### Test Report

ULR No.- TC129982500003771F

Test Report No.: ALPL/23062025/01-22

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-22 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
	<b>Sample Description</b> Ground Water <b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area) <b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan <b>Sampling Method:</b> ANtd/7.2/MON-01	<b>Sampling Date</b> 23.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Antargaon Khurd (Well No.-BA-29)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)		

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	BLQ(LOQ-0.02)
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS:** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 4, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003772F

Test Report No.: ALPL/23062025/01-23

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-23	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025	<b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Kalmana (Well No.-BA-30B)	
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	119.17
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	120.65
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	143.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	8.74
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	8.89
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.40
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	55.85
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	686
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	394
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

*Snehal Raut*

Snehal Raut  
Technical Manager

*Dhanashree Hiwanj*

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

*Chinmay Garway*

Chinmay Garway  
Deputy Quality Manager

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TC-12998

## Test Report

ULR No.- TC129982500003772F

Test Report No.: ALPL/23062025/01-23

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-23 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025			
<b>Sample Description</b> Ground Water		<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking		<b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Kalmana (Well No.-BA-30B)			
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)							

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.21
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 4, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003773F

Test Report No.: ALPL/23062025/01-24

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-24	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b>	24.05.2025	<b>Sampling Location</b> Mutra (Well No.-BA-31)	
		<b>Sampling Time</b>	Not Mentioned		
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	130.52
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	127.30
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	117.6
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	20.41
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	8.14
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.67
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	32.10
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	610
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	378
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

*Snehal Raut*

Snehal Raut  
Technical Manager

*Dhanashree Hiwanj*

Dhanashree Hiwanj  
Sr. Technical Assistant

*Chinmay Garway*

Chinmay Garway  
Deputy Quality Manager

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Test Report

ULR No.- TC129982500003773F

Test Report No.: ALPL/23062025/01-24

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-24 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Mutra (Well No.-BA-31)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.14
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

**NOTE:** ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● BLQ= below limit of quantification. ● LOQ= limit of quantification. ● Environmental condition – Satisfactory & Clear ● Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05). ● pH Value was measured at 25°C.

**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 4, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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Laboratories**



TC-12998

### Test Report

ULR No.- TC129982500003774F

Test Report No.: ALPL/23062025/01-25

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-25 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Chandanvahi (Well No.-BA-32)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					
	Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	102.15
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	106.40
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	69.6
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	15.06
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	5.10
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.19
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	36.19
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	416
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	236
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical					
	Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut

Dhanashree Hiwari

Chinmay Garway

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*Test Report*

ULR No.- TC129982500003774F

Test Report No.: ALPL/23062025/01-25

Dated 23.06.2025

Page 2 of 2

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-25 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Chandanvahi (Well No.-BA-32)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.06
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the test Sr. No. 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003775F

Test Report No.: ALPL/23062025/01-26

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-26	<b>Analysis Start</b> 12.06.2025
	<b>Inward Date</b> 11.06.2025	<b>Analysis End</b> 23.06.2025
	<b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025	
	<b>Inv. No.</b> 25	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)	<b>Purpose of analysis</b> Drinking
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01	<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Quantity Received</b> 1 Ltr
<b>Sampling Location</b> Panderponi (Well No.-BA-33)		
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).		

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					
	Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	96.47
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	112.58
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	67.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	28.67
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	5.32
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.57
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	48.73
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	467
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	286
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical					
	Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut

Dhanashree Hiwanj

Chinmay Garway

Technical Manager

Sr. Technical Assistant

Deputy Quality Manager

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Test Report

ULR No.- TC129982500003775F

Test Report No.: ALPL/23062025/01-26

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-26	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b>	24.05.2025	<b>Sampling Location</b> Panderponi (Well No.-BA-33)	
		<b>Sampling Time</b>	Not Mentioned		
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)					

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.19
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the test Sr. No. 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories

## Test Report



TC-12998

ULR No.- TC129982500003776F

Test Report No.: ALPL/23062025/01-27

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-27	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025	<b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Khamona (Well No.-BA-34)	
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	68.1
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	95.48
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	43.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	16.03
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	5.13
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.74
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	47.87
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	308
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	174
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut

Dhanashree Hiwanj

Chinmay Garway

Technical Manager

Sr. Technical Assistant

Deputy Quality Manager

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Test Report

ULR No.- TC129982500003776F

Test Report No.: ALPL/23062025/01-27

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-27 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Khamona (Well No.-BA-34)	
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.18
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

NOTE: ● Please see watermark: "Original Test Report" & "For Information Only"

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is complying with IS 10500(2012).

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003777F

Test Report No.: ALPL/23062025/01-28

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-28 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Arvi (Well No.-BA-35)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	170.25
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	90.33
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	58.4
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	27.21
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	7.67
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.58
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) :: clause 5	200	400	32.96
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	561
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	258
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut

Technical Manager

Dhanashree Hiwanj

Sr. Technical Assistant

Chinmay Garway

Deputy Quality Manager

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003777F

Test Report No.: ALPL/23062025/01-28

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-28 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
	<b>Sample Description</b> Ground Water <b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area) <b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01	<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Arvi (Well No.-BA-35)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)		

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	BLQ(LOQ-0.02)
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● BLQ= below limit of quantification. ● LOQ= limit of quantification. ● Environmental condition – Satisfactory & Clear ● Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05). ● pH Value was measured at 25°C.

REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003778F

Test Report No.: ALPL/23062025/01-29

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-29 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Rajura (Well No.-BA-36)	
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	187.27
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	129.18
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	62.4
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	28.67
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	8.07
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.85
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	44.36
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	627
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	274
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut  
Technical Manager

Dhanashree Hiwani  
Sr. Technical Assistant

Chinmay Garway  
Deputy Quality Manager

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TC-12998

## Test Report

ULR No.- TC12998250003778F

Test Report No.: ALPL/23062025/01-29

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-29 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANTd/7.2/MON-01		<b>Sampling Date</b> 24.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Rajura (Well No.-BA-36)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)					

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.24
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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## Test Report



TC-12998

ULR No.- TC129982500003779F

Test Report No.: ALPL/23062025/01-30

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-30 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)	<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 25.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Botgaon (DCB) (Well No.-BA-37)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut  
Technical Manager

Dhanashree Hiwanj  
Sr. Technical Assistant

Chinmay Garway  
Deputy Quality Manager

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003779F

Test Report No.: ALPL/23062025/01-30

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006	<b>Sample Inward No.</b> ALPL/110625/W-2/64-30 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
	<b>Sample Description</b> Ground Water <b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area) <b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01	<b>Sampling Date</b> 25.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Botgaon (DCB) (Well No.-BA-37)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)		

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.12
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No.1, 3, 4, 7, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC12998250003780F

Test Report No.: ALPL/23062025/01-31

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-31 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 25.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Somthana (Well No.-BA-38)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

*Snehal Raut*

Snehal Raut  
Technical Manager

*Dhanashree Hiwari*

Dhanashree Hiwari  
Sr. Technical Assistant

*Chinmay Garway*

Chinmay Garway  
Deputy Quality Manager

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003780F

Test Report No.: ALPL/23062025/01-31

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b>	ALPL/110625/W-2/64-31	<b>Analysis Start</b>	12.06.2025
		<b>Inward Date</b>	11.06.2025	<b>Analysis End</b>	23.06.2025
		<b>Reference</b>	WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025		
		<b>Inv. No.</b>	25		
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b>	25.05.2025	<b>Sampling Location</b> Somthana (Well No.-BA-38)	
		<b>Sampling Time</b>	Not Mentioned		
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)					

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	BLQ(LOQ-0.02)
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 4, 7, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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Test Report

ULR No.- TC129982500003781F

Test Report No.: ALPL/23062025/01-32

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-32 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)	<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 25.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Sakharwahi (Well No.-BA-39)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut  
Technical Manager

Dhanashree Hiwanj  
Sr. Technical Assistant

Chinmay Garway  
Deputy Quality Manager

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Test Report

ULR No.- TC129982500003782F

Test Report No.: ALPL/23062025/01-33

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-33 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 25.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Pachgaon (Well No.-BA-42)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	134.4
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	59.37
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	35.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	14.58
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	2.54
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.89
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	20.99
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	343
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	148
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Snehal Raut  
Technical Manager

Dhanashree Hiwari  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003782F

Test Report No.: ALPL/23062025/01-33

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-33 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 25.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Pachgaon (Well No.-BA-42)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.23
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is complying with IS 10500(2012).

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003783F

Test Report No.: ALPL/23062025/01-34

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-34 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 25.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Aheri (Well No.-BA-43)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Sneha Raut

Technical Manager

Dhanashree Hiwanj

Sr. Technical Assistant

Chinmay Garway

Deputy Quality Manager

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TC-12998

## Test Report

ULR No. - TC129982500003783F

Test Report No.: ALPL/23062025/01-34

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-34 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANTd/7.2/MON-01		<b>Sampling Date</b> 25.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Aheri (Well No.-BA-43)	
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)					

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.22
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

**NOTE:** ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● BLQ= below limit of quantification. ● LOQ= limit of quantification. ● Environmental condition – Satisfactory & Clear ● Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05). ● pH Value was measured at 25°C.

**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 4, 7, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003794F

Test Report No.: ALPL/23062025/01-45

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-45 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 27.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Bhurkunda (Well No.-BA-59)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron (as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	244.02
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	138.70
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	92.8
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	39.36
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	8.00
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.56
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	45.12
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	822
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	394
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut

Technical Manager

Dhanashree Hiwanj

Sr. Technical Assistant

Chinmay Garwey

Deputy Quality Manager

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Test Report

ULR No.- TC129982500003794F

Test Report No.: ALPL/23062025/01-45

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-45 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 27.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Bhurkunda (Well No.-BA-59)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)			

**TEST RESULTS**

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.34
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 1, 4, 7, 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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## Test Report



TC-12998

ULR No.- TC12998250003795F

Test Report No.: ALPL/23062025/01-46

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-46 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		<b>Sampling Date</b> 27.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Bhedoda (Well No.-BA-60)	
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).				

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group - Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	170.25
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	87.88
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	64
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	27.21
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	6.30
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.32
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	28.40
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	578
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	272
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues in Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron ( as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks.

Verified By

Authorized Signatory

Snehal Raut  
Technical Manager

Dhanashree Hiwanj  
Sr. Technical Assistant

Shinmay Garway  
Deputy Quality Manager

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TC-12998

## Test Report

ULR No.- TC129982500003795F

Test Report No.: ALPL/23062025/01-46

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-46 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25		<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025			
<b>Sample Description</b> Ground Water		<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking		<b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01			<b>Sampling Date</b> 27.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> Bhedoda (Well No.-BA-60)		
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)							

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	BLQ(LOQ-0.02)
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 12 & 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003798F

Test Report No.: ALPL/23062025/01-49

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S.), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-49 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)	<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 27.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Bakhardi (Well No.-BA-63)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					

● Please refer last Page for Note and remarks.

Verified By

*Snehal Raut*

Snehal Raut  
Technical Manager

*Dhanashree Hiwanj*

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

*Chinmay Garway*

Chinmay Garway  
Deputy Quality Manager

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TC-12998

## Test Report

ULR No.- TC129982500003798F

Test Report No.: ALPL/23062025/01-49

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-49 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Sampling Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 27.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Bakhardi (Well No.-BA-63)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.29
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is complying with IS 10500(2012).

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003802F

Test Report No.: ALPL/23062025/01-53

Dated 23.06.2025

Page 2 of 2

<b>Issued To :</b> M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-53 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)	<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan Method: ANtd/7.2/MON-01		<b>Sampling Date</b> 28.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Mangi BK (Well No.-BA-67)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical		Group- Residues in Water			
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	BLQ(LOQ-0.02)
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● BLQ= below limit of quantification. ● LOQ= limit of quantification. ● Environmental condition – Satisfactory & Clear ● Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05). ● pH Value was measured at 25°C.

REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the test Sr. No. 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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TC-12998

## Test Report

ULR No.- TC12998250003805F

Test Report No.: ALPL/23062025/01-56

Dated 23.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/110625/W-2/64-56 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 <b>Inv. No.</b> 25	<b>Analysis Start</b> 12.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Ballarpur Area)		<b>Purpose of analysis</b> Drinking <b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr. Tousif Khan <b>Sampling Method:</b> ANtd/7.2/MON-01		<b>Sampling Date</b> 29.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> Ballarsah (Well No.-CL 5)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					

● Please refer last Page for Note and remarks.

Verified By

*Snehal Raut*

Snehal Raut  
Technical Manager

*Dhanashree Hiwanj*

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

*Chinmay Garway*

Chinmay Garway  
Deputy Quality Manager

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.- TC129982500003805F

Test Report No.: ALPL/23062025/01-56

Dated 23.06.2025

Page 2 of 2

Issued To : M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		Sample Inward No. ALPL/110625/W-2/64-56 Inward Date 11.06.2025 Reference WCL/HQ/ENV/14-L/1122-1148 Dt 19 Apr 2025 Inv. No. 25	Analysis Start 12.06.2025 Analysis End 23.06.2025	
Sample Description Ground Water	Sample Details As Provided By Client Ground Water (Ballarpur Area)		Purpose of analysis Drinking	Quantity Received 1 Ltr
Sampling By Anacon Representative - Mr. Tousif Khan Sampling Method:ANtd/7.2/MON-01		Sampling Date 29.05.2025 Sampling Time Not Mentioned	Sampling Location Ballarsah (Well No.-CL 5)	
Tests Required Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues in Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.59
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the test Sr. No. 14

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chhmay Garway  
Deputy Quality Manager

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

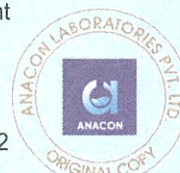
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# Anacon Laboratories



TC-12998

## Test Report

ULR No.-TC129982500003733F

Test Report No.: ALPL/20062025/06-39

Dated 20.06.2025

Page 1 of 2

<b>Issued To :</b> M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/09062025/W-1/54-39 <b>Inward Date</b> 09.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/ 1122-1148 dt19 Apr 2025 <b>Inv. No.</b> 23		<b>Analysis Start</b> 09.06.2025 <b>Analysis End</b> 20.06.2025	
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Chandrapur Area)			<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr.Kartik Shrivastava Sampling Method- ANtd/7.2/MON-01		<b>Sampling Date</b> 30.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> ADITYA NAGAR RAMPUR (Well No-CB-59)	
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO3), Odour, pH, Sulphate (as SO4), Total dissolved solids, Turbidity, Total hardness (as CaCO3), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).					

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group- Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	158.9
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	62.22
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	48
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	17.49
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	5.27
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.55
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	19.94
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	492
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	192
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues In Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron (as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks .

Verified By

Snehal Raut  
 Technical Manager

Dhanashree Hiwanj  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.-TC129982500003733F

Test Report No.: ALPL/20062025/06-39

Dated 20.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/09062025/W-1/54-39 <b>Inward Date</b> 09.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/ 1122-1148 dt19 Apr 2025 <b>Inv. No.</b> 23	<b>Analysis Start</b> 09.06.2025 <b>Analysis End</b> 20.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water ( Chandrapur Area)	<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr.Kartik Shrivastava Sampling Method- ANtd/7.2/MON-01		<b>Sampling Date</b> 30.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> ADITYA NAGAR RAMPUR (Well No-CB-59)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical	Group- Residues In Water				
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.33
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

NOTE: ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● #Permissible limit in absence of an alternate source for drinking water. ● 'mg/l' is equivalent to 'ppm'. ● BLQ= below limit of quantification. ● LOQ= limit of quantification. ● Environmental condition – Satisfactory & Clear ● Statement of conformity issued on the basis of decision rule as per quality procedure (QP/7.8/05). ● pH Value was measured at 25°C.

REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is complying with IS 10500 (2012).

Verified By  
  
 Dhanashree Hiwanj  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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

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TC-12998

## Test Report

ULR No.-TC129982500003734F

Test Report No.: ALPL/20062025/06-40

Dated 20.06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/09062025/W-1/54-40 <b>Inward Date</b> 09.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/ 1122-1148 dt19 Apr 2025 <b>Inv. No.</b> 23	<b>Analysis Start</b> 09.06.2025 <b>Analysis End</b> 20.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (Chandrapur Area)	<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr.Kartik Shrivastava Sampling Method- ANtd/7.2/MON-01		<b>Sampling Date</b> 30.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> SAKHARI (Well No-CB-60)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron (as B), Copper (as Cu).			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical					
	Group- Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	141.87
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	66.97
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	51.2
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	24.78
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	5.88
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.45
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	14.72
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	421
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	230
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical					
	Group- Residues In Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron (as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks .

Verified By

Snehal Raut  
Technical Manager

Dhanashree Hiwari  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.-TC129982500003734F

Test Report No.: ALPL/20062025/06- 40

Dated 20.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/09062025/W-1/54-40 <b>Inward Date</b> 09.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/ 1122-1148 dt19 Apr 2025 <b>Inv. No.</b> 23		<b>Analysis Start</b> 09.06.2025 <b>Analysis End</b> 20.06.2025			
<b>Sample Description</b> Ground Water		<b>Sample Details As Provided By Client</b> Ground Water ( Chandrapur Area)		<b>Purpose of analysis</b> Drinking		<b>Quantity Received</b> 1 Ltr	
<b>Sampling By</b> Anacon Representative - Mr.Kartik Shrivastava Sampling Method- ANtd/7.2/MON-01			<b>Sampling Date</b> 30.05.2025 <b>Sampling Time</b> Not Mentioned		<b>Sampling Location</b> SAKHARI (Well No-CB-60)		
<b>Tests Required</b> Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)							

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues In Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.46
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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**REMARKS :** As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is complying with IS 10500 (2012).

Verified By

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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

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# Anacon Laboratories



TC-12998

## Test Report

ULR No.-TC129982500003735F

Test Report No.: ALPL/20062025/06-41

Dated 20.06.2025

Page 2 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/09062025/W-1/54-41 <b>Inward Date</b> 09.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/ 1122-1148 dt19 Apr 2025 <b>Inv. No.</b> 23	<b>Analysis Start</b> 09.06.2025 <b>Analysis End</b> 20.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water ( Chandrapur Area)	<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr.Kartik Shrivastava Sampling Method- ANtd/7.2/MON-01		<b>Sampling Date</b> 30.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> MATHARA (Well No-CB-61)
<b>Tests Required</b> Cadmium (as Cd), Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)			

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues In Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	0.29
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 12 & 14.

Verified By

*[Signature]*

Dhanashree Hiwanj  
Sr. Technical Assistant

Authorized Signatory

*[Signature]*  
Chinmay Garway  
Deputy Quality Manager

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

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TC-12998

### Test Report

ULR No.-TC129982500003849F

Test Report No.: ALPL/23062025/03- 36

Dated 23 .06.2025

Page 1 of 2

<b>Issued To :</b> <b>M/s Western Coalfields Limited (WCL)</b> Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		<b>Sample Inward No.</b> ALPL/11062025/W-1/49-36 <b>Inward Date</b> 11.06.2025 <b>Reference</b> WCL/HQ/ENV/14-L/ 1122-1148 dt.19 Apr 2025 <b>Inv. No.</b> 24	<b>Analysis Start</b> 11.06.2025 <b>Analysis End</b> 23.06.2025
<b>Sample Description</b> Ground Water	<b>Sample Details As Provided By Client</b> Ground Water (WANI AREA)	<b>Purpose of analysis</b> Drinking	<b>Quantity Received</b> 1 Ltr
<b>Sampling By</b> Anacon Representative - Mr.Kartik Shrivastava Sampling Method- ANtd/7.2/MON-01		<b>Sampling Date</b> 30.05.2025 <b>Sampling Time</b> Not Mentioned	<b>Sampling Location</b> LAKHAMAPUR (Well No.-W53)
<b>Tests Required</b> Total Alkalinity(as Calcium carbonate), Colour, Chloride (as Cl), Calcium (as Ca), Free Residual Chlorine, Fluoride (as F), Magnesium (as Mg), Nitrate (as NO <sub>3</sub> ), Odour, pH, Sulphate (as SO <sub>4</sub> ), Total dissolved solids, Turbidity, Total hardness (as CaCO <sub>3</sub> ), Phenolic compounds, Arsenic (as As), Aluminium (as Al), Boron ( as B), Copper (as Cu).			

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Discipline – Chemical Group- Water					
1	Total Alkalinity(as Calcium carbonate)	mg/l	IS 3025 (Part 23)	200	600	158.9
2	Colour	Hazen	IS 3025 (Part 4) : clause 4	5	15	BLQ(LOQ-1)
3	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :clause 2	250	1000	86.93
4	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : clause 5	75	200	56.8
5	Free Residual Chlorine	mg/l	IS 3025 (Part 26) : clause 7	0.2	1	BLQ(LOQ-0.1)
6	Fluoride (as F)	mg/l	IS 3025 (Part 60/sec1) : clause 6	1.0	1.5	BLQ(LOQ-0.1)
7	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : clause 6	30	100	27.70
8	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34/Sec1) :clause 6.4	45	No relaxation	6.12
9	Odour	-	IS 3025 (Part 5)	Agreeable	Agreeable	Agreeable
10	pH	-	IS 3025 (Part 11)	6.5 to 8.5	No relaxation	7.69
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24/Sec 1) : clause 5	200	400	19.56
12	Total dissolved solids	mg/l	IS 3025 (Part 16)	500	2000	517
13	Turbidity	NTU	IS 3025 (Part 10)	1	5	0.1
14	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) clause 5	200	600	256
15	Phenolic compounds	mg/l	IS 3025 (Part 43/Sec1) : clause 6	0.001	0.002	BLQ(LOQ-0.001)
II	Discipline – Chemical Group- Residues In Water					
16	Arsenic (as As)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
17	Aluminium (as Al)	mg/l	IS 3025 (Part 2)	0.03	0.2	BLQ(LOQ-0.02)
18	Boron (as B)	mg/l	IS 3025 (Part 2)	0.5	2.4	BLQ(LOQ-0.02)
19	Copper (as Cu)	mg/l	IS 3025 (Part 2)	0.05	1.5	BLQ(LOQ-0.02)

● Please refer last Page for Note and remarks .

Verified By

Snehal Raut  
Technical Manager

Dhanashree Hiwari  
Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
Deputy Quality Manager

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TC-12998

## Test Report

ULR No-TC129982500003849F

Test Report No.: ALPL/23062025/03- 36

Dated 23.06.2025

Page 2 of 2

Issued To : M/s Western Coalfields Limited (WCL) Futala Road, Coal Estate, Civil Lines, Nagpur, WCL HQ (M.S), 440006		Sample Inward No. ALPL/11062025/W-1/49-36 Inward Date 11.06.2025 Reference WCL/HQ/ENV/14-L/ 1122-1148 dt19 Apr 2025 Inv. No. 24	Analysis Start 11.06.2025 Analysis End 23.06.2025	
Sample Description Ground Water	Sample Details As Provided By Client Ground Water (WANI AREA)		Purpose of analysis Drinking	Quantity Received 1 Ltr
Sampling By Anacon Representative - Mr.Kartik Shrivastava Sampling Method- ANtd/7.2/MON-01		Sampling Date 30.05.2025 Sampling Time Not Mentioned	Sampling Location LAKHAMAPUR (Well No.-W53)	
Tests Required Cadmium (as Cd),Iron (as Fe), Lead (as Pb), Manganese (as Mn), Nickel (as Ni), Selenium (as Se), Total Chromium (as Cr), Zinc (as Zn)				

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Ground Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Discipline – Chemical					
	Group- Residues In Water					
20	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	0.003	No relaxation	BLQ(LOQ-0.002)
21	Iron (as Fe)	mg/l	IS 3025 (Part 2)	1.0	No relaxation	BLQ(LOQ-0.02)
22	Lead (as Pb)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
23	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	0.1	0.3	BLQ(LOQ-0.02)
24	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No relaxation	BLQ(LOQ-0.01)
25	Selenium (as Se)	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BLQ(LOQ-0.01)
26	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BLQ(LOQ-0.02)
27	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	5	15	BLQ(LOQ-0.02)

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REMARKS : As requested by the client, the sample was tested for the above parameters only. Sample bearing the details mentioned as above is not complying with IS 10500(2012) requirements for the tests Sr. No. 12 & 14.

Verified By

Dhanashree Hiwanj  
 Sr. Technical Assistant

Authorized Signatory

Chinmay Garway  
 Deputy Quality Manager

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

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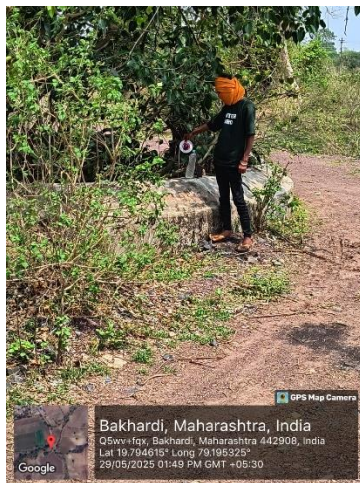
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**BA 67 - MANGI BK**



**BA 63 - BAKHARDI**



**BA 60 - BHEDODA**



**BA 59 - BHURKUNDA**



**BA 43 - Aheri**



**BA 39 - Sakharwahi**



**BA 38 Somthana**



**BA 37 Botgaon (DCB)**

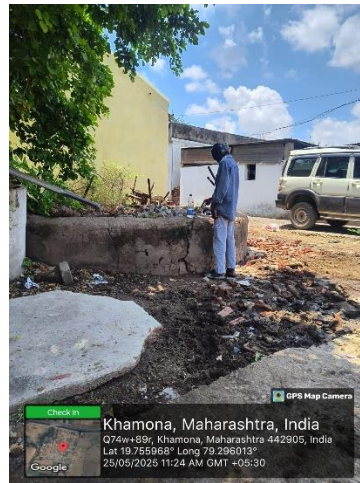


**BA 36 - Rajura**





**BA 35 Arvi**



**BA 34 - Khamona**



**BA 33 - Panderponi**



**BA 32 - Chandanvahi**



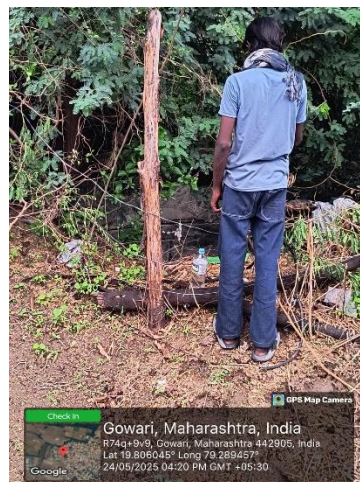
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**BA 30 B - Kaimana**



**BA 28 A - Goigaon(Hand pump tw)**



**BA 23 - Gauri ( PZ )**

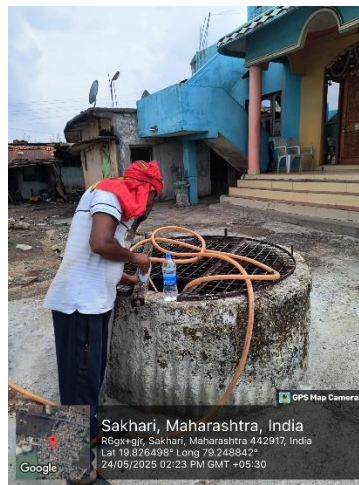


**BA 21 - Pauni**





**BA 29 - Antargoan Khurd**



**BA 20 A - Sakri**



**BA 19 - Manoli**



**BA 18 - Babapur**



**BA 17 - Kadoli**



**BA 16 - Charli**



**BA 15 - Nirli (DCB)**



**BA 14 - Hardona Bhuzung**



**BA 13 - Kukudsot**

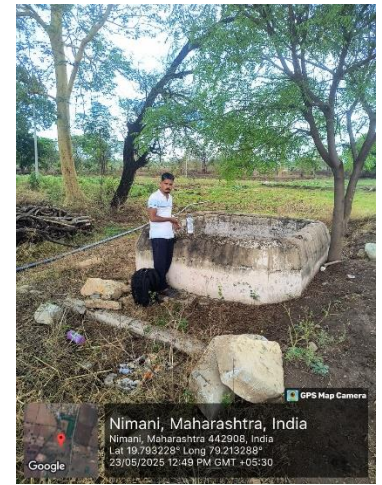




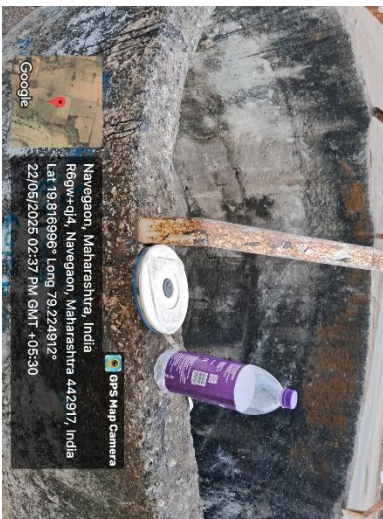
**BA 11 A - Nimbara**



**BA 10 - Hirapur**



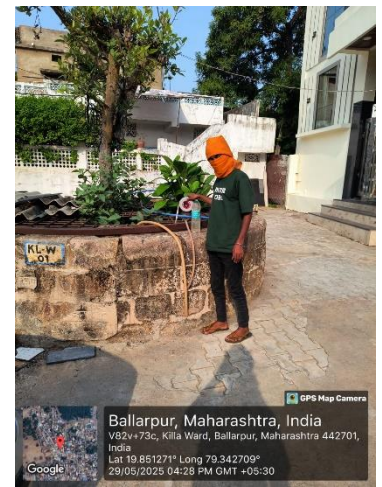
**BA 9 - Nimni**



**BA 6 - Nawegaon**



**BA 5 A - warora**



**BA 59 - BHURKUNDA**



**CB 60 - SAKHARI**



**CB 59 - ADITYA NAGAR RAMPUR**



**CB 61 - MATHARA**



**W 53 - LAKHAMAPUR**



# WESTERN COALFIELDS LIMITED GOURI DEEP OPENCAST MINE


## LIGHTING SURVEY REPORT


DATE:- 18.09.2025


H = Horizontal

V= Vertical

Sl. No.	Location	Min. Standard of illumination to be provided as per DGMS Tech.Cir 6,Dt-08/04/2016 in LUX	ACTULLY MEASURED (LUX)
1	Work place of mobile coal handling plant	40H	36.4 H
2	Haul Road for Dumpers	10 H	8.9 H
3	Parking yard	50H	42 H
4	Work place of Heavy Machinery at OB bench	15 H 25 V	11.8 H 22.9 V
5	Work place of Heavy Machinery at coal face	15 H 25 V	12.8 H 21.7 V
6	Drilling Operation Area where drill hole exist	15 H	12.9 H
7	Drilling Operation Area where drilling rig Works	25 V(as to illuminate the full height of the drill)	22.2 V
8	Work place at coal stock	15 H 15 V	12.6 H 14.2 V
9	Work place at Dumping	15 H 15 V	13.2 H 14.4 V
10	Operation Cabin of Machine or mechanism	50 H(at all places of operation)	41.8 H
11	Pumping station	40 H	35.2 H
12	First Aid Station	30H	26.1 H
13	Rest shelter	30 H	27.2 H
14	Place where manual work is done	15 H 25 V	13.9 H 22.8 V
15	Sub station	100 H 50 V	96.4 H 42.8V
16	Workshop	100 H 50 V	91.8 H 41.9 V

  
Colliery Engineer  
Gouri Deep OCM

  
Safety Officer  
Gouri Deep OCM

  
Colliery Manager  
GouriDeep OCM

वेस्टर्न कोल्फील्ड्स लिमिटेड के ५ मिलियन घन मीटर (कोल + अधिभार) से कम उत्पादन क्षमतावाले ५ खुली खदानों का भूमि पुनरुद्धार हेतु २०२४ के उपग्रह डाटा के आधार पर निगरानी का प्रतिवेदन

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

**March-2025**

Remote Sensing Cell  
Geomatics Division  
CMPDI, Ranchi





**Document Control Sheet**

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(2) Publication Date	March 2025
(3) Number of Pages	38
(4) Number of Figures	08
(5) Number of Tables	03
(6) Number of Plates	5
(7) Title of Report	Land Restoration / Reclamation Monitoring of Open Cast of Western Coalfields Ltd producing Less than 5 million Cu.m. (Coal+OB) Based on Satellite Data for the Year 2024
(8) Aim of the Report	To prepare land use/cover map of leasehold area of 05 opencast projects based on high resolution satellite data (IRS2-L4FX) of the year 2024 using digital image processing technique.
(9) Executing Unit	Remote Sensing Cell, Geomatics Division, Central Mine Planning & Design Institute Limited, Gondwana Place, Kanke Road, Ranchi 834008
(10) User Agency	Western Coalfields Ltd., Nagpur, Maharashtra.
(11) Author	1) Swabhimman Dehariya, Asst. Manager (Mining/Geomatics) 2) Tilak Mondal, Chief Manager (E&M /Geomatics)
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(13) No. of Copies	5
(14) Distribution Statement	Official

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## कार्यकारी सारांश

**१.० परियोजना** वेस्टर्न कोल्फील्ड्स लिमिटेड के ५ मिलियन घन मीटर (कोल+ अधिभार) से कम उत्पादन क्षमतावाले ५ खुली खदानों के पुनरुद्धार हेतु वर्ष २०२४ के उपग्रह डाटा पर आधारित तीन साल के अन्तराल पर सलाना नियमित निगरानी।

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

## ३.० मुख्य निष्कर्ष

- वर्ष २०२४-२५ में कुल ०५ खुली खदान परियोजनाओं में भूमि सुधार की स्थिति की निगरानी पर विचार किया गया है। (<5 एमसीएम कोयला+ओबी)
- वर्ष २०२४-२५ में भूमि पुनरुद्धार (लैंड रिक्लेमेशन) हेतु चयन किये गए कुल ०५ खुली खदान परियोजनाओं यथा: कोलेगांव, घोंसा, उर्धन, गौरी डीप छिंदा का कुल पट्टाक्षेत्र अथवा माइन लीज होल्ड एरिया १४३६.९८ हेक्टेयर है जिसमें ३७४.९८ हेक्टेयर उत्खनन क्षेत्र के अंतर्गत है तथा २५.६७ हेक्टेयर (६.८५%) क्षेत्र में तकनीकी पुनरुद्धार (बैकफीलिंग) का कार्य प्रगति पर है और शेष ३४९.३१ हेक्टेयर (९३.१५%) क्षेत्र सक्रिय खनन के अन्तर्गत है। विश्लेषण से यह स्पष्ट है कि वर्ष २०२४-२५ के लिए कोई जैविक पुनरुद्धार यानी बैकफिल पर वृक्षारोपण नहीं किया गया है। परियोजनावार भूमि पुनरुद्धार (लैंड रिक्लेमेशन) के निगरानी का वर्णन विस्तार रूप से तालिका संख्या ०१, बार चार्ट चित्र संख्या ०१ में दर्शाया गया है।



- डब्ल्यूसीएल में पिछले चक्र अध्ययन के संबंध में वर्ष २०२४-२५ में ५ ओसी परियोजनाओं के लिए किए गए भूमि सुधार की स्थिति की तुलना करने पर यह स्पष्ट है कि भूमि पुनरुद्धार (लैंड रिक्लेमेशन) के तहत आनेवाले क्षेत्र का क्षेत्रफल वर्ष २०२३-२४ के १६.५१ हेक्टेयर की तुलना में वर्ष २०२४-२५ में बढ़कर २५.९३ हेक्टेयर हो गया है जिसमें (बैकफ़िल पर वृक्षारोपण) जैविक पुनरुद्धार और (बैकफ़िलिंग के तहत क्षेत्र) तकनीकी पुनरुद्धार दोनों शामिल हैं। तीन वर्षों की अवधि में भूमि पुनरुद्धार क्षेत्र में ९.४२ हेक्टेयर की यह वृद्धि डब्ल्यूसीएल द्वारा भूमि पुनरुद्धार की दिशा में किए गए प्रयासों का परिणाम है। विभिन्न ओसी परियोजनाओं में भूमि सुधार की वर्षवार तुलना तालिका-१ में दी गई है।
- तालिका 1.1 में डब्ल्यूसीएल (<5 एमसीएम कोयला+ओबी) की शेष खानों में भूमि पुनरुद्धार (लैंड रिक्लेमेशन) सामूहिक रूप से दर्शाया गया है।
- कुल वृक्षारोपण (हरित आवरण), बैकफ़िल पर किए गए वृक्षारोपण, बंजर अधिभार डंप पर किए गए वृक्षारोपण, सामाजिक वानिकी के तहत किए वृक्षारोपण के तहत आने वाले क्षेत्र का क्षेत्रफल वर्ष २०२३-२४ में १७१.८२ हेक्टेयर से बढ़कर वर्ष २०२४-२५ में २२३.४३ हेक्टेयर हो गया है।

## Executive Summary

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

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

### 3.0 Salient Findings

- Total 5 no. of OC projects have been considered for monitoring the status of land reclamation in the year 2024-25
- Out of the total mine leasehold area of 1436.98 Hectare of the 5 OC projects Viz. Gauri Deep, Ghonsa, Kolegaon, Urdhan, and Chhinda considered for monitoring during the year 2024-25; total excavated area is only 374.98 Ha out of which 25.67 Ha area (6.85%) is under backfilling (Technically Reclaimed) and 349.31 Ha (93.15%) area is under active mining. It is evident from the analysis that there is no biological reclamation i.e. plantation on backfill for the year 2024-25. Project wise details are given in Table-1 & bar chart Fig1.
- On comparing the status of land reclamation carried out for 5 nos of OC projects in year 2024-25 with respect to previous cycle study



in WCL, it is evident from analysis that area under land reclamation has increased from 16.51 Hectares (Yr 2023-24) to 25.93 Hectares (Yr 2024-25) which includes both planation on backfill (Biological Reclamation) and area under backfilling (Technical Reclamation). This increase of 9.42 Hectares area of land reclamation in a period of three years 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.

- Table 1.1 Show the Composite land reclamation status in remaining mines of WCL (<5 MCM Coal+OB) as per clause 2.(ii) of the received work order from CIL.
- Overall, total area under plantation (green cover) carried out on backfill, barren OB dump and plantation under social forestry has gone up from 171.82 Hectares in the year 2023-24 to 223.43 Hectares in the year 2024-25.

Table-1

## Project wise Land Reclamation Status in Opencast Projects of WCL (&lt;5 MCM Coal+OB) based on Satellite Data of the year 2024-25

(Area in Hectare)

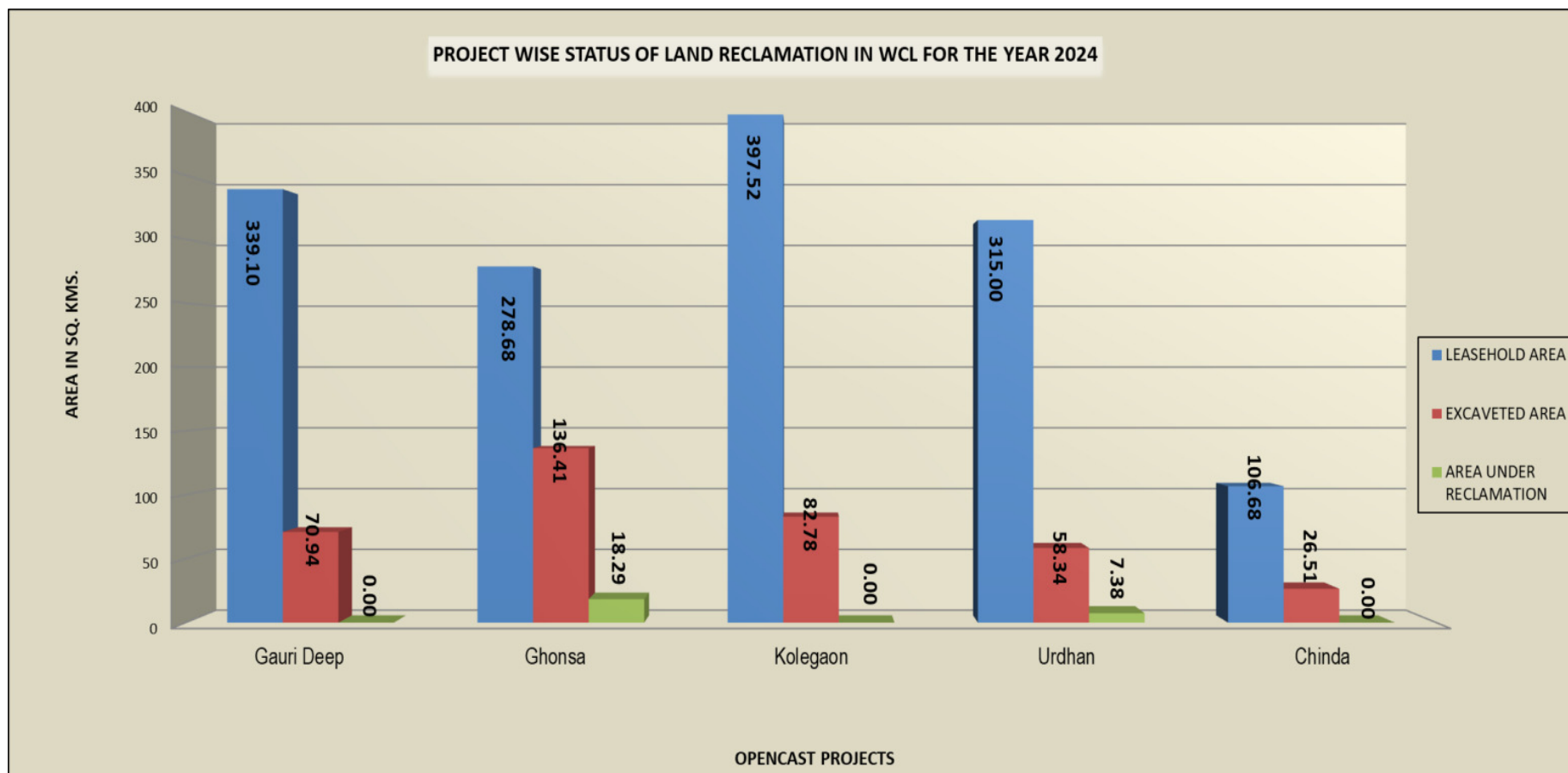
SL.No.	Project	Total Leasehold Area		Technical Reclamation		Plantation						Area under Active Mining		Total Excavated Area		Total Area under Plantation (% Green Cover Generated in Leasehold)		Total Area under Reclamation	
						Biological Reclamation		Other Plantations											
				Area under Backfilling		Plantation on Excavated / Backfilled Area		Plantation on External Over Burden Dumps		Social Forestry, Avenue Plantation Etc.									
1	2	3		4		5		6		7		8		9 (=4+5+8)		10 (=5+6+7)		11(=4+5)	
		2023	2024	2023	2024	2023	2024	2023	2024	2023	2024	2023	2024	2023	2024	2023	2024	2023	2024
1	Gauri Deep	339.10	339.10	0.00	0.00	0.00	0.00	0.00	14.46	8.00	10.42	62.77	70.94	62.77	70.94	8.00	24.88	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			2.36%	7.34%	0.00%	0.00%
2	Ghonsa	278.68	278.68	11.59	18.29	0.00	0.00	5.51	8.61	6.54	10.80	98.39	118.12	109.98	136.41	12.05	19.41	11.59	18.29
				10.54%	13.41%	0.00%	0.00%					89.46%	86.59%			4.32%	6.96%	10.54%	13.41%
3	Kolegaon	397.52	397.52	0.00	0.00	0.00	0.00	83.45	96.67	24.11	29.70	67.64	82.78	67.64	82.78	107.56	126.37	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			27.06%	31.79%	0.00%	0.00%
4	Urdhan	315.00	315.00	4.70	7.38	0.00	0.00	10.15	15.44	9.02	11.13	38.06	50.96	42.76	58.34	19.17	26.57	4.70	7.38
				10.99%	12.65%	0.00%	0.00%					89.01%	87.35%			6.09%	8.43%	10.99%	12.65%
5	Chinda	106.68	106.68	0.00	0.00	0.00	0.00	20.11	20.74	4.30	4.68	23.81	26.51	23.81	26.51	24.41	25.42	0.00	0.00
				0.00%	0.00%	0.00%	0.00%					100.00%	100.00%			22.88%	23.83%	0.00%	0.00%
	Total (A)	1436.98	1436.98	16.29	25.67	0.00	0.00	119.22	155.92	51.97	66.73	290.67	349.31	306.96	374.98	171.82	223.43	16.51	25.93
	A			5.31%	6.85%	0.00%	0.00%					94.69%	93.15%			11.96%	15.55%	5.38%	6.92%

(%) calculated is in respect to Total Excavated Area as applicable

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

1. Area under Biological Reclamation includes Areas under Plantation done on Backfilled Area Only.
2. Area under Technical Reclamation includes Area under Barren Backfilling only.
3. Area under Active Mining Includes Coal Quarry, Advance Quarry Site and Quarry filled with water etc., if any.
4. Social Forestry and Plantation on External OB Dumps are not included in Biological Reclamation and are put under separate categories as shown in the above Table.
5. (%) calculated in the above Table is in respect to Total Excavated Area except for "Total Area under Plantation" where % is in terms of "Leasehold Area".





**Fig.1: Land Reclamation Status in OC projects producing less than 5mcm (Coal +OB) of WCL in the Year 2024**

## **1.0 Background**

- 1.1** Land is the most important natural resource which embodies soil, water, flora fauna and total ecosystem. All human activities are based on the land which is the 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 m<sup>3</sup> per annum (coal + OB taken together per annum) based on remote sensing satellite data regularly on annual basis and less than 5 million m<sup>3</sup> per annum (coal + OB taken together per annum) at interval of three years based on remote sensing satellite data, for sustainable development of mining. 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 ltd for period 2017-18 to 2021-22. Further, a revised work order was issued vide letter no. CIL/ENVT/2022-23/W.O/10899 dated 06.07.2022 from Coal India Limited for the period 2022-23 to 2023-24. Again the above work order has been renewed vide letter no. CIL/ ENV/11463 dated 03.07.2024 for a period of 3 more years for 2024-25, 2025-26 and 2026-27. The result of land reclamation status of all such mines to be put on the website of CIL, ([www.coalindia.in](http://www.coalindia.in)), CMPDI ([www.cmpdi.co.in](http://www.cmpdi.co.in)) and the



concerned coal companies in public domain. Detail report to be submitted to Coal India and respective subsidiaries.

- 1.3** Land reclamation monitoring of all opencast coal mining projects would also comply the statutory requirements of Ministry of Environment, Forest & Climate Change (MoEF & CC). Such monitoring would not only facilitate in taking timely mitigation measures against environmental degradation, but would also enable coal companies to utilize the reclaimed land for larger socio-economic benefits in a planned way.
- 1.4** Present report is embodying the finding of the study based on satellite data of the year 2024 carried out for the 5 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 under backfilling, plantation, OB dumps, social forestry, active mining area, settlements, water bodies, distribution of wasteland, agricultural land and forest land in the leasehold area of the project. This is an important step taken up for assessing the progressive status of mined land reclamation and for taking up remedial measures, if any, required for environmental protection.

## **3.0 Methodology**

There are number of steps involved between raw satellite data procurement and preparation of final map. Bhoonidhi Portal of ISRO alongside National Remote Sensing Centre (NRSC) Hyderabad, being the nodal agency for satellite data supply in India, provides only raw digital satellite data, which needs further digital image processing for extracting the information and map preparation before uploading the same in the website. Methodology for land reclamation monitoring is given in given in figure-3. Following steps are involved in land reclamation /restoration monitoring:

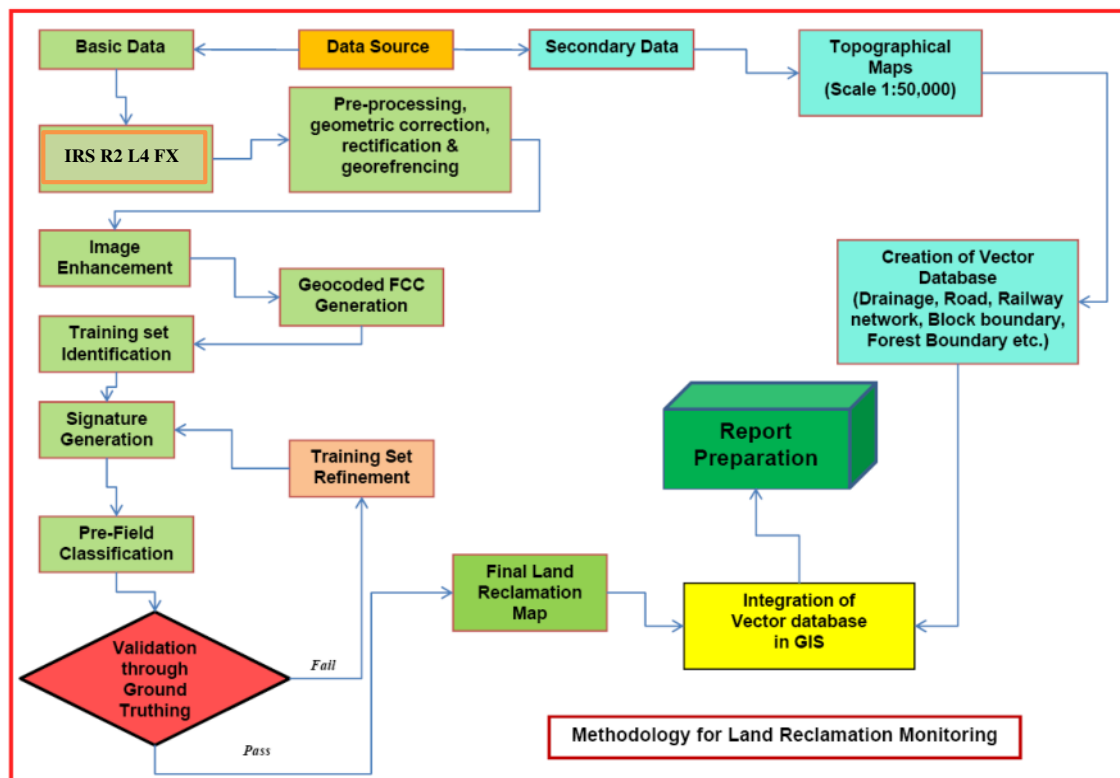


Figure :3 Methodology for Land Reclamation Monitoring

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

**3.2 Satellite Data Processing:** Satellite data are processed using ERDAS IMAGINE version 2022 digital image processing s/w & ArcMap10.8 s/w. Methodology involves the following major steps:

- **Rectification & Geo-referencing:** Inaccuracies in digital imagery may occur due to 'systematic errors' attributed to earth curvature and rotation as well as 'non-systematic errors' attributed to satellite receiving station itself. Raw digital images contain geometric distortions, which make them unusable as maps. Therefore, geo-



referencing is required for correction of image data using ground control points (GCP) to make it compatible to Sol toposheet.

- **Image enhancement:**

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

- **Training set selection**

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

- **Classification and Accuracy assessment**

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

- **Area calculation**

The area of each land use class in the leasehold is determined using ERDAS IMAGINE v. 2022 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 is carried out in the field and necessary corrections if required, are incorporated before map finalization.

### **3.4 Land reclamation database on GIS:**

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



## 4.0 Land Reclamation Status in Western Coalfields Ltd.

4.1 Following 5 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 2024-25:

- Gouri Deep
- Ghonsa
- Kolegaon
- Urdhan
- Chhinda

4.2 Area statistics of different land use class present in the mine leasehold of the above projects for the year 2024 are shown in the Table - 2. Land use maps derived from satellite data of year 2024 are shown in Plate 1 - 5. This time both local grid and UTM grid is used for map preparation along with all essential boundaries shape file such as Quarry limit line, Sump, OB Dump, EC Boundary, Plantation area etc. as per the work order from CIL. Changes in the different land use classes based on satellite data are depicted in Bar Charts in Fig. 4- 8.

4.3 Study reveals that out of total mine leasehold area of 1436.98 Hectare of the 5 projects viz, Gauri Deep, Ghonsa, Kolegaon, Urdhan and Chhinda considered for monitoring during year 2024-25; total excavated area is 374.98 Ha, out of which 25.67 Ha (6.85%) area is under backfilling (Technically Reclaimed) and balance 349.31 Ha (93.15%) area is under active mining. It is evident from analysis that there is no biological reclamation i.e. plantation on backfill. Project wise details area given in Table 1.





















4.4 From analysis it is revealed that total area under technical reclamation (area under backfilling) has also increased from 16.29 Ha (5.31%) in the year 2023 to 25.67 Ha (6.85%) area in the year 2024.

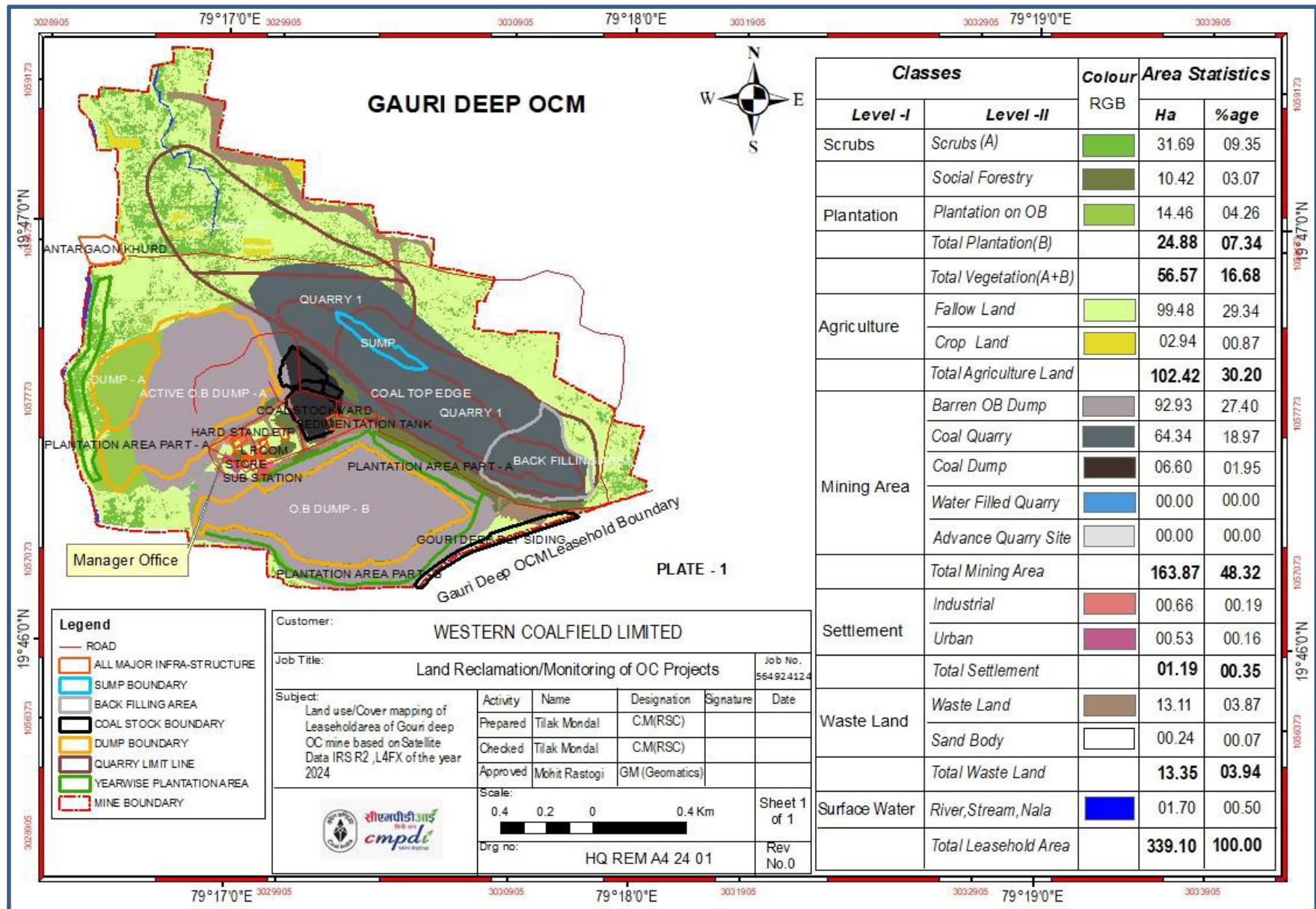
- 4.5** Study indicates that overall the projects of WCL considered for this study indicate increase in technical reclamation i.e. area under backfilling.
- 4.6** After analyzing the satellite data of year 2023 vs. 2024 it is evident that total area under plantation (Green cover) carried out under social forestry in above OC mines of WCL has increased from 171.82 Ha (Year 2023) to 223.43 Ha (Year 2024) in the span of one years. This increase of 51.61 Ha area under total plantation in one-year time is due to the sincere efforts made by WCL towards generation of green cover in leasehold area of the 5 opencast projects considered for land reclamation in the year 2024-25.
- 4.7** Out of 5 projects of WCL, maximum land reclamation has been carried out in Ghonsa OCP (13.41%) followed by Urdhan OCP (12.65%).



**Table 2:**  
**Status of Land Use/Reclamation in OC Mines (<5 M.Cu.M) Of Western Coalfield Ltd based on Satellite Data of the Year 2024**

(Area in Hectare)

		Gauri Deep		Ghonsa		Kolegaon		Urdhan		Chhinda		Total	
		Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
FORESTS	Dense Forest 	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	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
	<b>Total Forest</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCRUBS	Scrubs 	31.69	9.35	46.72	16.76	26.08	6.56	22.96	7.29	10.28	9.64	137.73	9.58
PLANTATION	Social Forestry 	10.42	3.07	10.80	3.88	29.70	7.47	11.13	3.53	4.68	4.39	62.05	4.32
	Plantation on OB Dump 	14.46	4.26	8.61	3.09	96.67	24.32	15.44	4.90	20.74	19.44	155.92	10.85
	Plantation on Backfill (Biological Reclamation) 	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total Plantation</b>	24.88	7.34	19.41	6.96	126.37	31.79	26.57	8.43	25.42	23.83	222.65	15.49
	<b>Total Vegetation</b>	56.57	16.68	66.13	23.73	152.45	38.35	49.53	15.72	35.70	33.46	360.38	25.08
ACTIVE MINING	Coal Quarry 	64.34	18.97	104.75	37.59	72.84	18.32	37.04	11.76	25.22	23.64	304.19	21.17
	Coal Dump 	6.60	1.95	7.32	2.63	4.71	1.18	12.79	4.06	0.83	0.78	32.25	2.24
	Advance Quarry Site 	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Quarry Filled With Water 	0.00	0.00	6.05	2.17	5.23	1.32	1.13	0.36	0.46	0.43	12.87	0.90
	<b>Total Area under Active Mining</b>	70.94	20.92	118.12	42.39	82.78	20.82	50.96	16.18	26.51	24.85	349.31	24.31
	Barren OB Dump 	92.93	27.40	20.52	7.36	71.49	17.98	76.81	24.38	15.96	14.96	277.71	19.33
	Barren Backfilled Area (Technical Reclamation) 	0.00	0.00	18.29	6.56	0.00	0.00	7.38	2.34	0.00	0.00	25.67	1.79
	<b>Total Area</b>	92.93	27.40	38.81	13.93	71.49	17.98	84.19	26.73	15.96	14.96	303.38	21.11
	<b>Total Area Under Mine Operation</b>	163.87	48.32	156.93	56.31	154.27	38.81	135.15	42.90	42.47	39.81	652.69	45.42
WASTELANDS	Waste Lands 	13.11	3.87	34.12	12.24	44.62	11.22	14.84	4.71	2.35	2.20	109.04	7.59
	Fly Ash Pond / Sand Body 	0.24	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.02
	<b>Total Wasteland</b>	13.35	3.94	34.12	12.24	44.62	11.22	14.84	4.71	2.35	2.20	109.28	7.60
WATERBODIES	Reservoir, nallah, ponds 	1.70	0.50	0.33	0.12	0.93	0.23	0.00	0.00	0.00	0.00	2.96	0.21
	<b>Total Waterbodies</b>	1.70	0.50	0.33	0.12	0.93	0.23	0.00	0.00	0.00	0.00	2.96	0.21
AGRICULTURE	Crop Lands 	2.94	0.87	0.00	0.00	0.00	0.00	25.00	7.94	1.56	1.46	29.50	2.05
	Fallow Lands 	99.48	29.34	20.39	7.32	42.50	10.69	87.34	27.73	23.54	22.07	273.25	19.02
	<b>Total Agriculture</b>	102.42	30.20	20.39	7.32	42.50	10.69	112.34	35.66	25.10	23.53	302.75	21.07
SETTLEMENTS	Urban Settlement 	0.53	0.16	0.08	0.03	0.98	0.25	0.92	0.29	1.06	0.99	3.57	0.25
	Rural Settlement 	0.00	0.00	0.00	0.00	0.00	0.00	1.67	0.53	0.00	0.00	1.67	0.12
	Industrial Settlement 	0.66	0.19	0.70	0.25	1.77	0.45	0.55	0.17	0.00	0.00	3.68	0.26
	<b>Total Settlement</b>	1.19	0.35	0.78	0.28	2.75	0.69	3.14	1.00	1.06	0.99	8.92	0.62
	<b>Grand Total</b>	339.10	100.00	278.68	100.00	397.52	100.00	315.00	100.00	106.68	100.00	1436.98	100.00





"Under Jurisdiction of Nagpur Court only"  
(A Govt. of India Undertaking)

वेस्टर्न कोलफील्ड्स लिमिटेड  
खान प्रबंधक कार्यालय  
गोवरी डीप ओपन कास्ट माइन  
पो. आर्वि, तह. राजुरा जि. चंद्रपूर (महा)



5 DECADES OF UNEARTHING ENERGY

Western Coalfields Limited

OFFICE OF THE - MINE  
MANAGER, GOURI DEEP OCM,  
BALLARPUR AREA,  
PO ARVI, TAH-RAJURA DIST.  
CHANDRAPUR (MS) -442905

Ref No :WCL/BA/ GCSA/GDOCM/MGR/ 407

DATE: 29/10/2025

### LAST THREE YEARS VTC AND PME DETAILS

Last three years PME details			
Are as follows			
Year	Manpower total on roll	PME target	PME Done
2023	452	212	148
2024	458	225	226
2025 (Up to date)	469	208	196

Last three years VTC details			
Are as follows			
Year	Manpower total on roll	VTC target	VTC Done
2023-24	452	70	63
2024-25	458	59	78
2025-26(Up to date)	469	36	55

  
29/10/2025  
Mine Manager  
GDOCM

“Under Jurisdiction of Nagpur Court only”

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**वेस्टर्न कोलफील्ड्स लिमिटेड**  
खान प्रबंधक कार्यालय  
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CHANDRAPUR (MS) -442905

Ref No :WCL/BA/ GCSA/GDOCM/MGR/ 406

DATE : 29/10/2025

1. List of PPE kit distribution of last three years at GDOCM

Sl. No	Items	2023-24	2024-25	2025-26	Balance
1)	Helmet	190	160	57	NIL
2)	Life saving Jacket	03	15	14	NIL
3)	Gumboot	161	222	197	NIL
4)	Water Bottle	0	490	0	NIL
5)	Canvas Mining shoes	485	312	223	NIL
6)	Fluorescent Jacket	300	700	100	NIL

2. Water Tanker:

a) Departmental : 02

3. Skill Development Training : 38

4. Scientific Slope stability study: BIRLA INSTITUTE OF TECHNOLOGY Mesra Ranchi-835215

5. Catchment drain /Garland drain size and length: a)length = 12.92km

b)size = 1.2m x 1.8m

  
29/10/2025  
Mine Manager  
GDOCM



# **Final Report on**

**Scientific Study On Design of Controlled Blasting  
Pattern with SME / SMS Explosives at Gauri Deep Open  
Cast Mine, Ballarpur Area, WCL, District Chandrapur,  
Maharashtra.**



**Sponsored by:**

**Western Coalfields Limited,  
Ballarpur Area, District Chandrapur, Maharashtra  
Project No. CNP / N / 4552 / 2017-18**

***Prepared By***



**CSIR-Central Institute of Mining and Fuel Research  
Nagpur Research Centre (Mining Technology),  
17 / C, Telankhedi Area, Civil Lines, Nagpur 440001**



## Final Report on

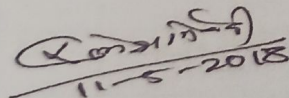
Scientific study on design of controlled blasting pattern  
with SME / SMS Explosives at Gauri Deep Open Cast  
Mine, Ballarpur Area, WCL, District Chandrapur,  
Maharashtra.



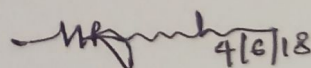
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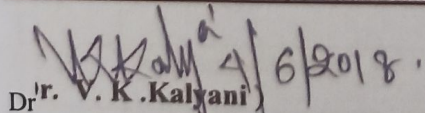
  
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Principal Scientist, CSIR-  
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Project Leader

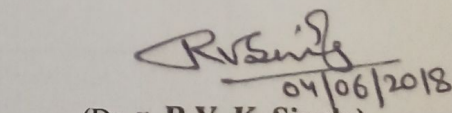
  
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Chief Scientist & HORG  
Business Development &  
Industrial Liaison

June 2018





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## Abbreviations and Symbols

### Abbreviations Used

Abbreviation	Phrase of words
AOP	Air-Overpressure
ANFO	Ammonium Nitrate Fuel Oil
R	Coefficient of Correlation
$R^2$	Coefficient of Determination
CSIR	Council of Scientific and Industrial Research
CIMFR	Central Institute of Mining and Fuel Research
DGMS	Directorate General of Mines Safety, India
Eq.	Equation
Fig. Figs.	Figure, Figures
ha	Hectares
ID	Identity
kg, g/cc	Kilogram, gram per cubic centimeter
m, mm, km	meters, millimeters, kilometers
MECL	Mineral Exploration Corporation Limited.
MPa, GPa	Mega Pascal, Giga Pascal
MVRA	Multi Variate Regression Analysis
N, E, W, S	North, East, West, South
OB	Over-burden
PPV	Peak Particle Velocity
PVS	Peak Vector Sum
RL	Reduced Level (Elevation above mean sea level)
RQD	Rock Quality Designation
s, ms	Second, millisecond
USBM	United States Bureau of Mines
VOD	Velocity of Detonation

### Symbols Used for Blast Design and Geotechnical Data

Parameters	Unit	Symbol
Number of holes fired in a blast		$N_t$
Total explosive consumed per blast	kg	$Q_t$
Maximum charge per delay	kg	$Q_{max}$
Bench Height	m	$H_{bench}$
Depth of blast holes	m	$l_b$
Burden	m	$B$
Spacing	m	$S_b$
Stemming	m	$l_s$
Powder factor	Ton/kg	$q$
Blast hole diameter	mm	$d$
Unconfined compressive strength, UCS	MPa	$\sigma_c$
Rock Quality Designation	%	$RQD$
Joint volumetric count		$J_v$
Launch velocity of flyrock projectile	m/s	$v_0$
Gravitational Acceleration	$m/s^2$	$g$
Launch angle of flyrock projectile	Degree	$\theta_0$
Maximum throw of flying fragments or flyrock distance	m	$R_f$
Back break or over break	m	$R_{bb}$
Distance of seismograph from blasting face	m	$D$
Ground vibration, peak particle velocity	m/s	$v_{max}$
Frequency of ground vibration	Hz	$f_g$
Air over pressure, air vibration, air blast	dBL	$P_{oa}$



## Executive Summary

“Scientific study on design of controlled blasting pattern with SME/SMS Explosives at Gauri Deep Open Cast Mine, Ballarpur Area, WCL, District Chandrapur, Maharashtra” has been completed by CSIR-CIMFR, Unit 1, Nagpur. Gauri deep Mine is mechanized opencast mine. Experimental blasts have been carried out using site mixed emulsion explosive in Gauri Deep opencast coal mine. More than 20 tons of explosive has been used in experimental blasts and the performance of the explosive has been found satisfactory. The findings of the study can be summarized as follows:

- (1) The equation of attenuation of ground vibration (50 %confidence)for Gauri Deep Open Castcoal mine

$$v_{max} = 506.1 \left( \frac{D}{\sqrt{Q_{max}}} \right)^{-1.38}$$

- (2) The predictive ground vibration equation at 95 % confidence interval will be as follows:

$$v_{max} = 607.06 \left( \frac{D}{\sqrt{Q_{max}}} \right)^{-1.38}$$

The equation with 95 % confidence ensures that the predicted values of ground vibration remain lower than the observed values in 95 % cases at least. Therefore, charge per delay calculated on this basis is very much safe.

- (3) The observed values of air overpressure are quite scattered and it cannot form the basis for calculation of safe charge per delay. However, the observed values of Air overpressure for all the events are less than the USBM prescribed limit of 134dB.
- (4) No incident or accident of blast-induced flyrock has been observed during the study. The Maximum throw observed in the experimental blasts falls in the range of 30 m to 80 m. Maximum throw or distance travelled by flying fragment has never exceeded the prescribed limit.
- (5) The dominant frequency of the blast vibrations falls in the range of 0-8 Hz. The structures to be protected are domestic houses and structures Kachha in nature, made of bricks & cement which do not belong to owner. The threshold limit for blast-induced ground vibrations is 5 mm/s.

## 1 Introduction

On the request of Western Coalfields limited vide work order no. (RefNo)WCL/GM/MIS/EXPL/2017/36, dated 13/16-01-2017 of GM (MIS) WCL CSIR- Central Institute of Mining and Fuel Research, Nagpur Research Centre (Mining Technology) has undertaken the study entitled “**Scientific study on design of controlled blasting pattern with SME/SMS Explosives at Gauri Deep Open Cast Mine, Ballarpur Area, WCL, District Chandrapur, Maharashtra**”.

### 1.1 Brief Description of the Gauri Deep Open Cast Coal Mine

Gauri deep Mine is mechanized opencast mine (Figs. 1.1). Mining activity mainly consist of drilling, blasting, loading and unloading with shovel dumper combination. Brief description of the study area has been placed in Table 1.1.

**Table 1.1: Brief description of the study area.**

Mining lease ID	:	Gauri Deep OC Mine
TopoSheet No.	:	56 M/5
Extent of Latitudes	:	19 <sup>0</sup> 46'33" to 19 <sup>0</sup> 47'45" N
Extent of Longitudes	:	79 <sup>0</sup> 16'46" to 79 <sup>0</sup> 18'54" E
Lease hold area	:	1619 Hectares
Village Covered in Mining lease	:	Goyegaon, Muthra, Antergaon
Taluqa/Tehsil	:	Rajura
District & State	:	Chandrapur Maharsashtra
Nearest Railway Station	:	Kazipeth Ballarshah South 7 km.
Nearest Highway	:	Hyderabad highway NH 44
Nearest Airport	:	Nagpur Airport, 167.5 km via NH 930
Approved Productos Capacity	:	0.5 Million Tons / y.
Waste genetation	:	3 Million m <sup>3</sup> / y
Stipping Ratio	:	6 m <sup>3</sup> per waste per tone of coal





**Fig 1.1: Satellite image of Gauri Deep Open Cast coal mine.**



**Fig. 1.2: 1.1: A view of Gauri deep openpit mine.**

## 1.2 The Scope of Work

1. Trial blast by using SMS/SME Explosive for optimum blast design
2. Monitoring of blast induced ground vibration & design of safe charge per delay
3. Control of ground vibration air over pressure and fly rock
4. Controlled blast design to ensure stability of OB bench situated at rise side
5. Advice to suitable blast design for better productivity and safety nearby structures and OB benches

## 2. Research Methodology

### 2.1 Approach to the Problem

In order to protect the structures such as government school, temple and a few hutments lying at 130 to 300 m distance from the mining lease boundary (Fig. 3.1), a safe blast design is to be suggested. Table 2.1 enlist the symbols used for blast design and geotechnical parameters. Gauri Deep OC Mine

**Table 2.1: Symbols used for blast design and geotechnical data**

Parameters	Unit	Symbol
Number of holes fired in a blast		$N_t$
Total explosive consumed per blast	Kg	$Q_t$
Maximum charge per delay	Kg	$Q_{max}$
Bench Height	M	$H_{bench}$
Depth of blast holes	M	$l_b$
Burden	M	$B$
Spacing	M	$S_b$
Stemming	M	$l_s$
Powder factor	ton /kg	$q$
Blast hole diameter	Mm	$d$
Distance of seismograph from blasting face	M	$D$
Ground vibration, peak partical velocity	m/s	$v_{max}$
Frequency of ground vibration	Hz	$f_g$
Air over pressure, air vibration, air blast	dBL	$P_{oa}$



Maximum safe charge per delay ( $Q_{max}$ ) have been evaluated by predicting blast induced ground vibrations  $v_{max}$  using USBM equation given as follows:

$$v_{max} = K \left( \frac{D}{\sqrt{Q_{max}}} \right)^{-\beta}$$

K and  $\beta$  are site constants. As per the DGMS Tech Circular No.7 dt.29/08/97 (Table 2.2), the ground vibrations and relevant frequency content along with the type of the structure need to be evaluated based on which the maximum charge per delay can be worked out and safe blast design can be suggested.

**Table 2.2: Criterion for fixing of threshold vibrations for different structures (DGMS Tech Cir No. 7 of 1997)**

Type of Structure	Dominant Excitation Frequency		
	< 8 Hz	8 - 25 Hz	> 25 Hz
<b>(A) Buildings / structures not belong to owner</b>			
(i) Domestic houses / structures (Kachha, brick & cement)	5	10	15
(ii) Industrial Buildings (RCC & Framed Structures)	10	20	25
(iii) Objects of historical Importance & sensitive Structures	2	5	10
<b>(B) Buildings belonging to owner with limited span of life</b>			
(iv) Domestic houses / structures (Kachha, brick & cement)	10	15	25
(v) Industrial buildings (RCC & framed structures)	15	25	50

The observed values of air over pressure of experimental blasts have been compared with the USBM standards as shown in Table 2.3. The observed values have also been plotted against the scaled distance ( $D/\sqrt[3]{(Q_{max})}$ ) on Log-Log scale and a relationship has been worked out.

**Table 2.3: Air overpressure limits recommended by USBM for surface mining (RI 8485)**

134 dB	0.1 Hz high pass measuring system
133 dB	2.0 Hz high pass measuring system
129 dB	6.0 Hz high pass measuring system
105 dB	C-slow weighting scale on a sound level meter
	(Events less than or equal to 2 – sec duration)

For the assessment of flyrock incidence, the videos of experimental blasts have been analyzed in slow motion software. The maximum throw of the blast has been measured after the execution of the blasts and critically analyzed. DGMS, Technical Circular No. 8, 1982 has recommended increasing the radius of the danger zone to 500 m, from 300 m prescribed in MMR, 1961, for surface blasting. The boundary of the danger zone may be relaxed and blasting permissions may be granted in India on the condition that flying fragments should not go beyond 10 m from the place of blast or if flyrock can be restricted within one half of the distance between the blast and the nearby village through proper blast design and field control.

## **2.2 Instrumentation and Methodology adopted:**

Blast induced ground vibration and air over-pressure have been monitored with two to four seismographs. (Make: Instantle, Canada, Model minimate and Make: Nomis, USA, Model: Mini Supergraph) In all the blasts, ground vibrations were monitored at different monitoring stations in the direction of structures surrounding the mine. All seismographs record vibration in three directions i.e. Longitudinal (L), Vertical (V) and Transverse (T).

The experimental blasts were monitored with high-resolution video camera at 24 frames per second. The interval between two consecutive frames is 42 mille seconds. The blasting events were captured from a distance keeping in view safety of the equipment and personnel. The videos of the blasts were further analyzed to determine



the launch velocity and angle of the flyrock. Flyrock distances have been measured in the mines after completion of each and every experimental blast. A hand held GPS Garmin, was used to measure distances of the seismographs from the blast sites.

Blast design data namely burden, spacing, diameter of blasthole, bench height, blasthole depth, sub-grade drilling, stemming length, number of holes blasted in a round, maximum charge per delay, total explosive consumed per blast and many other blast design data of the experimental blasts have been generated. 'JKSimBlast' version 4 software developed by JKMRC, Australia has been used for analysis of the blast design data generated from the experimental blasts.

### **2.3 Brief Description nearby structures.**

There is no any structure up to 300 m from the lease boundary. A water tank lies at more than 500 m at the nearest Muthara village. A public road is passing at 250 m distance from the lease boundary. During the blasting, the road is blocked. Mine office, coal handling plant lies within mining lease. These are the structures of Owner. These structures will be shifted as and when required in view of safety of mining operations when blasting is to be carried out near these structures.

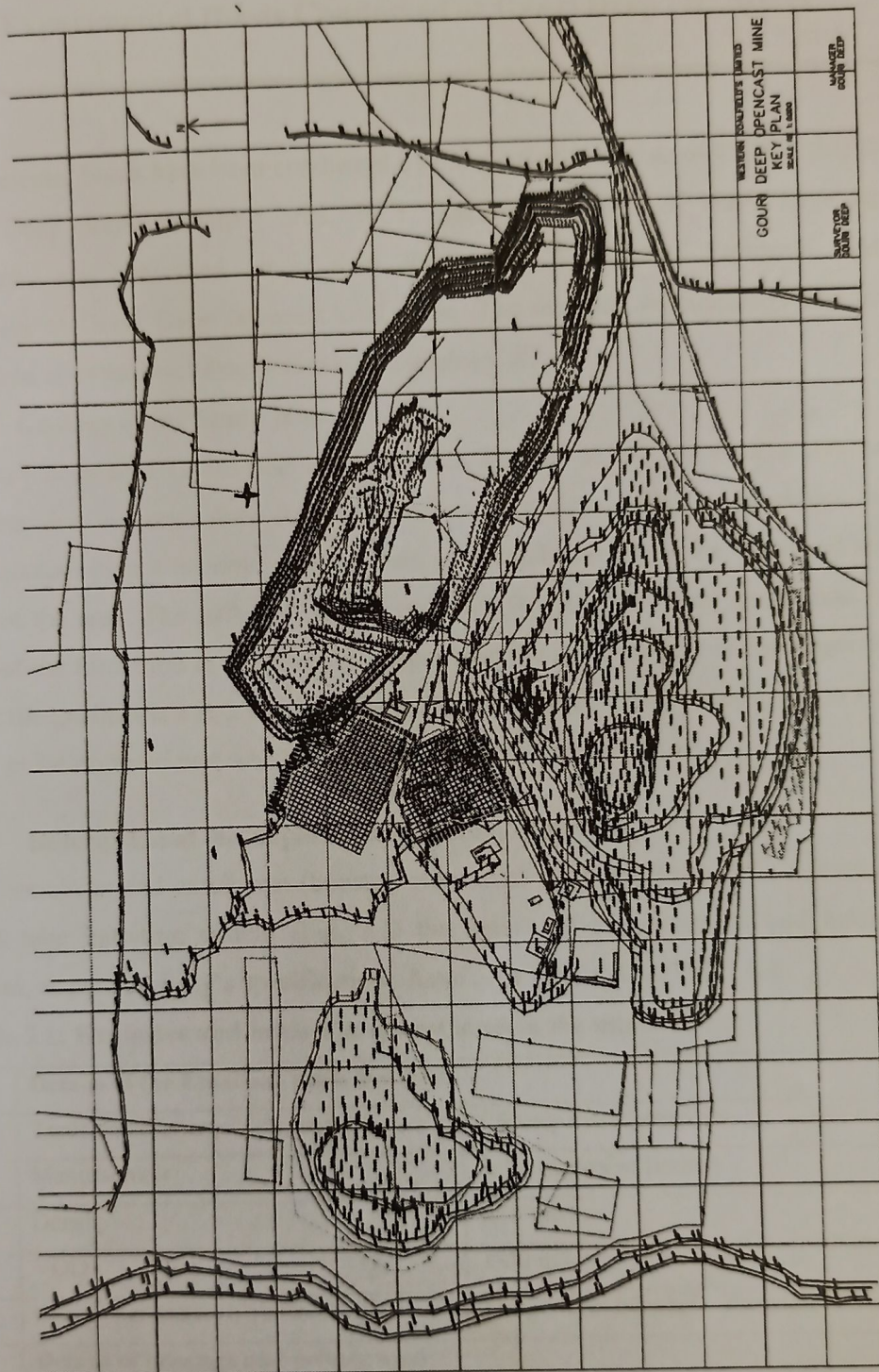


Fig. 2.1: Gauri Deep OC Mine area showing surrounding structures & villages.



### 3. Experimental Blasts Conducted at Gauri Deep OC Mines

Experimental blasts have been conducted by the team of scientists of CSIR-CIMFR at Gauri Deep mine, Ballarpur area, WCL Adequate number of blasts have been conducted and consumed more than 20 Tons of Site Mixed Emulsion (SME) explosive at Gauri Deep opencast coal mine. The research methodology has been described after the brief description of the geology of.

#### 3.1 Geology of the Study Area

A Gauri deep area is covered under a thick blanket of soil as such a structural interpretation has been done mainly on sub surface data of MECL boreholes from floor contour plan it is notice that the seam sub crop is present in the south and south west of the area. The strike of coal seam is WNW-ESE with local undulation. The deep of the formation in the block is steeper than the northern part of the Gauri deep block the gradient is 1 in 3 to 1 in 4 due north in southern part where as it is 1 in 8 to 1 in 12 in the northern part which is mostly beyond 150 m depth line.

#### 3.2 Description of the Explosive and Initiation system

SME emulsion and emulboost (booster) were used in all the blasts. The non-electric shock-tube initiating system (Fig. 3.1) the details of the explosive and initiation system, as per company's specifications, have been tabulated in Table 3.1.

**Table 3.1: Explosive and initiation system used in the mine.**

<b>1</b>	<b>Details of the Emulsion explosive used</b>	
1.1	Trade name of emulsion used	Slurry mixed emulsion
1.2	Manufacturer	Solar explosive limited
1.3	Density	1.15 gm/cc
1.4	VOD	3500 m/s
1.5	Charge per meter of blasthole	23 kg/ m (in blasthole diameter 165 mm)
<b>2</b>	<b>Details of boosters and primer used</b>	
2.1	Trade name	Emulboost
2.2	Manufacturer	Ideal explosive
2.3	Dimension of booster	50 mm
2.4	Weight of booster	150 gm

<b>3</b>	<b>Initiation system</b>	Non-electric initiation system
<b>3.1</b>	Trade name	
<b>3.2</b>	Manufacturer	
<b>3.3</b>	Trunk line delays (TLD) used	17 ms, 25 ms, 42 ms, 65 ms
<b>3.4</b>	Down the hole (DTH) delays used	



### 3.3 Investigation into the Experimental Blasts Conducted at the Mines

Sixteen (16) experimental blasts have been conducted from 05 Jan.2018 to 12 May. 2018 by CSIR-CIMFR within the mine at safe distances as prescribed in the previous permission of DGMS (Fig. 3.2). Blasting operations were carried out in a controlled manner to minimize flyrock generation for safety of civil structures, machines and nearby villages. Bench faces view before and after the blast has been shown in Fig. 3.3.



The consumption of SME explosives in various experimental blasts has been depicted in Table 3.2. The blast design parameters have been listed in Table 3.2.



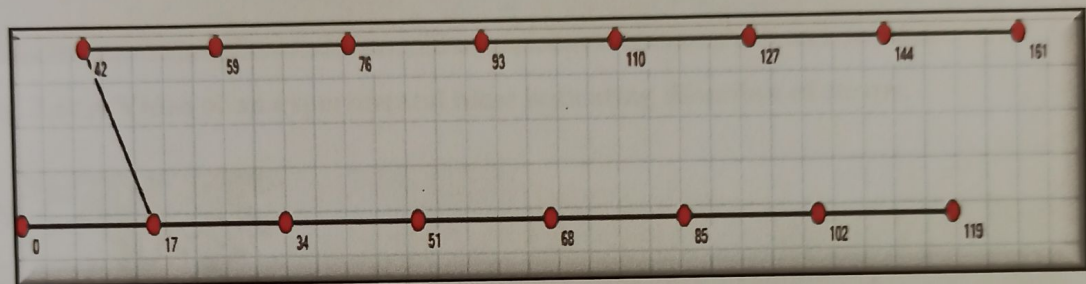
**Fig. 3.2: Conducting experimental blast at Gauri Deep OC Mine**



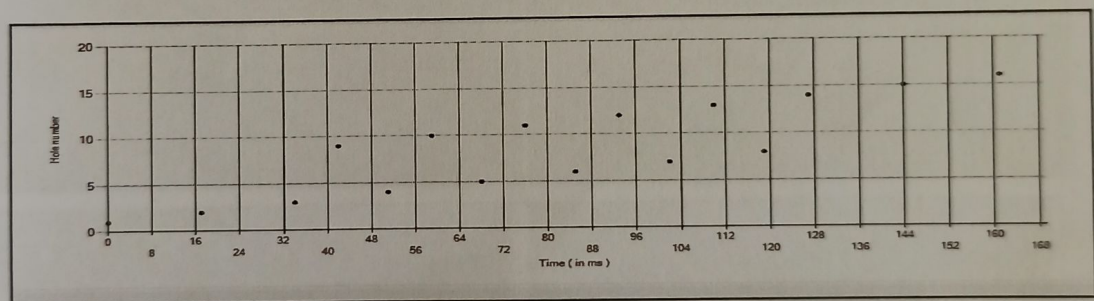
**Fig. 3.3: Bench face before and after blast.**

Blasthole pattern is staggered and firing sequence of the blast holes has been shown in Fig. 3.4. The minimum delay interval of 8 ms has been ensured while selecting trunk

line delays to avoid simultaneous firing of more than one blast holes as shown in Fig. 3.5. The experimental blasts were monitored with high-resolution video camera at 24 frames per second. The blasting events were captured from a distance keeping in view safety of the equipment and personnel. The videos of the blasts were further analyzed to determine the launch velocity and angle of the flyrock. (Fig.3.6). Peak practical velocity of ground vibrations of experimental blasts, the dominant frequency of ground vibration, air over pressure and distance of the seismograph from the blasting face have been recorded (Figs 3.7-3.8) and shown in Table 3.4.

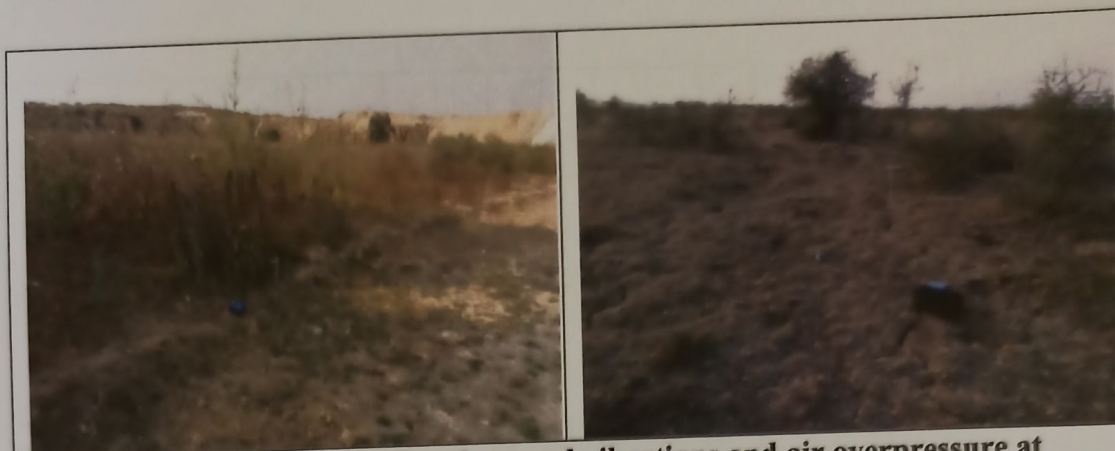


**Fig. 3.4: Blasting pattern of an experimental blast showing initiation sequence.**



**Fig. 3.5: Firing sequence of the experimental blast.**





**Fig. 3.7 Monitoring blast induced ground vibrations and air overpressure at structures & villages surrounding the Gauri Deep OC Mine.**

**Table 3.2: Consumption of SME Explosive in various experimental blasts at Gauri Deep mines WCL.**

Blast No.	Date of blast	Location	N <sub>t</sub>	Q <sub>e</sub>	Q <sub>b</sub>	Q <sub>e</sub> +Q <sub>b</sub>	Q <sub>max</sub>	q
b101	05.01.18	at RL 134.84Mtrs	35	1642	5.25	1647.25	94 <sup>*1</sup>	3.45
b102	05.01.18	at RL 134.84Mtrs	30	1408	4.4	1412.4	94.14 <sup>*1</sup>	3.50
b103	05.01.18	at RL 134.84Mtrs	30	1408	4.5	1412.4	94.14 <sup>*1</sup>	3.45
b104	05.01.18	at RL 134.84Mtrs	35	1642	5.25	1647.25	94 <sup>*1</sup>	3.45
b105	16.01.18	at RL 145.33Mtrs	21	973	3.15	976.15	46.48	3.87
b106	16.01.18	at RL 145.33Mtrs	31	1437	4.65	1441.65	46.5	3.87
b107	24.01.18	at RL 164.31Mtrs	35	1505	5.25	1510.25	43.15	4.21
b108	24.01.18	at RL 164.31Mtrs	35	1505	5.25	1510.25	43.15	4.21
b109	24.01.18	at RL 164.31Mtrs	30	1290	4.5	1294.5	43.15	4.21
b110	24.01.18	at RL 164.31Mtrs	30	1290	4.5	1294.5	43.15	4.21
b111	24.01.18	at RL 164.31Mtrs	30	1290	4.5	1294.5	43.15	4.21
b112	12.05.18	at RL 175.00Mtrs	25	1039	2.5	1041.5	41.57	3.24
b113	12.05.18	at RL 175.00Mtrs	25	1039	2.5	1041.5	41.57	3.24
b114	12.05.18	at RL 175.00Mtrs	23	956	2.3	958.3	41.57	3.24
b115	12.05.18	at RL 175.00Mtrs	23	956	2.3	958.3	41.57	3.24
b116	12.05.18	at RL 175.00Mtrs	22	915	2.2	917.2	41.57	3.24
Total emulsion consumed in experimental blasts				20295	63	20358		

**Legend:** N<sub>t</sub>: Number of holes; Q<sub>e</sub>: Emulsion explosive consumed per blast, kg; Q<sub>b</sub>: booster consumed per blast, kg; Q<sub>t</sub>: Total explosive consumed per blast, kg; \*<sup>1</sup> Minimum firing sequence between two blastholes was less than 8 m



**Table:3.3 Blast design parameters at Gauri Deep Mine.**

Blast No.	N <sub>t</sub>	d	Q <sub>t</sub>	Q <sub>max</sub>	l <sub>b</sub>	B	S <sub>b</sub>	l <sub>s</sub>	q
b101	35	165	1647.25	94	6.5	5	5	4.33	3.45
b102	30	165	1412.4	94.14	6.6	5	5	4.33	3.50
b103	30	165	1412.4	94.14	6.5	5	5	4.33	3.45
b104	35	165	1647.25	94	6.5	5	5	4.33	3.45
b105	21	165	976.15	46.48	6.5	5	6	4	3.87
b106	31	165	1441.65	46.5	6.6	5	6	4	3.87
b107	35	165	1510.25	43.15	6.5	5.5	5.5	4	4.21
b108	35	165	1510.25	43.15	6.5	5.5	5.5	4	4.21
b109	30	165	1294.5	43.15	6.6	5.5	5.5	4	4.21
b110	30	165	1294.5	43.15	6.5	5.5	5.5	4	4.21
b111	30	165	1294.5	43.15	6.5	5.5	5.5	4	4.21
b112	25	165	1041.5	41.57	6	4.5	5	4	3.24
b113	25	165	1041.5	41.57	6	4.5	5	4	3.24
b114	23	165	958.3	41.57	6	4.5	5	4	3.24
b115	23	165	958.3	41.57	6	4.5	5	4	3.24
b116	22	165	917.2	41.57	6	4.5	5	4	3.24
<b>Data range</b>									
Min.	21		917	41.57	6	4.5	5	4	3.24
Max.	35		1647.25	94.14	7	5.5	6	4.33	4.21

**Legends:** d: Blasthole dia., mm; B: Burden, m, l<sub>b</sub>: blasthole depth, m; S<sub>b</sub> : spacing; l<sub>s</sub>: Stemming length, m.

**Table 3.4: Blast-induced Ground vibration, air over pressure, Fly rock.**

Blast ID	Date	$Q_{max}$	Seismograph	$D$	$V_{max}$	$f_g$	$p_{oa}$	$R_f$
b101	05.01.18	94	UM10779	487	1.426	6	112.87	78
			UM7270	352	5.47	9.62	116.75	
			10780	830	NT	NT	NT	
b102	05.01.18	94.14	10779	382	3.157	20.5	88.16	84
			7220	395	2.978	7.125	110.22	
			7271	197	8.457	7.875	115.50	
			10780	827	NT	NT	NT	
b103	05.01.18	94.14	10779	486	2.838	11	90.26	66
			7270	388	4.435	7	108.90	
			7271	160	10.49	8.75	115.69	
			10780	824	NT	NT	NT	
b104	05.01.18	94	10779	429	3.752	18	103.19	74
			7220	389	4.379	10.13	122.85	
			7271	195	8.796	9.25	127.71	
			10780	818	NT	NT	NT	
b105	16.01.18	46.48	10780	393	1.761	6	128.11	62
			7270	167	7.787	5	120.18	
			7271	321	2.795	7.375	113.91	
b106	16.01.18	46.5	7270	417	1.897	7.375	113.91	53
			7271	496	1	6.25	107.51	
b107	24.01.18	43.15	10780	226	5.834	7.937	110.32	44
			7270	150	8.035	10	114.11	
b108	24.01.18	43.15	10780	318	2.161	4.5	111.93	46
			7270	241	5.148	4.875	113.47	
			10780	145	8.657	7	118.08	
b109	24.01.18	43.15	10780	243	2.789	5	113.67	49
			7270	168	5.034	5.375	117.66	
			7271	117	8.555	6.75	123.93	
b110	24.01.18	43.15	10780	288	2.52	4	115.14	51
			7270	214	2.725	5.75	119.41	
			7271	146	4.108	5.875	126.64	
b111	24.01.18	43.15	10780	321	1.919	5	113.44	31
			7270	244	3.991	5.375	115.68	
			7271	195	4.644	5.75	118.95	
b112	12.05.18	41.57	10779	211	4.78	5	117.28	31
			5364	100	13.56	7.75	126.44	
			5365	202	2.683	6.25	133.26	
b113	12.05.18	41.57	10779	163	3.534	5	118.50	34
			5364	100	12.41	7.625	133.06	





Blast ID	Date	$Q_{max}$	Seismograph	$D$	$V_{max}$	$f_g$	$p_{oa}$	$R_f$
			5365	294	1.445	4.125	132.04	
b114	12.05.18	41.57	10779	211	5.196	4.5	123.35	45
			5364	257	4.683	7.625	130.10	
			5365	319	1.476	6	140.34	
b115	12.05.18	41.57	10779	137	7.701	6	123.18	48
			5364	158	3.794	7.25	122.92	
			5365	345	1.953	5.375	125.11	
b116	12.05.18	41.57	10779	329	2.283	19.5	119.20	42
			5364	143	3.62	19.75	122.28	
			5365	278	2.318	11.13	128.30	

**Legends:**  $D$ :Distance of seismograph from blasting face; $V_{max}$  : Blast induced ground vibration; $Q_{max}$ : Maximum charge per delay; $f_g$ : Frequency of ground vibration. $N_t$  : not triggered $p_{oa}$  : Air overpressure.  $R_f$ : Flyrock distance

## 4. Data Analysis, Results and Discussion

### 4.1 Data Analysis of Blast-induced Ground Vibrations and Air Overpressure

Regression analysis of all the blast vibration events was conducted (Fig.4.1). The equation adjusted to 95% confidence in order to ensure that peak particle velocity can remain below the safe levels, As illustrated in (Fig. 4.2). Dominant frequency of blasting events lies in the range of 0-8 Hz (Fig 4.3). Analyzing the data of blast-induced ground vibrations observed at Gauri Deep Open Castmine, the predictive equations at mean values is as follows:

$$v_{max} = 506.1 \left( \frac{D}{\sqrt{Q_{max}}} \right)^{-1.38} \text{Equation (1)}$$

$$R^2=0.768$$

The coefficient of correlation is quite fair. The predictability of the equation is excellent. The predictive equation, with 95 % confidence level, is as follows:

$$v_{max} = 607.06 \left( \frac{D}{\sqrt{Q_{max}}} \right)^{-1.38} \text{Equation (2)}$$

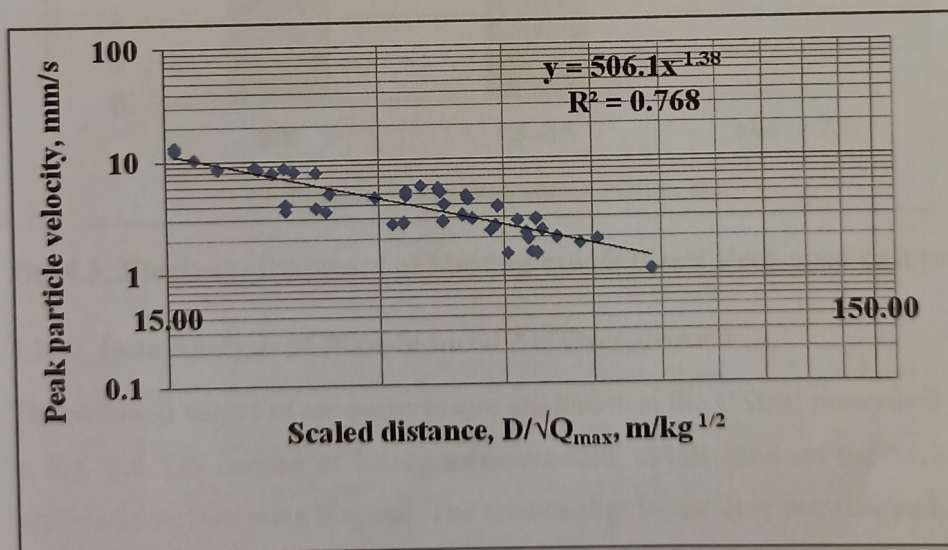


Fig.4.1: Relationship between ground Vibration and scaled distance for Gauri Deep open cast coal mine.



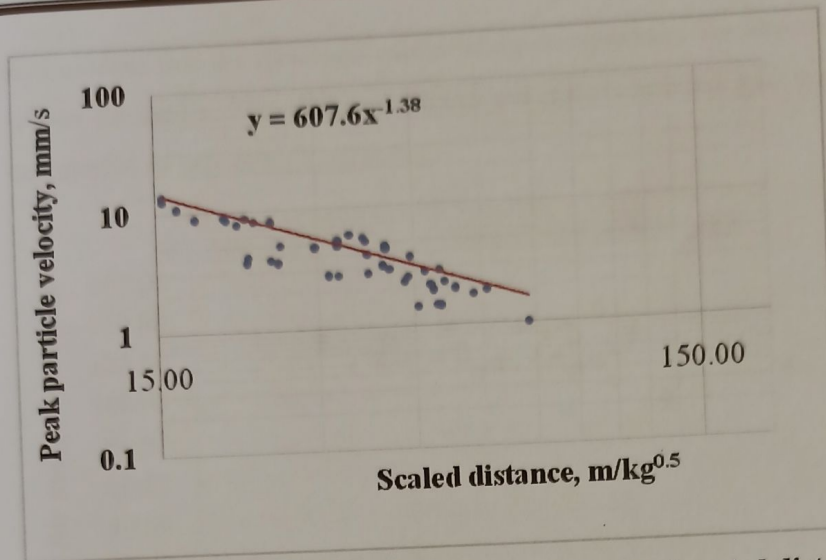


Fig.4.2: Relationship between ground vibration and scaled distance (With 95 % confidence interval for Gauri Deep open cast coal mine).

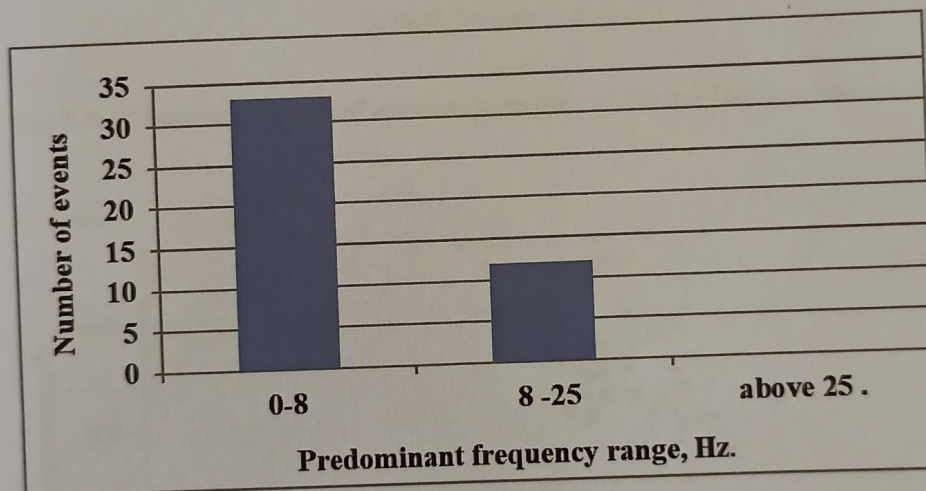


Fig. 4.3: Dominant frequency of blasting events Gauri Deep open cast coal mine.

#### 4.2 Data Analysis of Blast-induced Air Overpressure

The observed values of air overpressure are less than the USBM prescribed limit as shown in Fig. 4.4. US Bureau of Mines recommended 134dB limit on the basis of a study of large-scale surface mine blasting. The relationship for air over pressure and scaled distance for the Gauri Deep Open Cast coal mine, as shown in Fig 4.4, is as follows:

$$P_{oa} = 3570.6 \left( \frac{D}{\sqrt[3]{Q_{max}}} \right)^{-1.298} \text{ Equation (3)}$$

It is evident that the observed values of air overpressure for almost all the events are well within the limits. The observed values are quite scattered and it cannot form a basis of calculation of safe charge per delay.

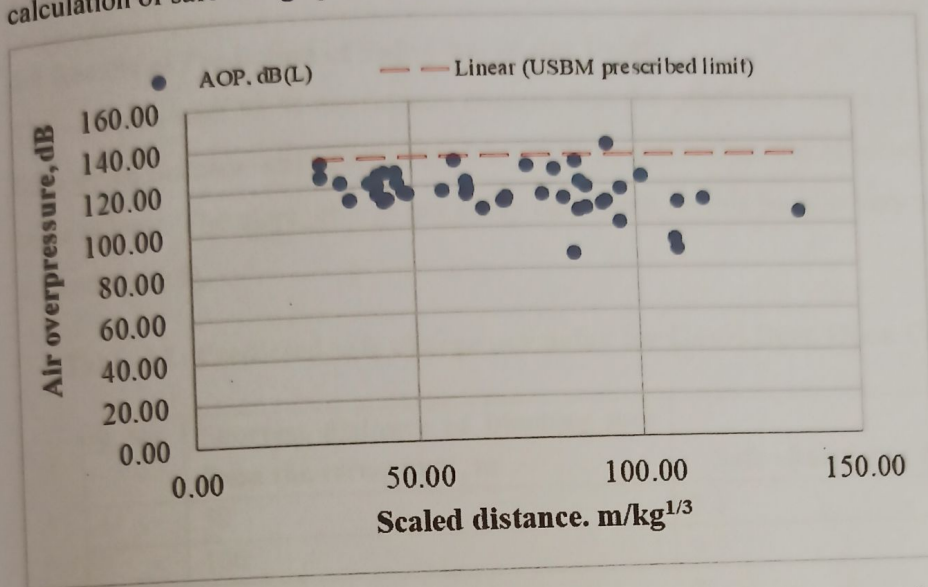


Fig.4.4: Observed values of air overpressure at Gauri Deep opencast coal mine.

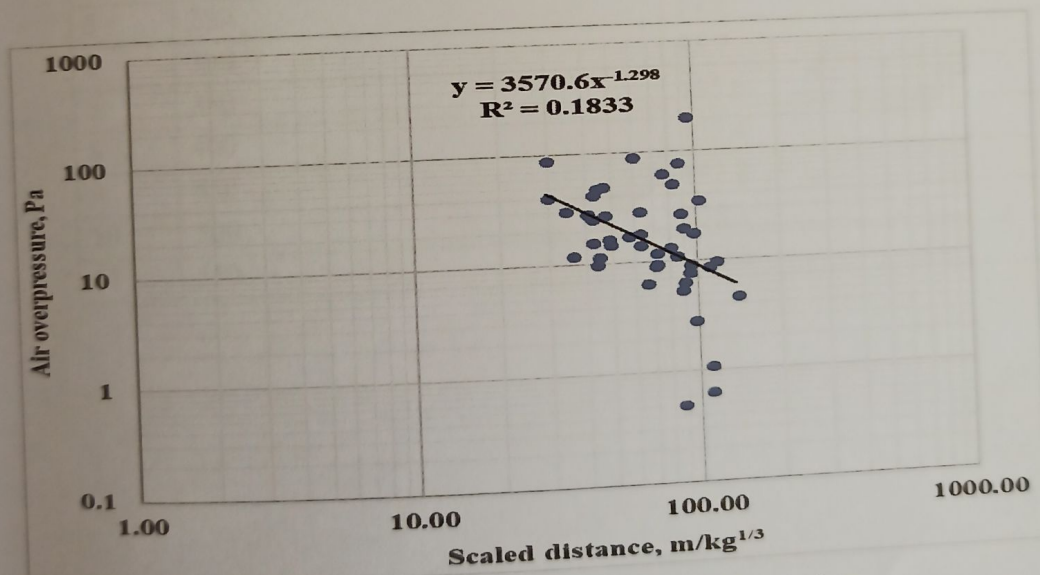


Fig.4.5: Relationship between air overpressure and scaled distance.

#### 4.3 Data Analysis of Flyrock Distance

No incident or accident of blast-induced flyrock has been observed during the study. The Maximum throw observed in the experimental blasts falls in the range of 30 m to 80 m.



Maximum throw or distance travelled by flying fragment has never exceeded the prescribed limit of one half of the distance from the hutments, villages or structures etc. Thus, the factor of safety in all the cases is more than 2.

#### 4.4 Results of Prediction of Safe Charge per Delay

The equation with 95 % confidence ensures that the predicted values of ground vibration for a given distance and charge per delay will be lower than the observed values in 95 % cases at least. Therefore, charge per delay calculated on this basis is very much safe (Table 4.1 and Fig 4.6).

**Table 4.1: Predicted safe charge per delay for Gauri Deep Open Castcoal mine**

S. No.	Shortest distance of blasting face from the structures, m	Safe charge per delay, kg
1	50	2.4
2	100	9.5
3	150	21.4
4	200	38.1
5	250	59.5
6	300	85.7
7	350	116.6
8	400	152.4
9	450	192.8
10	500	238.1
11	550	288.0

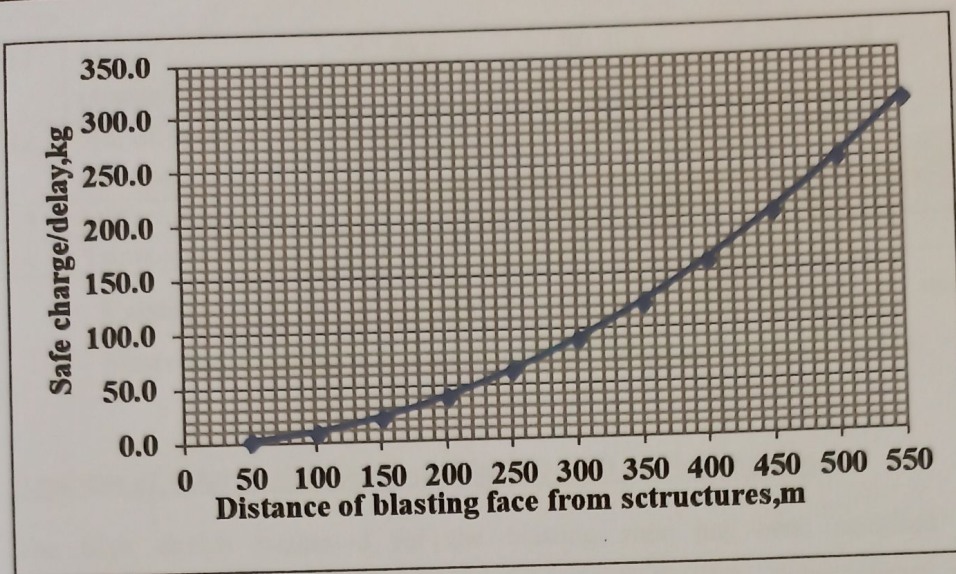


Fig. 4.6: Predicted safe charge per delay for Gauri Deep OC coal mine.

#### 4.5: Suggested Safe Blast Designs within 300 m of residential Area & Structures

In order to protect the villages, hutments resident areas, structures, controlled blasting practices needs to be adopted as described in Table 4.2

Table 4.2: Suggested controlled blast designs for different blasting zones from residential houses & structures.

S. No.	Blast Design Parameters	Blasting Zone from Residential Houses. structures			
		250-300 m	300-350 m	350-400 m	400-500 m
1	Blasthole diameter	165 mm	165 mm	165 mm	165 mm
2	Total number of holes	≤30	40	≤50	≤60
3	No. of rows	≤2	≤3	≤3	≤4
4	Drilling Pattern	Staggered	Staggered	Staggered	Staggered
5	Burden	4-4.5 m m	4-4.5m	4-4.5m	4-4.5m
6	Spacing	4.5-5.5 m	4.5-5.5 m	4.5-5.5 m	4.5-5.5 m
7	Top stemming length	4-5.5 m	4-5.5 m	4-5.5 m	4-5.5 m
8	Blasthole depth	<8 m	≤8 m	≤8m	≤8 m
9	Sub-grade drilling	<0.5 m	<0.5 m	0.5 m	0.5 m
10	Explosive charge/hole	≤62.8 kg	≤90 kg	≤ 90 kg	≤90 kg

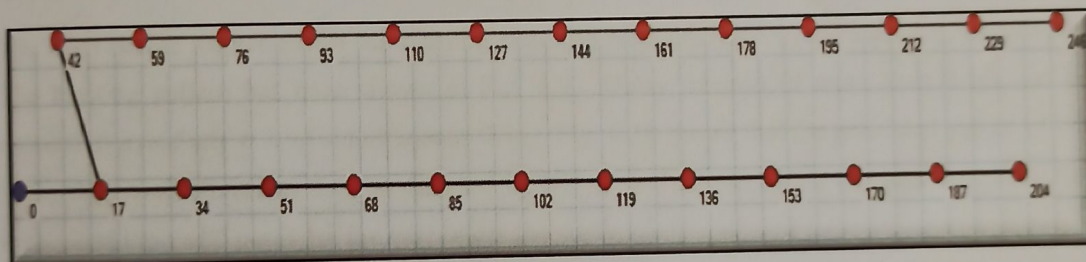


11	Max. charge/delay	$\leq 62.8\text{kg}$	$\leq 90.4\text{kg}$	$\leq 123.1\text{kg}$	$\leq 160.7\text{kg}$
12	No. of deck charges	Single	Single	Single	Single
13	Initiation system	NONEL; DTH Delays: 350/450/475 ms;			
14	Trunk line delays	17 ms, 25 ms, 42 ms.			

- Existing explosive and initiation system (NONEL) should be used in suggested blasts and Existing practices have been found quite safe.

#### Analysis of blast design suggested in 250 -300 m blasting zone

The blast design suggested for the blasting zone has been analyzed in the software 'JKSimBlast'. The blasting pattern has been shown in Fig. 4.7. Delay interval of more than 8 ms has been ensured to avoid any risk of simultaneous firing. Fig. 4.8 shows that the predicted values of blast-induced ground vibrations for the distance of 250 m and above which are less than the DGMS Prescribed limit of 5 mm/s for the case under the study.



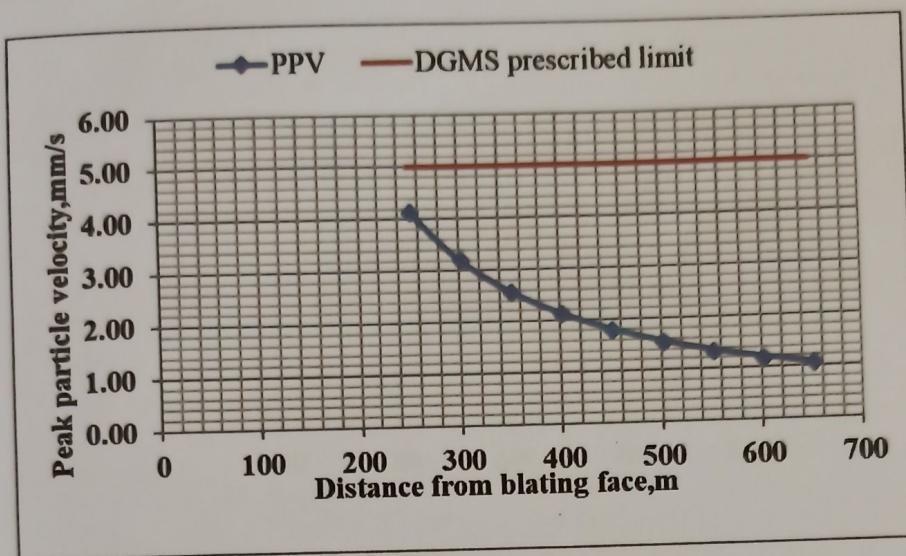


Fig. 4.8: Predicted values of the ground vibrations for the blast suggested in 250 - 300m blasting zone.

#### Analysis of blast design suggested in 300- 350 m blasting zone

The blast design suggested for the blasting zone has been analyzed in the software 'JKSimBlast'. The blasting pattern has been shown in Fig. 4.9. Delay interval of more than 8 ms has been ensured to avoid any risk of simultaneous firing. Fig. 4.10 shows that the predicted values of blast-induced ground vibrations for the distance of 300 m and above which are less than the DGMS Prescribed limit of 5 mm/s for the case under the study.

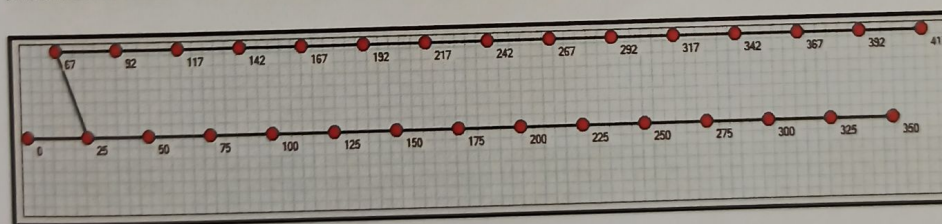


Fig. 4.9: Blasting pattern of showing initiation sequence the blast suggested in 300- 350 m blasting zone.



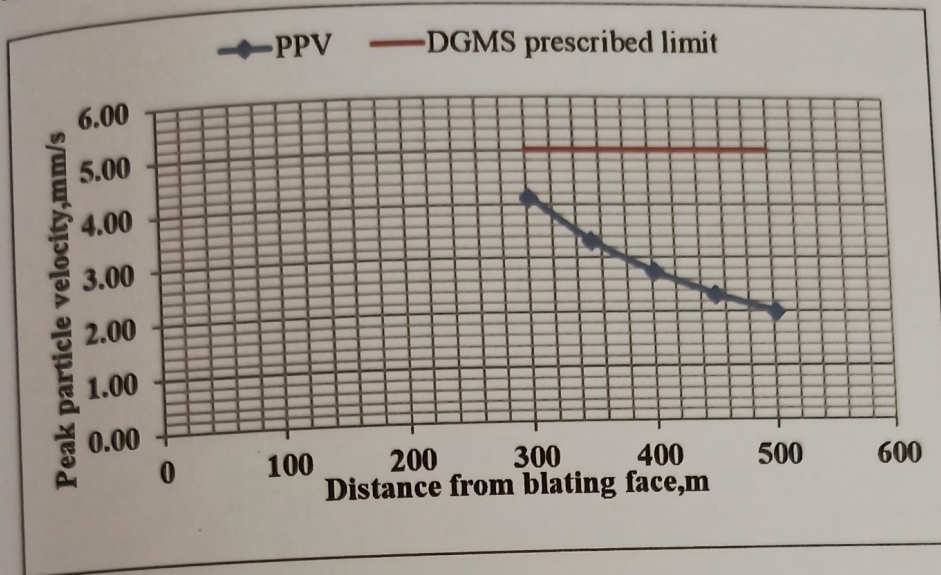


Fig. 4.10: Predicted values of the ground vibrations for the blast suggested in 300- 350 m blasting zone.

#### Analysis of blast design suggested in 350- 400 m blasting zone

The blast design suggested for the blasting zone has been analyzed in the software 'JKSimBlast'. The blasting pattern has been shown in Fig. 4.11. Delay interval of more than 8 ms has been ensured to avoid any risk of simultaneous firing. Fig. 4.12 shows that the predicted values of blast-induced ground vibrations for the distance of 350 m and above which are less than the DGMS Prescribed limit of 5 mm/s for the case under the study.

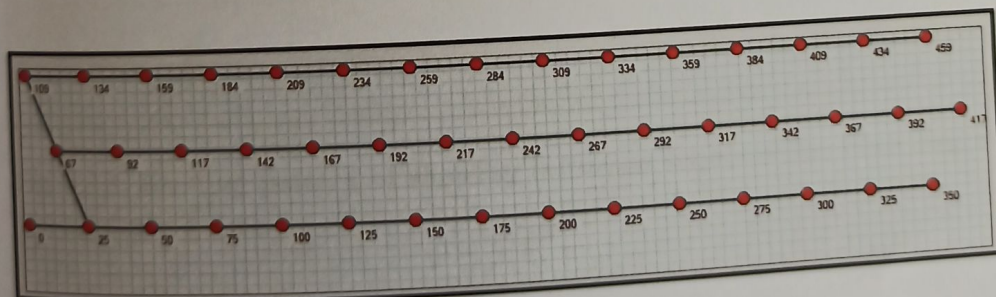


Fig. 4.11: Blasting pattern of showing initiation sequence the blasts suggested in 350- 400 m blasting zone.

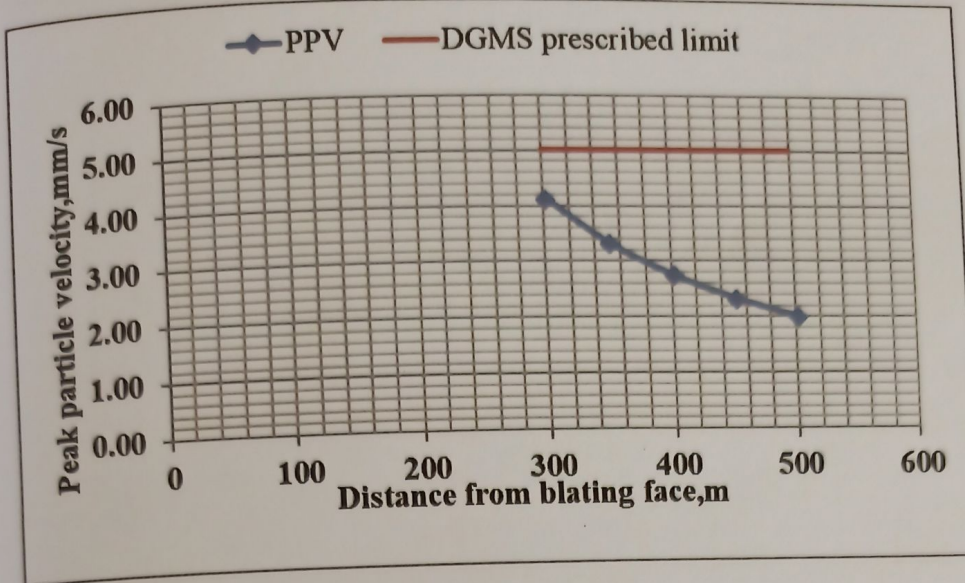


Fig. 4.12: Predicted values of the ground vibrations for the blast suggested in 350- 400 m blasting zone.

#### Analysis of blast design suggested in 400- 500 m blasting zone

The blast design suggested for the blasting zone has been analyzed in the software 'JKSimBlast'. The blasting pattern has been shown in Fig. 4.13. Delay interval of more than 8 ms has been ensured to avoid any risk of simultaneous firing. Fig. 4.14 shows that the predicted values of blast-induced ground vibrations for the distance of 400 m and above which are less than the DGMS Prescribed limit of 5 mm/s for the case under the study.

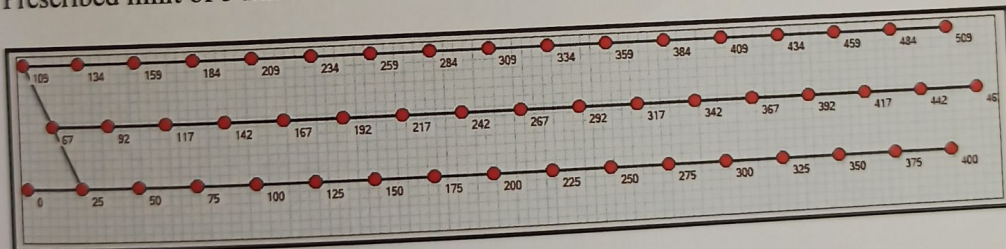
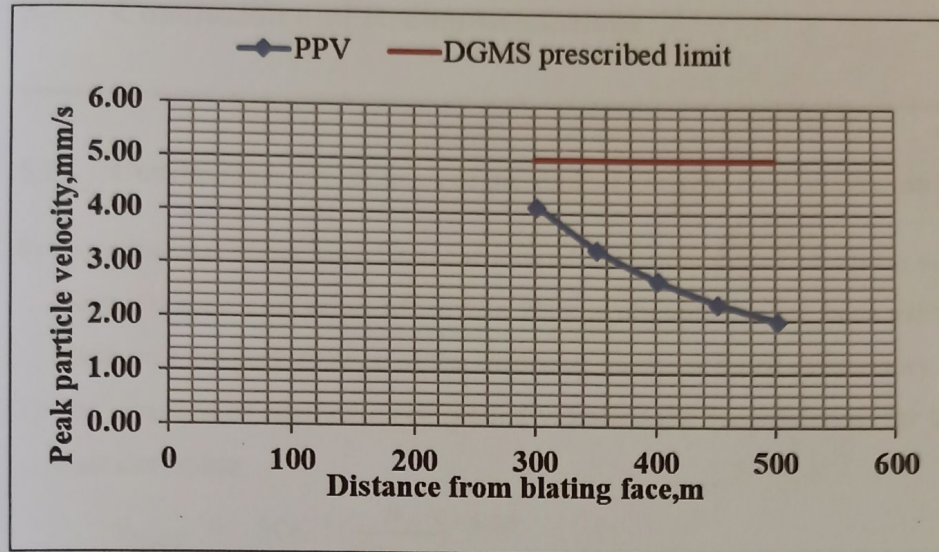


Fig. 4.13: Blasting pattern of showing initiation sequence the blast suggested in 400- 500 m blasting zone.





**Fig. 4.14: Predicted values of the ground vibrations for the blast suggested in 400- 500 m blasting zone.**

## 5 Conclusion and Recommendations

**5.1 Conclusions:** On the basis of the study, following conclusions can be drawn:

- (6) Experimental blasts have been carried out using site mixed emulsion explosive in Gauri Deep opencast coal mine. More than 20 tons of explosive has been used in experimental blasts and the performance of the explosive has been found satisfactory.
- (7) The equation of attenuation of ground vibration (50 %confidence) for Gauri Deep Open Cast coal mine

$$v_{max} = 506.1 \left( \frac{D}{\sqrt{Q_{max}}} \right)^{-1.38}$$

- (8) The predictive ground vibration equation at 95 % confidence interval will be as follows:

$$v_{max} = 607.06 \left( \frac{D}{\sqrt{Q_{max}}} \right)^{-1.38}$$

The equation with 95 % confidence level ensures that the predicted values of ground vibration for a given distance and charge per delay will be lower than the observed values in 95 % cases at least. Therefore, charge per delay calculated on this basis is very much safe.

It is evident that the observed values of air overpressure for all the events are well within the limits. The relationship for air overpressure and scaled distance for the Gauri Deep Open Cast coal mine is as follows:

$$P_{oa} = 3570.6 \left( \frac{D}{\sqrt{Q_{max}}} \right)^{-1.298}$$

- (9) The observed values of air overpressure are quite scattered and it cannot form the basis for calculation of safe charge per delay. However, the observed values of Air overpressure for all the events are less than the USBM prescribed limit of 134dB.
- (10) No incident or accident of blast-induced flyrock has been observed during the study. The Maximum throw observed in the experimental blasts falls in the range of 30 m to 80 m. Maximum throw or distance travelled by flying fragment has never exceeded the prescribed limit.
- (11) The dominant frequency of the blast vibrations falls in the range of 0-8 Hz. The structures to be protected are domestic houses and structures Kachha in nature, made of



bricks& cement which do not belong to owner. The threshold limit for blast-induced ground vibrations is 5 mm/s.

## 5.2 Recommendations:

- 1) The safe charge per delay calculated on the basis 95 % confidence level is recommended for the Gauri Deep Open Cast coal mine is given in table 5.1:

**Table 5.1: Recommended safe charge per delay.**

S. No.	Shortest distance of blasting face from the structures, m	Safe charge per delay, kg
1	50	2.4
2	100	9.5
3	150	21.4
4	200	38.1
5	250	59.5
6	300	85.7
7	350	116.6
8	400	152.4
9	450	192.8
10	500	238.1
11	550	288.0

- 2) The suggested safe blast design for the various distance of blasting faces from the hutments and structures to be protected as shown in Table 5.2.

**Table 5.2: Recommended controlled blast designs for different blasting zones from residential houses & structures.**

S. No.	Blast Design Parameters	Blasting Zone from Residential Houses. structures			
		250-300 m	300-350 m	350-400 m	400-500 m
1	Blasthole diameter	165 mm	165 mm	165 mm	165 mm
2	Total number of holes	≤30	40	≤50	≤60
3	No. of rows	≤2	≤3	≤3	≤4
4	Drilling Pattern	Staggered	Staggered	Staggered	Staggered
5	Burden	4-4.5 m m	4-4.5 m	4-4.5 m	4-4.5 m

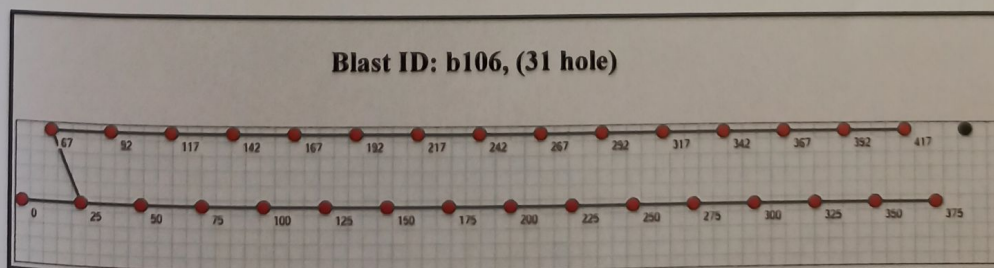
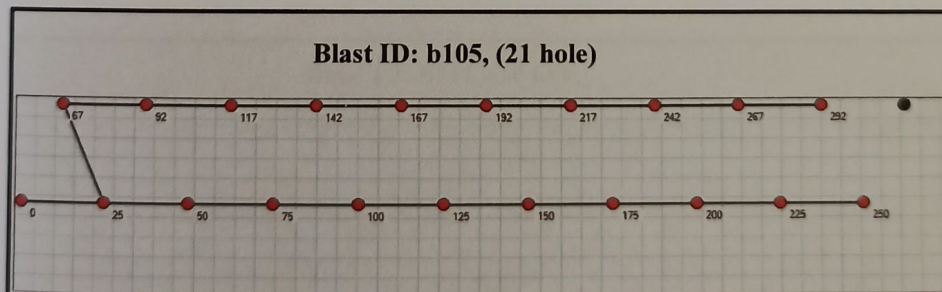
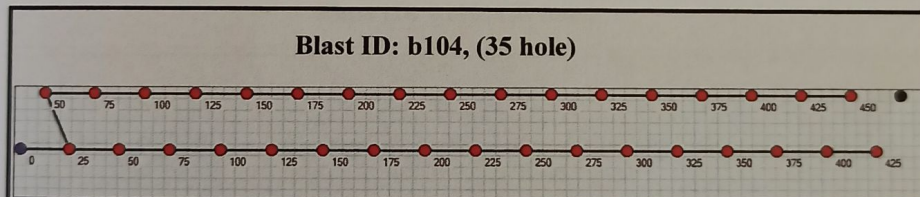
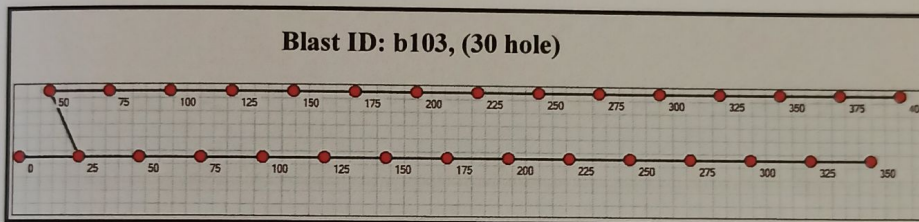
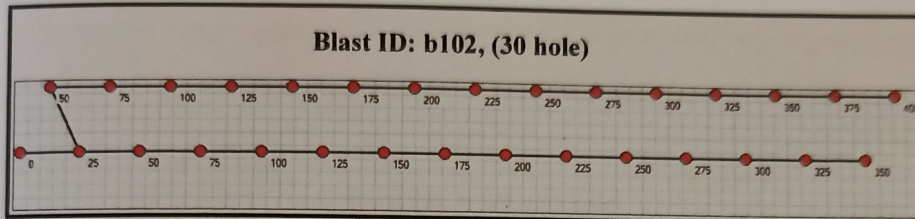
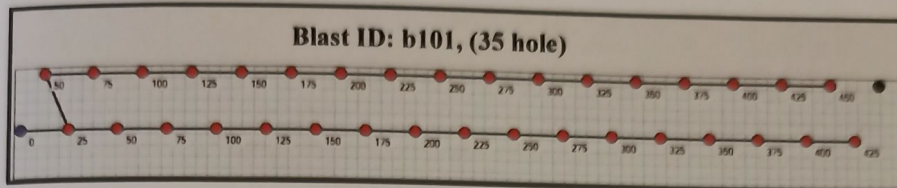
6	Spacing	4.5-5.5 m	4.5-5.5 m	4.5-5.5 m	4.5-5.5 m
7	Top stemming length	4-5.5 m	4-5.5 m	4-5.5 m	4-5.5 m
8	Blasthole depth	<8 m	≤8 m	≤8m	≤8 m
9	Sub-grade drilling	<0.5 m	<0.5 m	0.5 m	0.5 m
10	Explosive charge/hole	≤62.8 kg	≤90 kg	≤ 90 kg	≤90 kg
11	Max. charge/delay	≤62.8 kg	≤90.4 kg	≤123.1kg	≤160.7kg
12	No. of deck charges	Single	Single	Single	Single
13	Initiation system	NONEL; DTH Delays: 350/450/475 ms;			
14	Trunk line delays	17 s, 25 ms, 42 ms.			

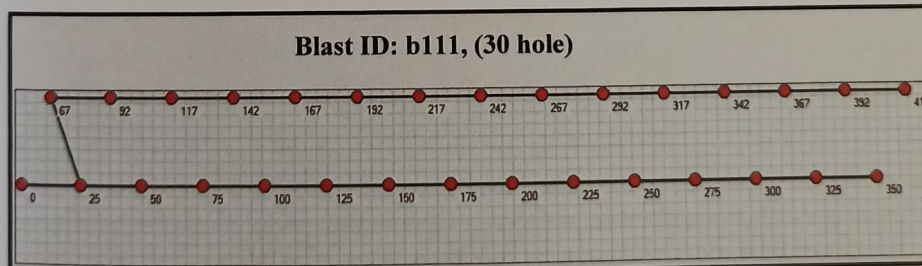
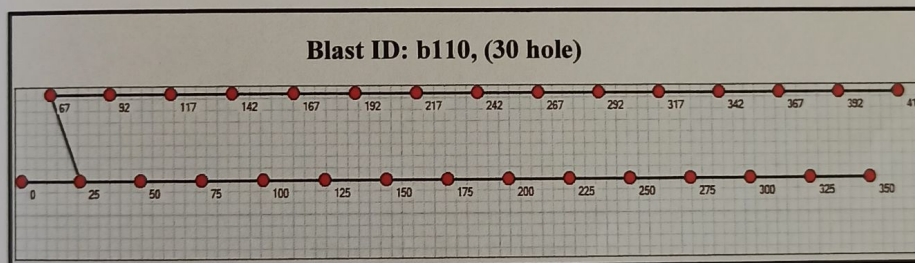
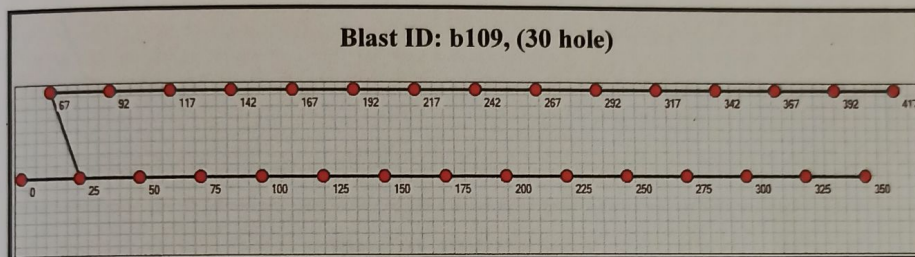
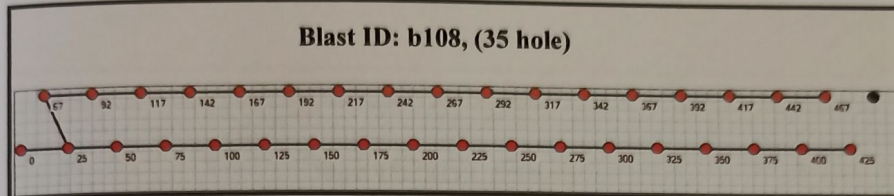
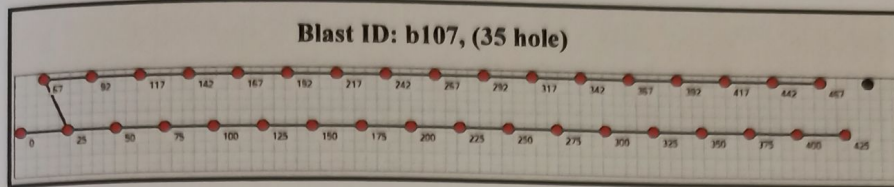
- Existing explosive and initiation system (NONEL) should be used in suggested blasts and Existing practices have been found quite safe.
- Periodic monitoring of ground vibration and air over-pressure is to be carried out, preferably by scientific organization.
- Systematic & proper drilling of holes is to be maintained, to get desired spacing and burden.





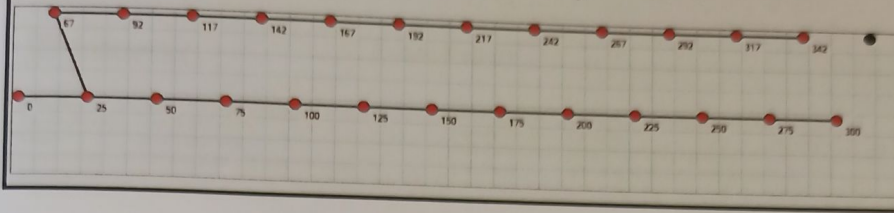
### Annexure 1: Blasting pattern of Gauri Deep OC Mine



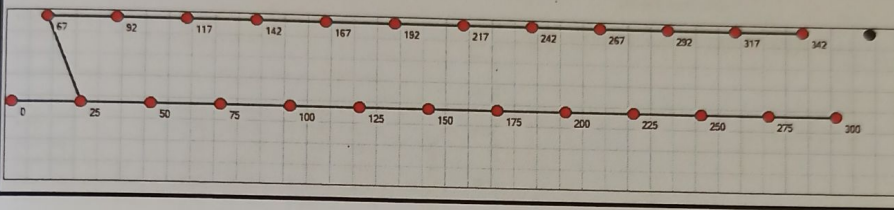




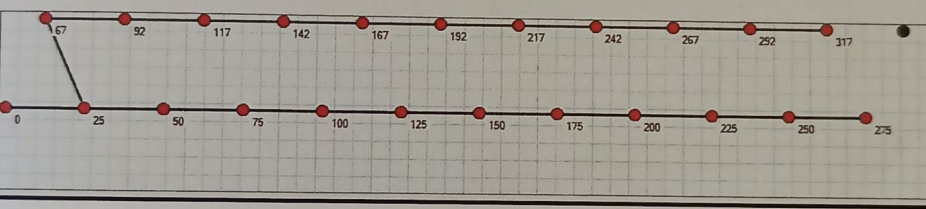
**Blast ID: b112, (25 hole)**



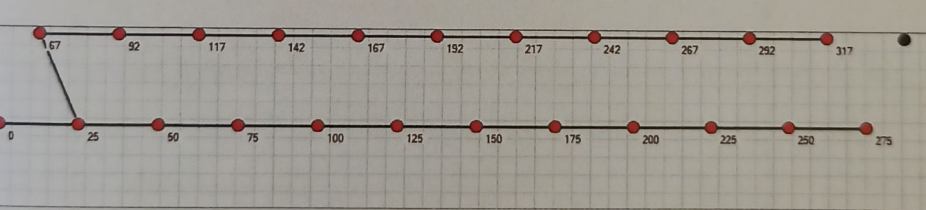
**Blast ID: b113, (25 hole)**



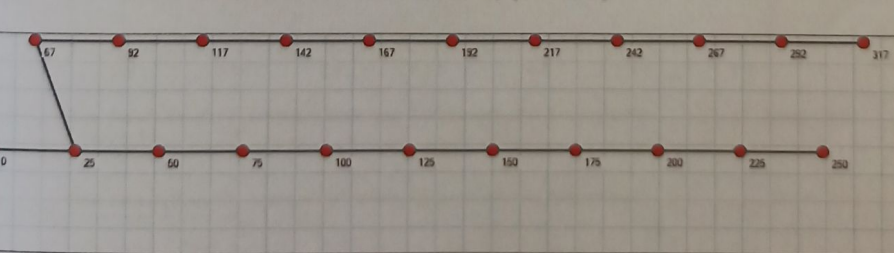
**Blast ID: b14, (23 hole)**



**Blast ID: b15, (23 hole)**



**Blast ID: b16, (22 hole)**





## Annexure 2: Event Reports and FFT Reports of Gauri Deep OC Mine

Blast Id: b101



### Event Report

Date/Time Vert at 16:21:56 January 6, 2018  
Trigger Source Geo: 0.500 mm/s  
Range Geo: 254.0 mm/s  
Record Time 5.51 sec (Auto=4Sec) at 1024 sps  
Job Number: 1  
Operator/Setup: Operator/factory MMB

Serial Number UM7270 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7270\_20180105162156.IDFW

#### Notes

Location:  
Client:  
User Name:  
General:

#### Post Event Notes

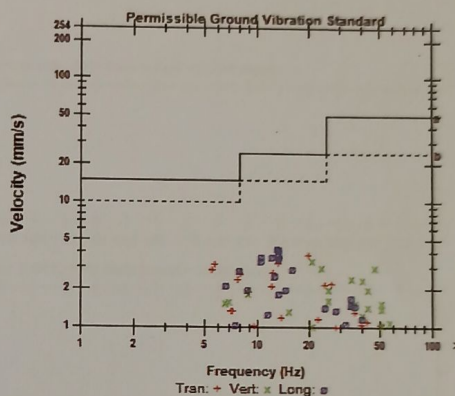
Blast Id b 101, Max charge per delay: 54 kg. Distance of seismograph from blasting face 352 m.

Microphone Linear Weighting  
PSPL 13.75 pa (L) at 0.978 sec  
ZC Freq 12 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1157 mv)

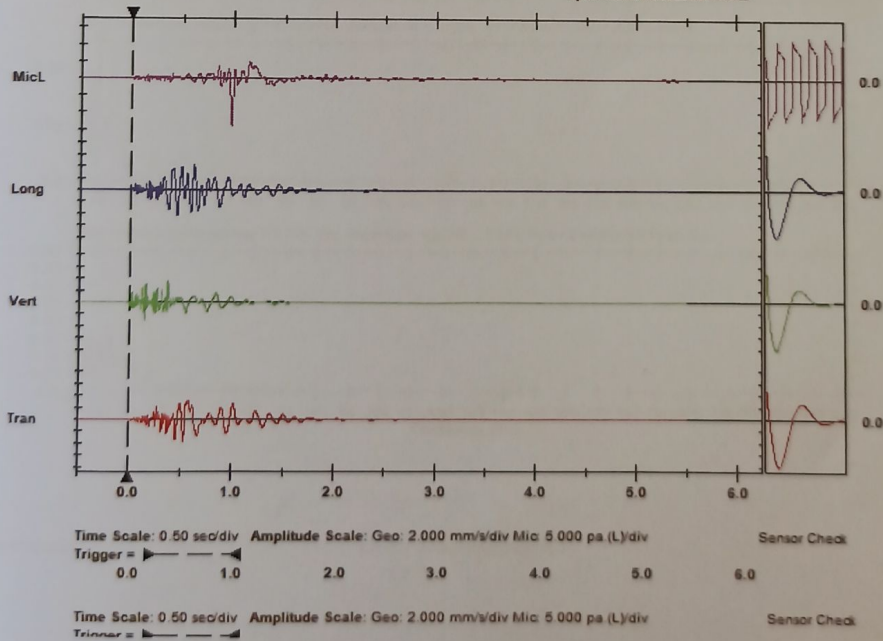
	Tran	Vert	Long	
PPV	3.728	3.436	4.319	mm/s
ZC Freq	20	20	13	Hz
Time (Rel. to Trig)	0.532	0.371	0.454	sec
Peak Acceleration	0.093	0.161	0.101	g
Peak Displacement	0.090	0.032	0.083	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.1	Hz
Overswing Ratio	3.1	3.8	3.6	

Peak Vector Sum 5.470 mm/s at 0.454 sec

#### DGMS India (B)



a) Industrial buildings  
b) Domestic houses/structures







Blast b101



### FFT Report

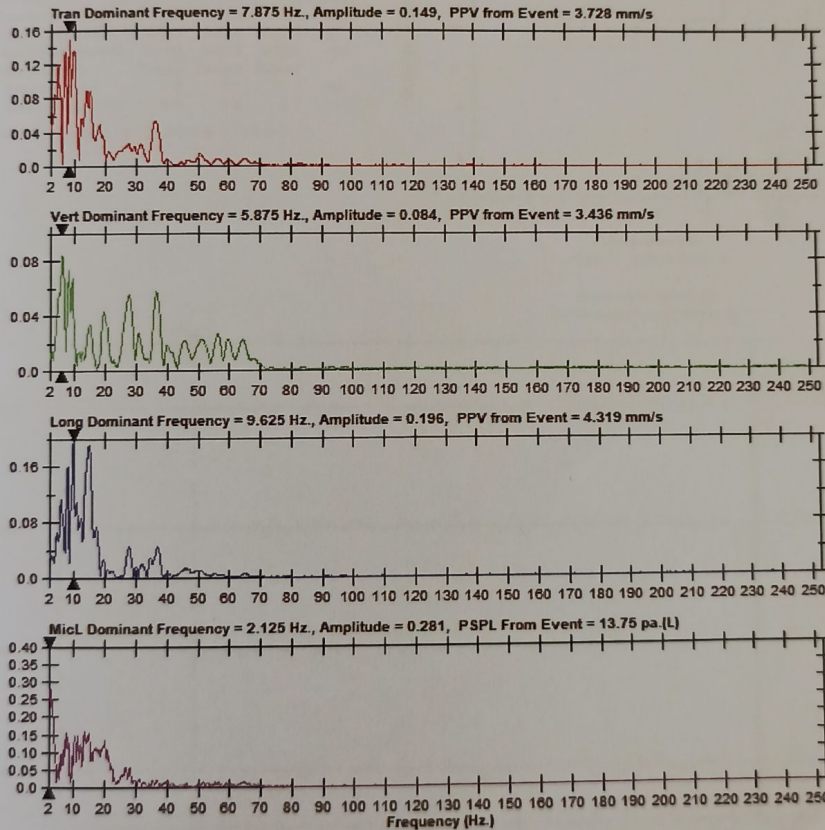
Date/Time Vert at 16:21:56 January 5, 2018  
Trigger Source Geo 0.500 mm/s  
Range Geo 254.0 mm/s  
Record Time 5.51 sec (Auto=4Sec) at 1024 sps  
Job Number 1  
Operator/Setup Operator/factory MMB

Serial Number UM7270 V 10-75 Midamate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by InstanTel  
File Name UM7270\_20180105162156 IDFW

Notes  
Location  
Client  
User Name  
General:

#### Post Event Notes

Blast Id b 101, Max charge per delay 94 kg, Distance of seismograph from blasting face 352 m.



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Blast id:b102



## Event Report

Date/Time Vert at 18:32:38 January 5, 2018  
Trigger Source Geo: 0.700 mm/s, Mic: 68.95 pa (L)  
Range Geo: 254.0 mm/s  
Record Time 1.0 sec at 1024 sps  
Operator/Setup Operator/Dt R Trivedi: MMB

Serial Number UM10779 V 10-81 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration August 31, 2016 by Instantel  
File Name UM10779\_20180105183238 IDFW

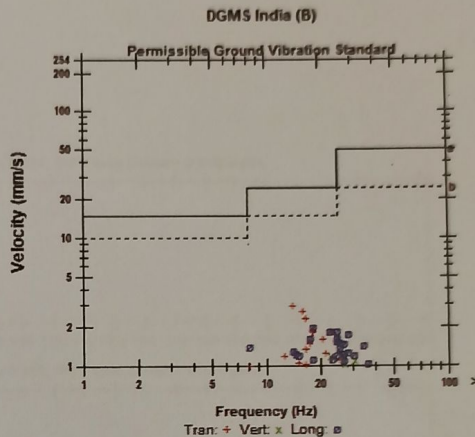
Post Event Notes  
Blast ID b:102, Max Charge/delay:34.14 kg Distance of seismograph from blasting face:382 m.

Notes  
Location  
Client  
User Name CSIR\_CIMFR NAGPUR Unit 1  
General:

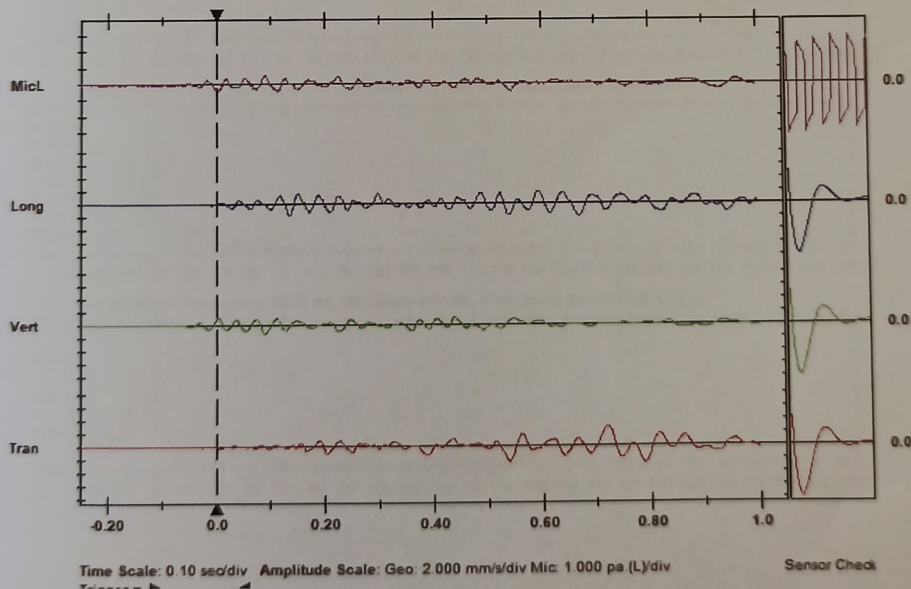
Microphone Linear Weighting  
PSPL 0.512 pa (L) at 0.089 sec  
ZC Freq 30 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1472 mv)

	Tran	Vert	Long	
PPV	2.916	1.324	2.010	mm/s
ZC Freq	14	26	18	Hz
Time (Rel. to Trig)	0.720	0.090	0.668	sec
Peak Acceleration	0.041	0.034	0.072	g
Peak Displacement	0.032	0.013	0.017	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.3	Hz
Overswing Ratio	3.6	3.5	3.7	

Peak Vector Sum 3.157 mm/s at 0.720 sec



a) Industrial buildings  
b) Domestic houses/structures



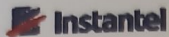
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Blast Id:b102



### FFT Report

Date/Time Vert at 16:32:36 January 5, 2018  
Trigger Source Geo 0.700 mm/s, Mic 68.96 pa (L)  
Range Geo 254.0 mm/s  
Record Time 1.0 sec at 1024 sps  
Operator/Setup Operator/Dr R Trivedi MMB

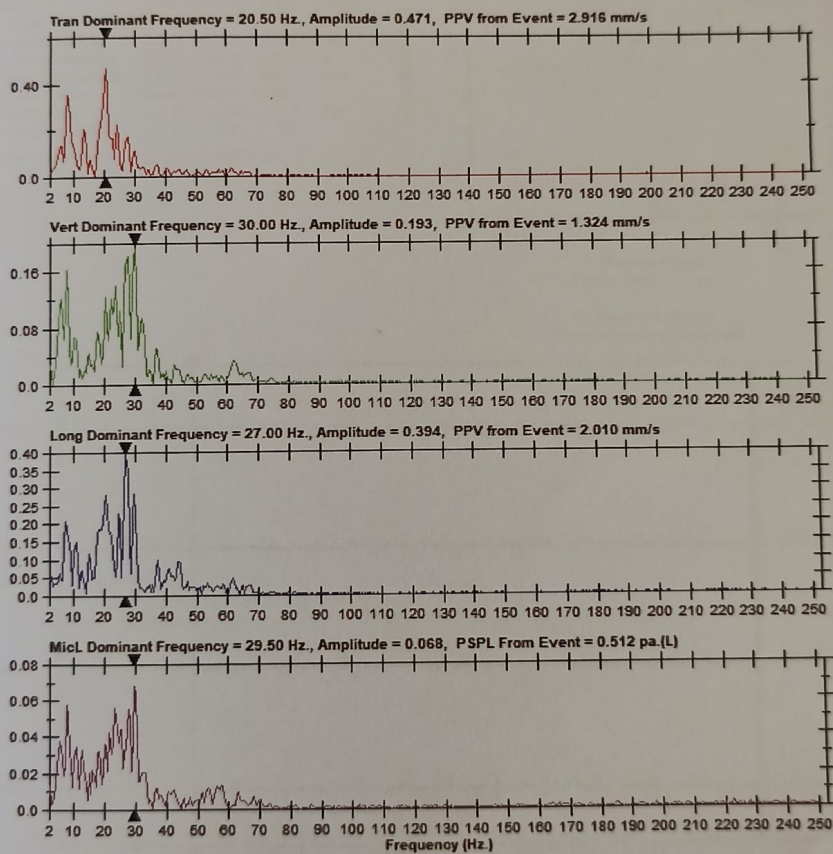
Serial Number UM10779 V 10-51 Micromate ISEE  
Battery Level 3.6 Volts  
Unit Calibration August 31, 2016 by Instantel  
File Name UM10779\_20160105163236.IDFW

#### Notes

Location:  
Client:  
User Name CSIR\_CIMFR NAGPUR Unit 1  
General:

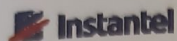
#### Post Event Notes

Blast ID b 102, Max Charge/delay:94.14 kg,Distance of seismograph  
from blasting face 382 m





Blast Id: b103



### Event Report

Date/Time Vert at 16:43:19 January 5, 2016  
Trigger Source Geo: 0.700 mm/s, Mic: 68.95 pa (L)  
Range Geo: 254.0 mm/s  
Record Time 1.0 sec at 1024 sps  
Operator/Setup Operator/Dr R Trivedi MMB

Serial Number UM10779 V 10-51 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration August 31, 2016 by InstanTel  
File Name UM10779\_20160105164319 IDFW

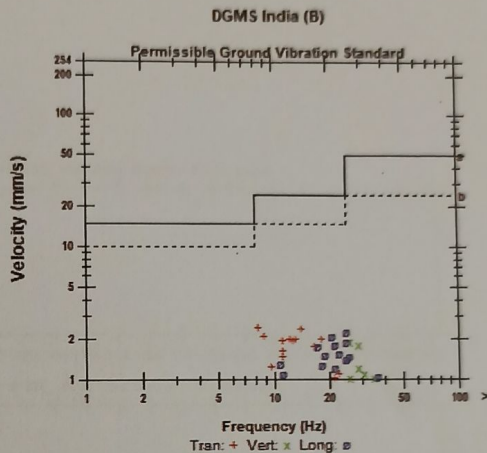
Post Event Notes  
Blasting Id: b 103, Max charge/delay 34.14 kg. Dist. of seismograph from blasting face 456 m.

Notes  
Location:  
Client:  
User Name: CSIR\_CIMFR NAGPUR Unit 1  
General:

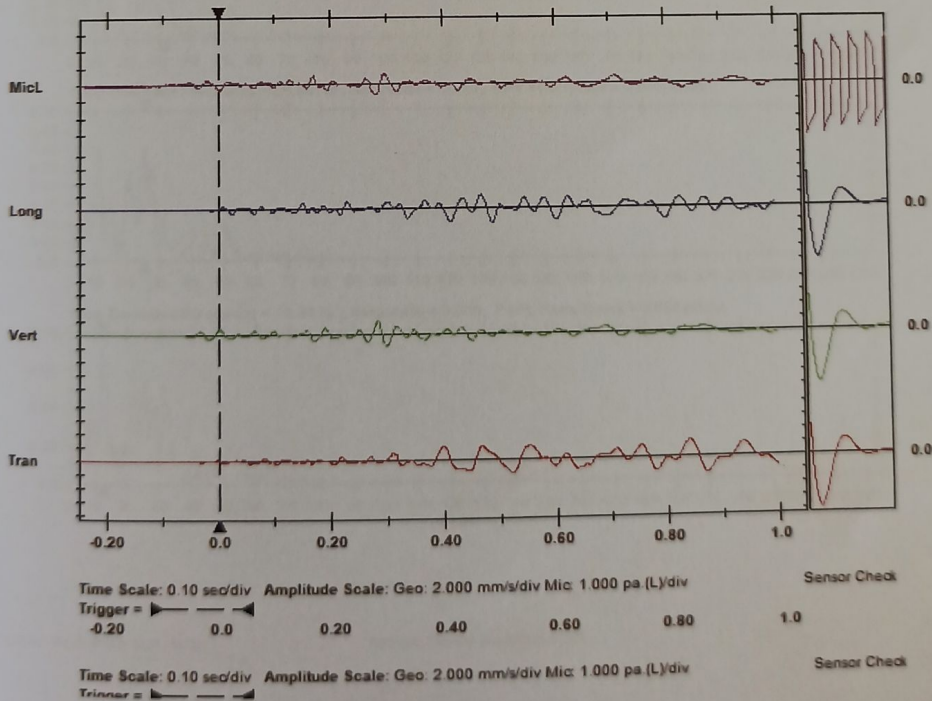
Microphone Linear Weighting  
PSPL 0.652 pa (L) at 0.280 sec  
ZC Freq 28 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1472 mv)

	Tran	Vert	Long	
PPV	2.491	1.939	2.270	mm/s
ZC Freq	8.3	26	24	Hz
Time (Rel. to Trig)	0.869	0.283	0.488	sec
Peak Acceleration	0.035	0.072	0.035	g
Peak Displacement	0.032	0.020	0.022	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.3	Hz
Overswing Ratio	3.6	3.5	3.7	

Peak Vector Sum 2.838 mm/s at 0.870 sec



a) Industrial buildings  
b) Domestic houses/structures







Blast Id:b103



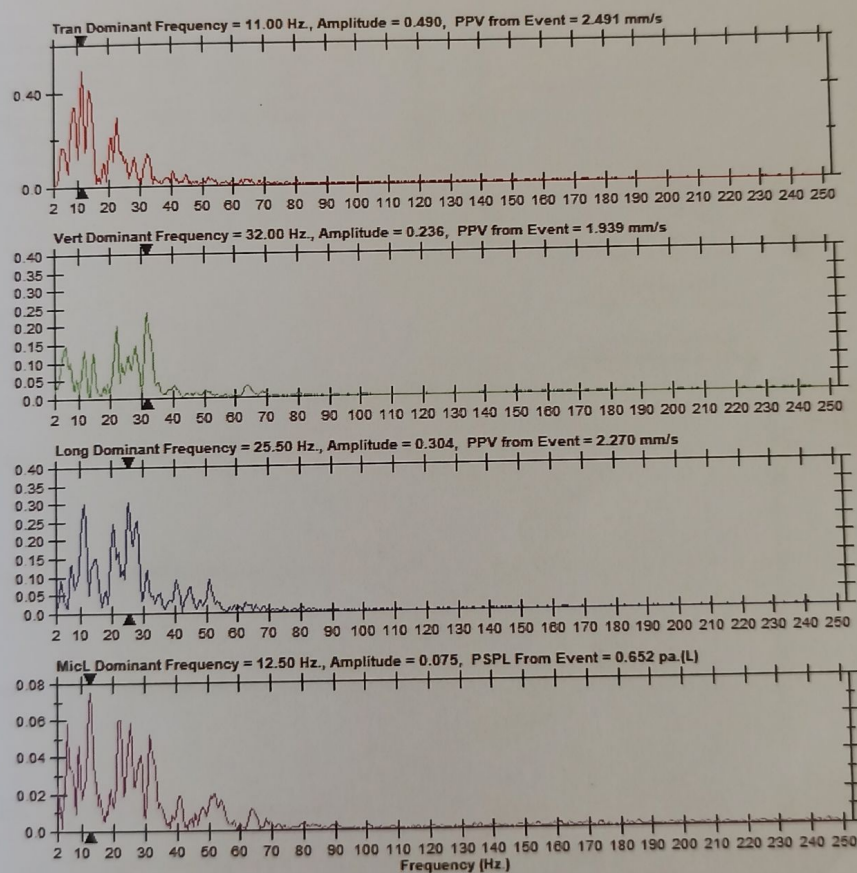
### FFT Report

Date/Time Vert at 16:43:19 January 5, 2018  
Trigger Source Geo: 0.700 mm/s, Mic: 68.95 pa (L)  
Range Geo: 254.0 mm/s  
Record Time 1.0 sec at 1024 sps  
Operator/Setup Operator/Dr R Trivedi/MMB

Serial Number UM10779 V 10-51 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration August 31, 2016 by Instantel  
File Name UM10779\_20180105164319.IDFW

Notes  
Location:  
Client:  
User Name: CSIR\_CIMFR NAGPUR Unit 1  
General:

Post Event Notes  
Blasting Id: b 103, Max charge/delay: 94.14 kg, Dist of seismograph from blasting face: 486 m.



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Blast Id:b104



## Event Report

Date/Time Vert at 16:57:17 January 5, 2018  
Trigger Source Geo: 0.500 mm/s  
Range Geo: 254.0 mm/s  
Record Time 5.197 sec (Auto=4Sec) at 1024 sps  
Job Number: 1  
Operator/Setup: Operator/factory MMB

Notes  
Location  
Client  
User Name  
General:

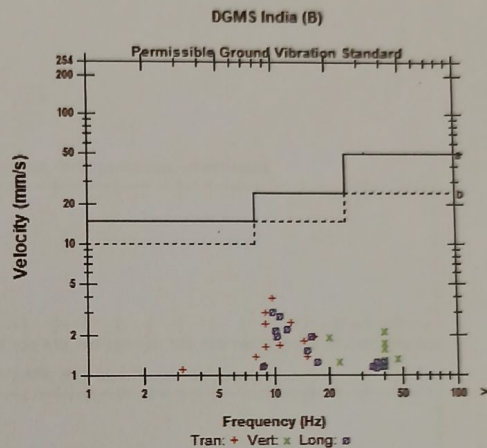
Microphone Linear Weighting  
PSPL 27.76 pa (L) at 1.050 sec  
ZC Freq 11 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1215 mv)

	Tran	Vert	Long	
PPV	3.878	2.199	3.050	mm/s
ZC Freq	9.8	39	9.8	Hz
Time (Rel. to Trig)	0.565	0.084	0.477	sec
Peak Acceleration	0.049	0.064	0.064	g
Peak Displacement	0.053	0.013	0.046	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.1	Hz
Overswing Ratio	3.2	3.9	3.6	

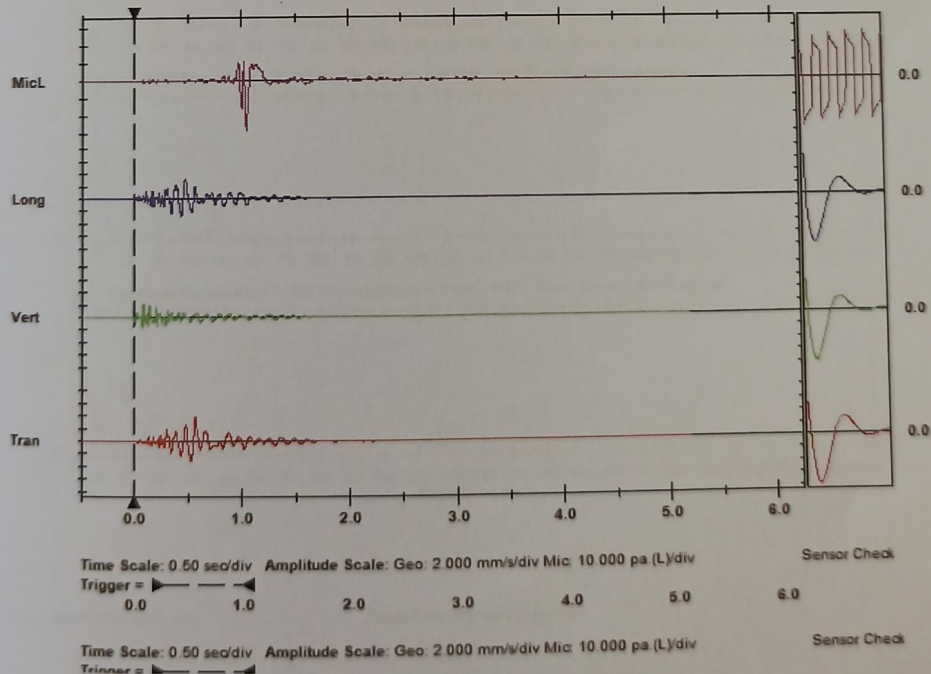
Peak Vector Sum 4.379 mm/s at 0.565 sec

Serial Number UM7270 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7270\_20180105165717.IDFW

Post Event Notes  
Blasting Id b 104, Max charge/delay 94 kg. Dist of seismograph from  
blasting face 389 m.



a) Industrial buildings  
b) Domestic houses/structures







Blast Id:b104



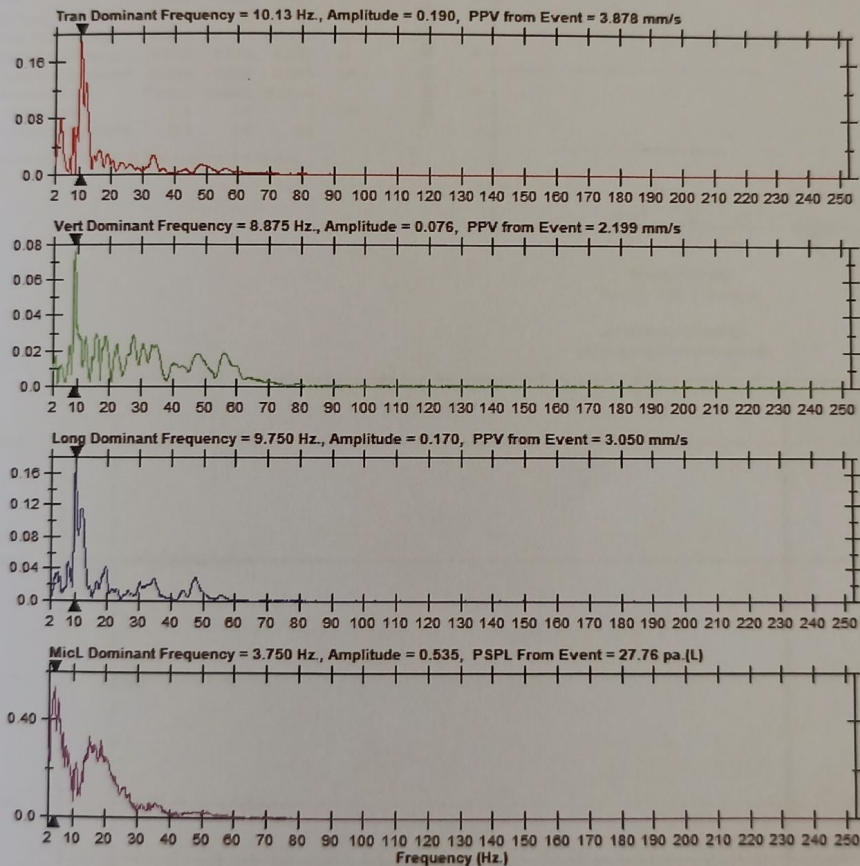
### FFT Report

Date/Time Vert at 16:57:17 January 5, 2016  
Trigger Source Geo: 0.500 mm/s  
Range Geo: 254.0 mm/s  
Record Time 5.197 sec (Auto=4Sec) at 1024 sps  
Job Number: 1  
Operator/Setup: Operator/factory MMB

Serial Number UM7270 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7270\_20180105165717.IDFW

Notes  
Location:  
Client:  
User Name:  
General:

Post Event Notes  
Blasting Id b 104, Max charge/delay 94 kg, Dist of seismograph from  
blasting face 389 m.



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Blast Id:b 105



## Event Report

Date/Time Vert at 16:24:50 January 16, 2018  
Trigger Source Geo 0.700 mm/s  
Range Geo 254.0 mm/s  
Record Time 5.229 sec (Auto=4Sec) at 1024 sps  
Job Number 4  
Operator/Setup Operator/factory h MMB

Serial Number UM7271 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7271\_20180116162450 IDFV

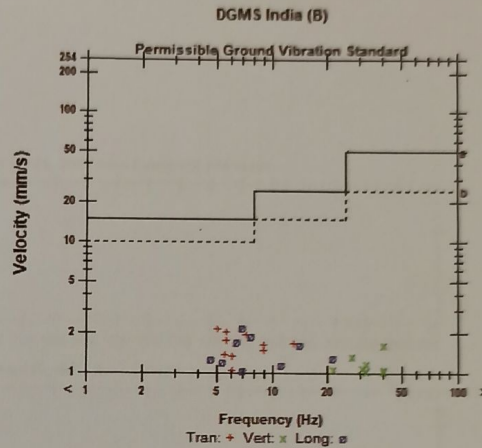
Notes  
Location  
Client  
User Name CSIR-CIMFR  
General

Post Event Notes  
Blasting Id b 105 Max charge/delay 45.45 kg Dist of seismograph from  
blasting face:321m.

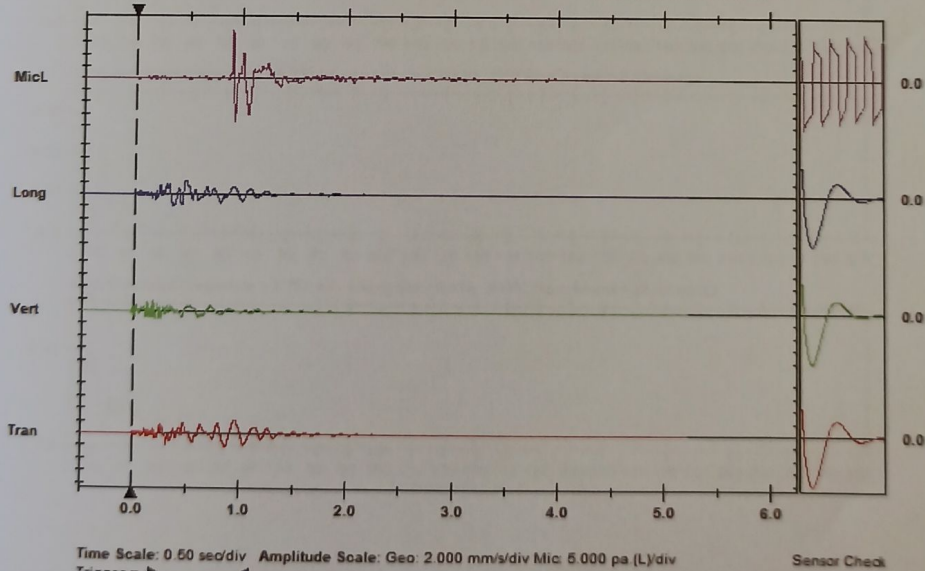
Microphone Linear Weighting  
PSPL 20.42 pa (L) at 0.907 sec  
ZC Freq 11 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1171 mv)

	Tran	Vert	Long	
PPV	2.199	1.639	2.238	mm/s
ZC Freq	5.2	39	6.9	Hz
Time (Rel. to Trig)	0.951	0.178	0.478	sec
Peak Acceleration	0.039	0.073	0.032	g
Peak Displacement	0.064	0.034	0.052	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.3	Hz
Overswing Ratio	3.3	3.8	3.6	

Peak Vector Sum 2.795 mm/s at 0.474 sec



a) Industrial buildings  
b) Domestic houses/structures



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Blast Id:b105



### FFT Report

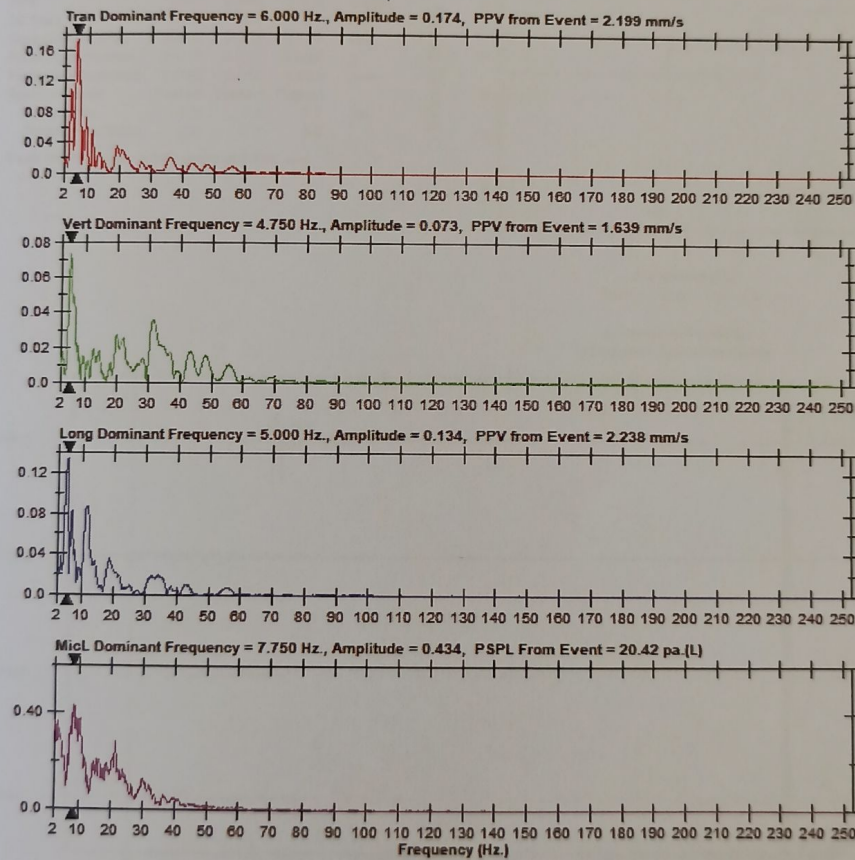
Date/Time Vert at 16:24:50 January 16, 2018  
Trigger Source Geo 0.700 mm/s  
Range Geo 254.0 mm/s  
Record Time 5.229 sec (Auto=4Sec) at 1024 sps  
Job Number: 4  
Operator/Setup: Operator/factory h MMB

Serial Number UM7271 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7271\_20180116162450 IDFW

Notes  
Location  
Client  
User Name: CSIR-CIMFR  
General:

#### Post Event Notes

Blasting Id b 105 Max charge/delay 40.48 kg Dist of seismograph from blasting face 321m.

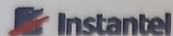


Printed: May 29, 2018 (V 16.72 - 16.72)

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Blast Id:b106



### Event Report

Date/Time Vert at 16:35:00 January 16, 2018  
Trigger Source Geo 0.500 mm/s  
Range Geo 254.0 mm/s  
Record Time 5.007 sec (Auto=4Sec) at 1024 sps  
Job Number 1  
Operator/Setup Operator/factory MMB

Serial Number UM7270 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7270\_20180116163500 IDFW

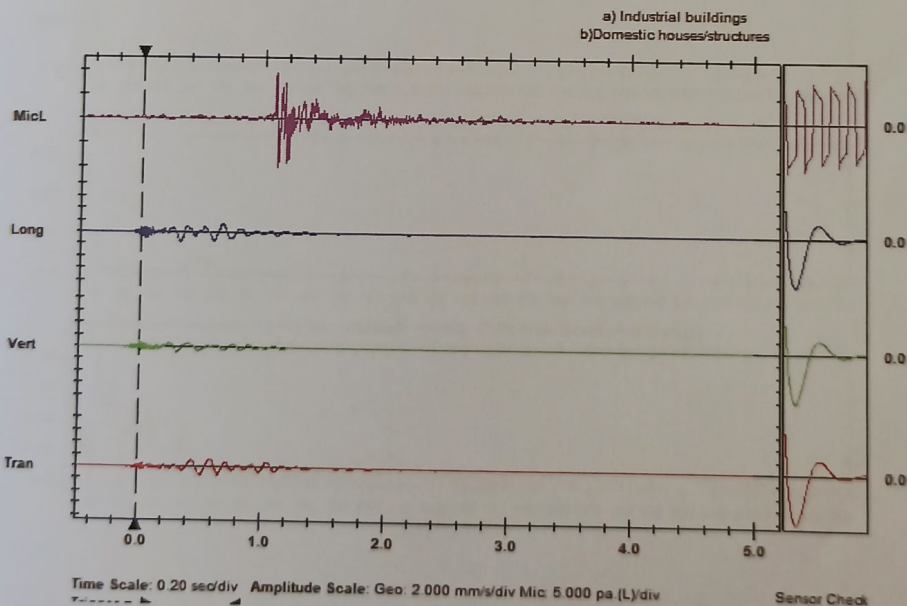
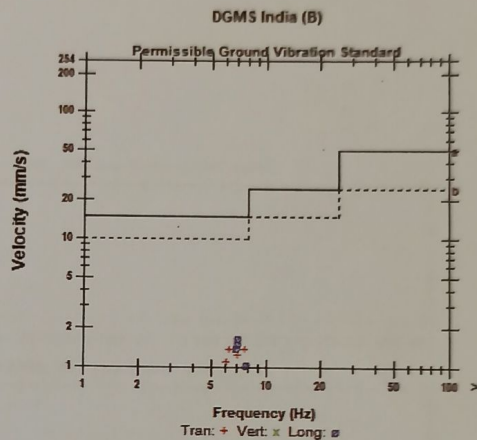
Notes  
Location:  
Client:  
User Name:  
General:

Post Event Notes  
Blasting Id b106, Max charge/delay 45.5 kg. Dist of seismograph from blasting face 417 m

Microphone Linear Weighting  
PSPL 9.915 pa (L) at 1.110 sec  
ZC Freq 17 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1451 mv)

	Tran	Vert	Long	
PPV	1.387	0.883	1.679	mm/s
ZC Freq	7.8	6.7	7.1	Hz
Time (Rel. to Trig)	0.653	0.308	0.326	sec
Peak Acceleration	0.015	0.021	0.026	g
Peak Displacement	0.033	0.018	0.033	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.7	Hz
Overswing Ratio	3.4	3.7	3.6	

Peak Vector Sum 1.897 mm/s at 0.664 sec



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Blast Id:b106



### FFT Report

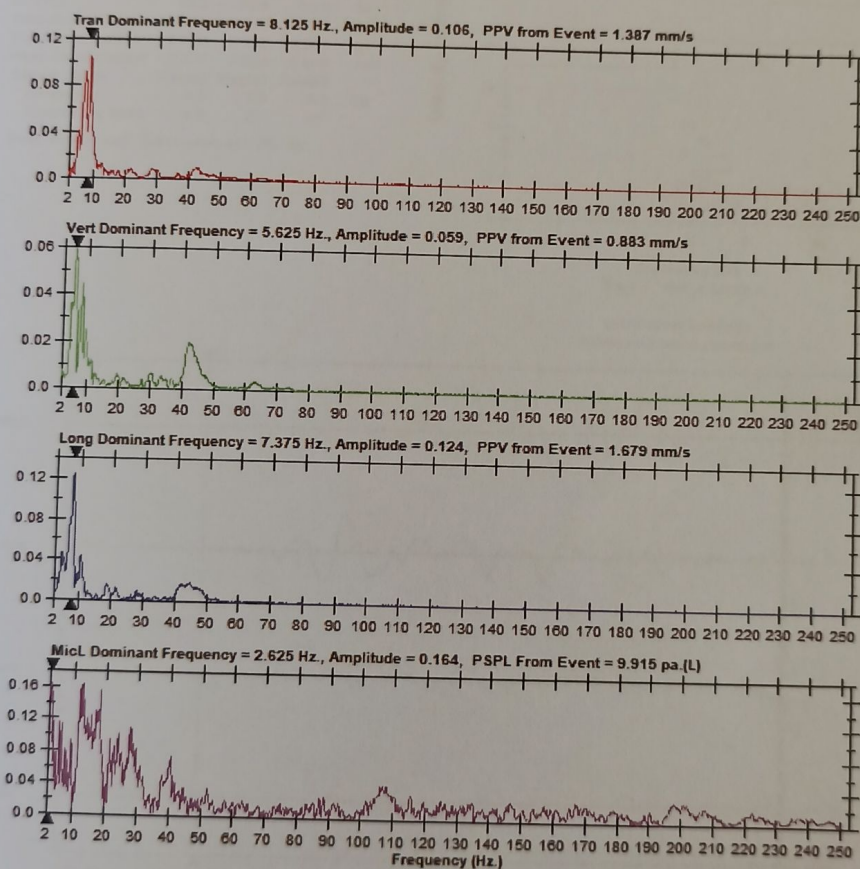
Date/Time Vert at 16:35:00 January 16, 2018  
Trigger Source Geo 0.500 mm/s  
Range Geo 254.0 mm/s  
Record Time 5.007 sec (Auto=4Sec) at 1024 sps  
Job Number 1  
Operator/Setup Operator/factory MMB

Serial Number UM7270 V 10-75 Midamate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by InstanTel  
File Name UM7270\_20180116163500 IDFW

Notes  
Location  
Client  
User Name  
General

#### Post Event Notes

Blasting Id b106, Max charge/delay 40.5 kg, Dist of seismograph from blasting face 417 m.



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Blast Id:b107



## Event Report

Date/Time Vert at 16:00 09 January 24, 2018  
Trigger Source Geo: 0.700 mm/s, Mic: 70.96 pa (L)  
Range Geo: 254.0 mm/s  
Record Time 1.0 sec at 2048 sps  
Operator/Setup Operator/Dr R Trivedi MMB

Serial Number UM10780 V 10-81 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration August 31, 2016 by Instantel  
File Name UM10780\_20180124160009.IDFW

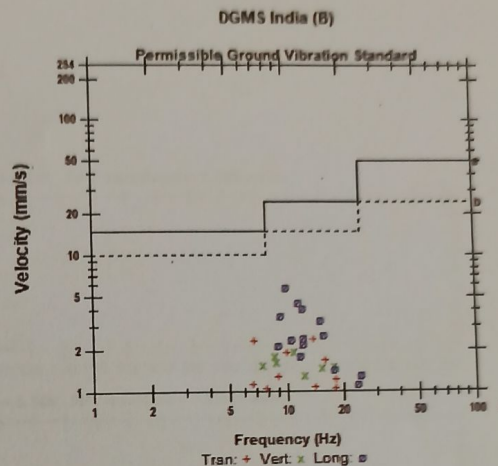
Post Event Notes  
Blasting Id:107, Max charge/delay 43.15 kg, Dist of seismograph from  
blasting face: 225 m

Notes  
Location:  
Client:  
User Name:  
General:

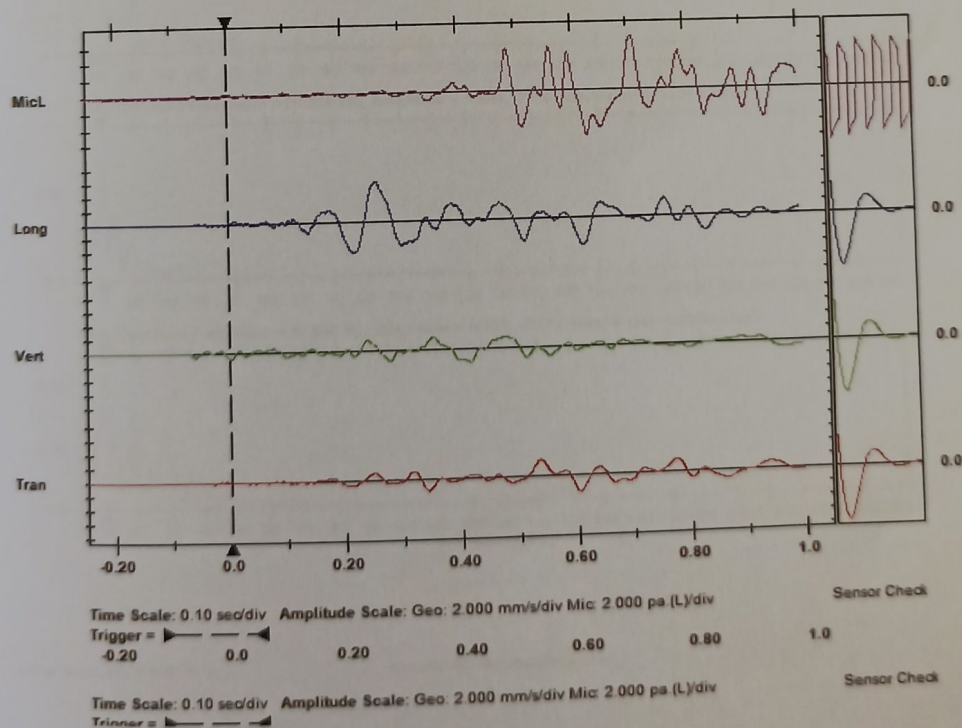
Microphone Linear Weighting  
PSPL 6.503 pa (L) at 0.708 sec  
ZC Freq 16.3 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1430 mv)

	Tran	Vert	Long	
PPV	2.388	1.947	5.801	mm/s
ZC Freq	13.8	10.8	10.1	Hz
Time (Rel. to Trig)	0.604	0.419	0.257	sec
Peak Acceleration	0.028	0.030	0.056	g
Peak Displacement	0.035	0.033	0.089	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.3	Hz
Overswing Ratio	4.0	3.7	3.7	

Peak Vector Sum 5.834 mm/s at 0.257 sec



a) Industrial buildings  
b) Domestic houses/structures







Blast Id:b107



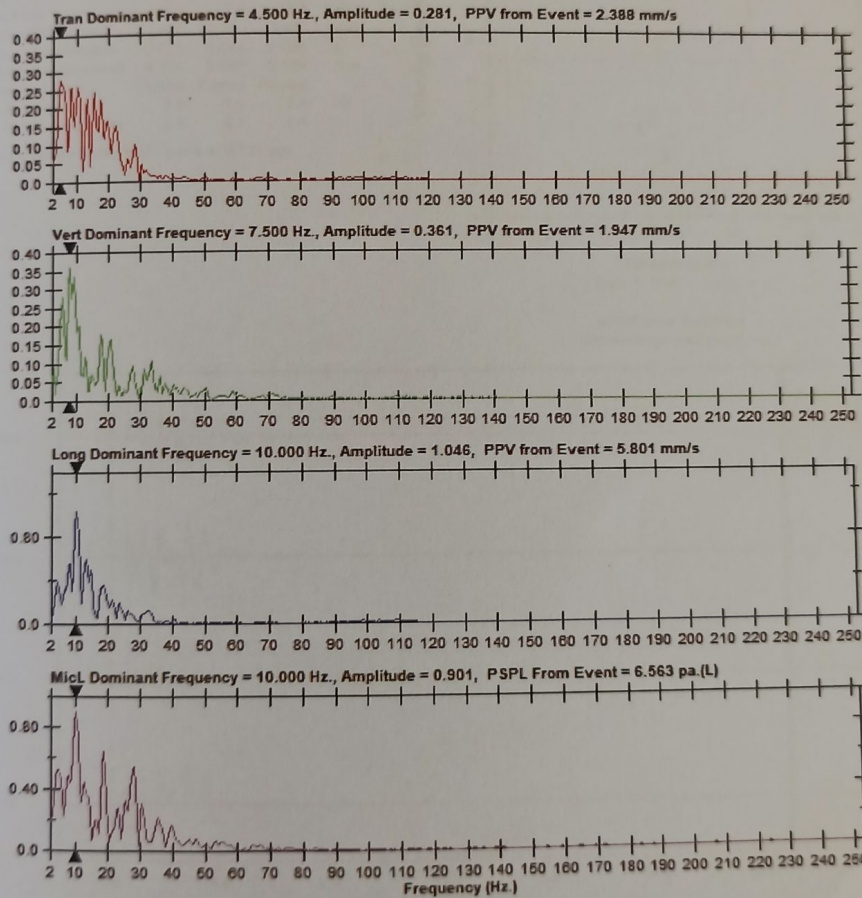
### FFT Report

Date/Time Vert at 16:00:09 January 24, 2016  
Trigger Source Geo: 0.700 mm/s, Mic: 70.96 pa (L)  
Range Geo: 254.0 mm/s  
Record Time 1.0 sec at 2048 sps  
Operator/Setup Operator/Dr R Trivedi: MMB

Serial Number UM10780 V 10-81 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration August 31, 2016 by Instantel  
File Name UM10780\_20160124160009 IDFW

Notes  
Location:  
Client:  
User Name:  
General:

Post Event Notes  
Blasting Id: 107, Max charge/delay: 43.15 kg, Dist of seismograph from  
blasting face: 226 m



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Blast Id: b 108



### Event Report

Date/Time Vert at 16:09:40 January 24, 2018  
Trigger Source Geo: 0.700 mm/s  
Range Geo: 254.0 mm/s  
Record Time 5.245 sec (Auto=4Sec) at 1024 sps  
Job Number: 4  
Operator/Setup: Operator/factory h MMB

Serial Number UM7271 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7271\_20180124160940 ICFW

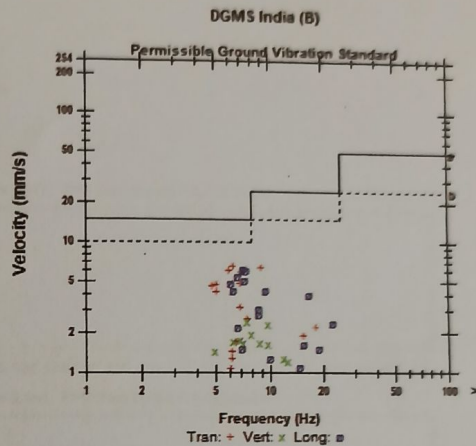
Notes  
Location:  
Client:  
User Name: CSIR-CIMFR  
General:

Post Event Notes  
Blasting Id 108 Max charge/delay 43.15 kg Dist of seismograph from blasting face: 145 m.

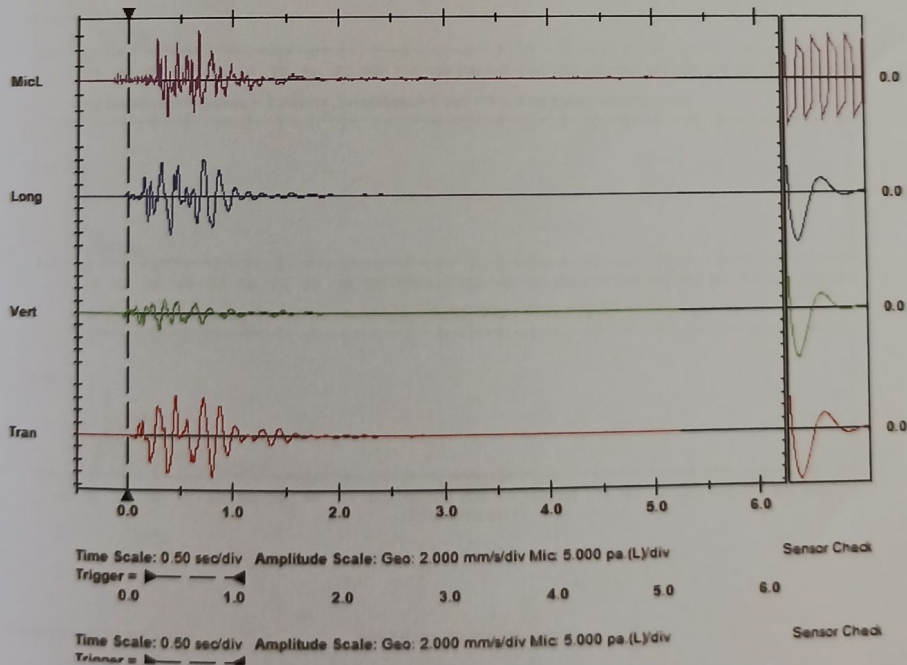
Microphone Linear Weighting  
PSPL 16.04 pa (L) at 0.675 sec  
ZC Freq 23 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1160 mv)

	Tran	Vert	Long	
PPV	6.526	2.475	6.171	mm/s
ZC Freq	6.3	7.4	7.2	Hz
Time (Rel. to Trig)	0.800	0.303	0.405	sec
Peak Acceleration	0.075	0.044	0.058	g
Peak Displacement	0.154	0.045	0.134	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.1	7.5	7.3	Hz
Overswing Ratio	3.3	3.7	3.6	

Peak Vector Sum 8.657 mm/s at 0.721 sec



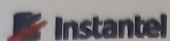
a) Industrial buildings  
b) Domestic houses/structures







Blast Id: b108



### FFT Report

Date/Time Vert at 16:09:40 January 24, 2018  
Trigger Source Geo 0.700 mm/s  
Range Geo 254.0 mm/s  
Record Time 5.245 sec (Auto=4Sec) at 1024 sps  
Job Number 4  
Operator/Setup Operator/factory h MMB

Serial Number UM7271 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7271\_20180124160940 IDFW

#### Notes

Location

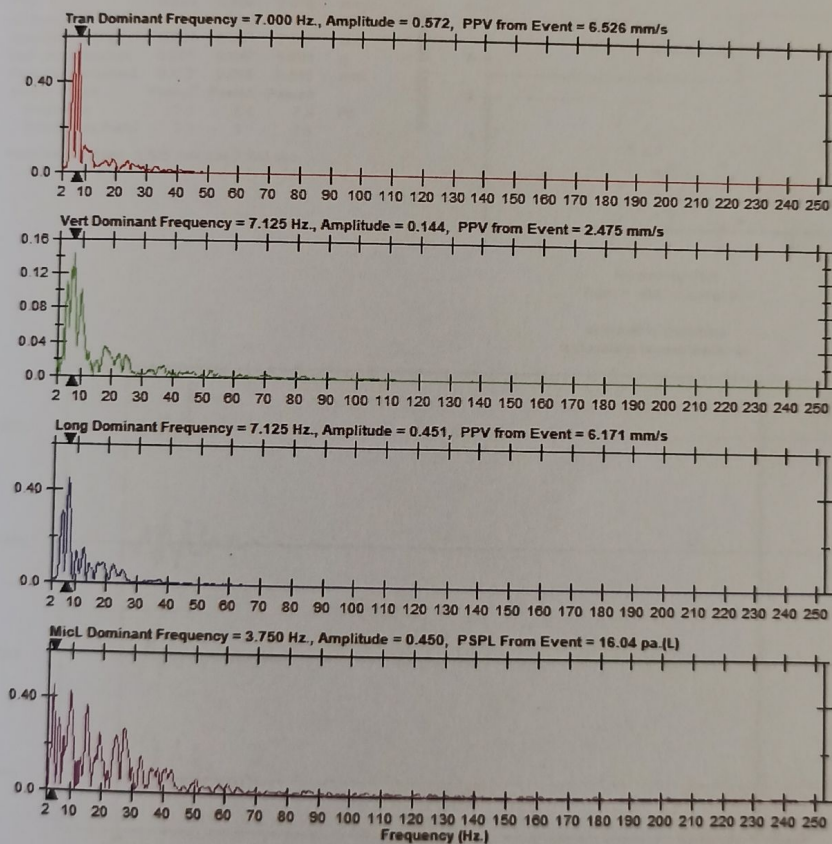
Client

User Name CSIR-CIMFR

General

#### Post Event Notes

Blasting Id: 108 Max charge/delay: 43.15 kg. Dist. of seismograph from  
blasting face: 145 m



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Blast Id: b 109



### Event Report

Date/Time: Vert at 16:17:17 January 24, 2018  
Trigger Source: Geo: 0.700 mm/s  
Range: Geo: 254.0 mm/s  
Record Time: 4.749 sec (Auto=4Sec) at 1024 sps  
Job Number: 4  
Operator/Setup: Operator/factory h.MMB

Serial Number: UM7271 V 10-75 Micromate ISEE  
Battery Level: 3.6 Volts  
Unit Calibration: April 24, 2015 by Instantel  
File Name: UM7271\_20180124161717.IDFW

Post Event Notes  
Blasting Id b109, Max charge/delay 43.15 kg. Dist of seismograph from blasting face: 117 m.

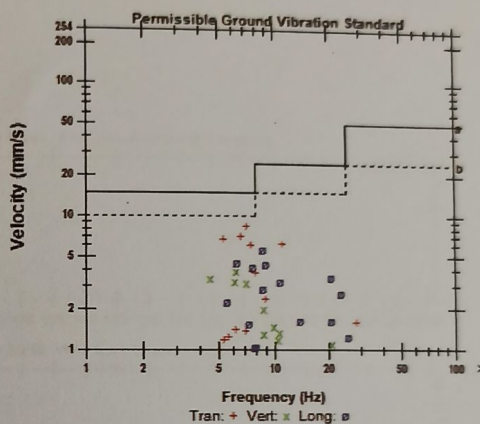
Notes  
Location:  
Client:  
User Name: CSIR-CIMFR  
General:

Microphone: Linear Weighting  
PSPL: 31.43 pa (L) at 0.518 sec  
ZC Freq: 39 Hz  
Channel Test: Passed (Freq = 19.7 Hz Amp = 1458 mv)

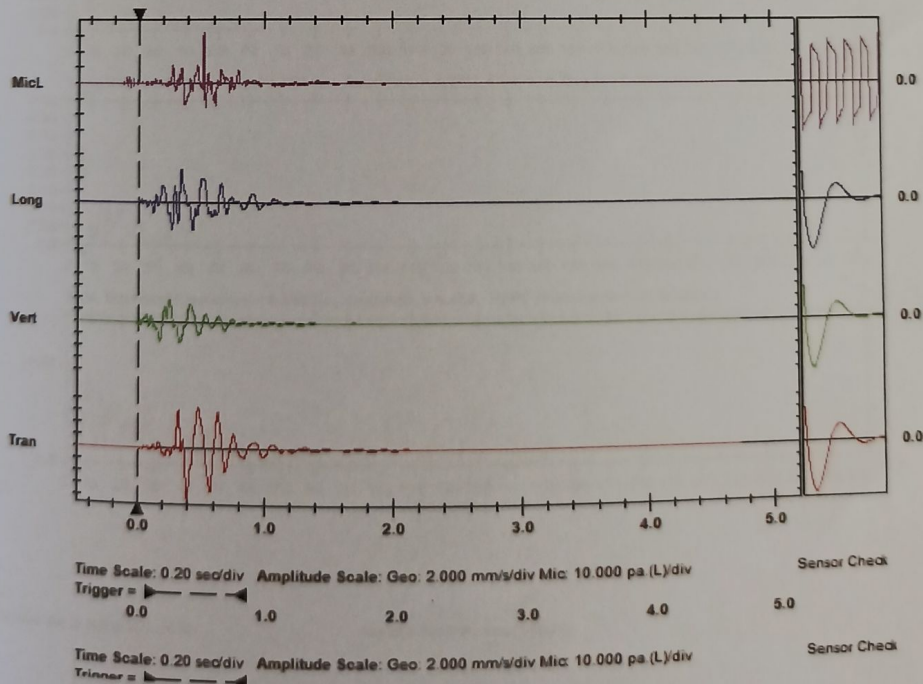
	Tran	Vert	Long	
PPV	8.504	3.909	5.012	mm/s
ZC Freq	7.2	6.2	8.7	Hz
Time (Rel. to Trig)	0.391	0.251	0.344	sec
Peak Acceleration	0.093	0.047	0.099	g
Peak Displacement	0.177	0.086	0.095	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.1	7.5	7.3	Hz
Overswing Ratio	3.3	3.7	3.6	

Peak Vector Sum: 8.555 mm/s at 0.392 sec

DGMS India (B)



a) Industrial buildings  
b) Domestic houses/structures







Blast Id:b 109



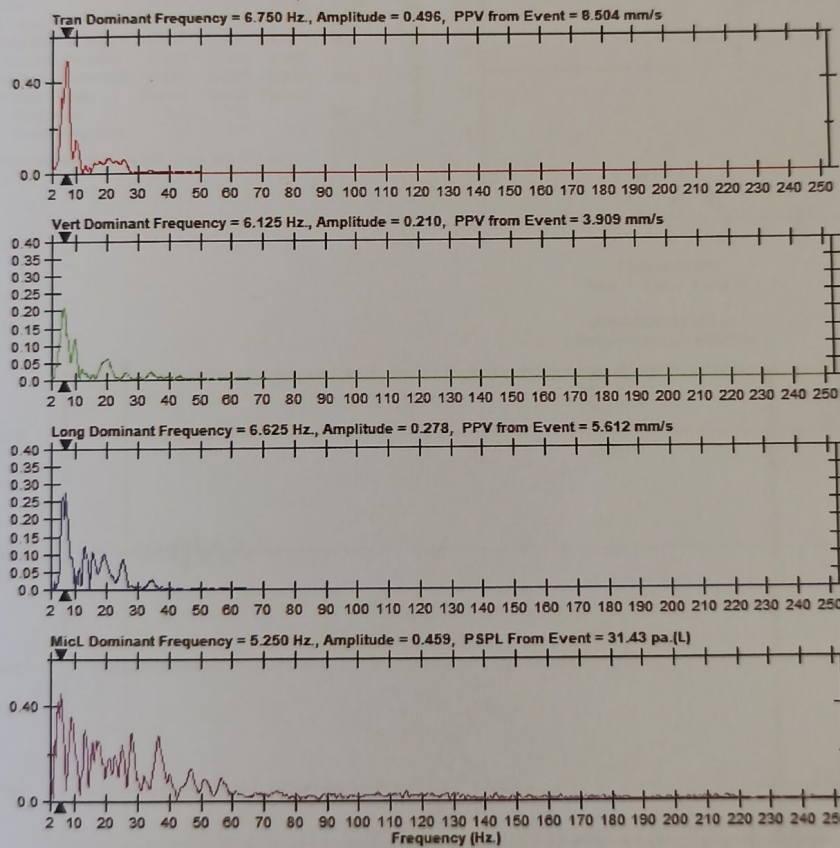
### FFT Report

Date/Time Vert at 16:17:17 January 24, 2018  
Trigger Source Geo: 0.700 mm/s  
Range Geo: 254.0 mm/s  
Record Time 4.749 sec (Auto=4Sec) at 1024 sps  
Job Number: 4  
Operator/Setup: Operator/factory h.MMB

Serial Number UM7271 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7271\_20180124161717.IDFW

Notes  
Location  
Client  
User Name CSIR-CIMFR  
General:

Post Event Notes  
Blasting Id b109, Max charge/delay 43.15 kg. Dist of seismograph from blasting face 117 m.



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Blasting Id: b110



### Event Report

Date/Time Long at 16:24:20 January 24, 2018  
Trigger Source Geo 0.700 mm/s  
Range Geo 254.0 mm/s  
Record Time 5.008 sec (Auto=4Sec) at 1024 sps  
Job Number: 4  
Operator/Setup: Operator/factory h MMB

Serial Number UM7271 V 10-75 Micromate (SEE)  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by InstanTel  
File Name UM7271\_20180124162420 IDPW

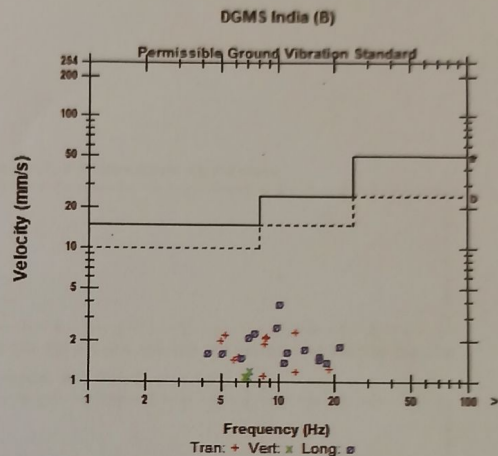
Notes  
Location  
Client  
User Name: CSIR-CIMFR  
General:

Post Event Notes  
Blasting Id b 110 Max charge/delay 43.15 kg. Dist of seismograph from blasting face 145 m

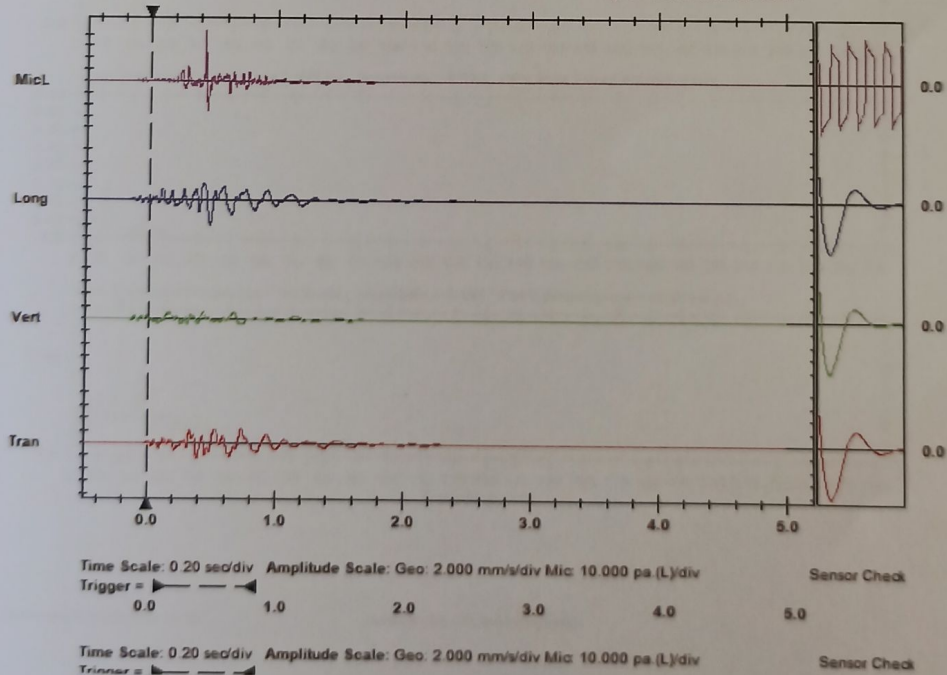
Microphone Linear Weighting  
PSPL 42.95 pa (L) at 0.433 sec  
ZC Freq 20 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1162 mv)

	Tran	Vert	Long	
PPV	2.317	1.214	3.886	mm/s
ZC Freq	12	7.0	10	Hz
Time (Rel. to Trig)	0.387	0.427	0.477	sec
Peak Acceleration	0.042	0.030	0.048	g
Peak Displacement	0.054	0.024	0.061	mm
Sensor Check	Passed	Passed	Passed	
Frequency	6.9	7.5	7.1	Hz
Overswing Ratio	3.3	3.7	3.6	

Peak Vector Sum 4.108 mm/s at 0.477 sec



a) Industrial buildings  
b) Domestic houses/structures







Blast Id:b 110



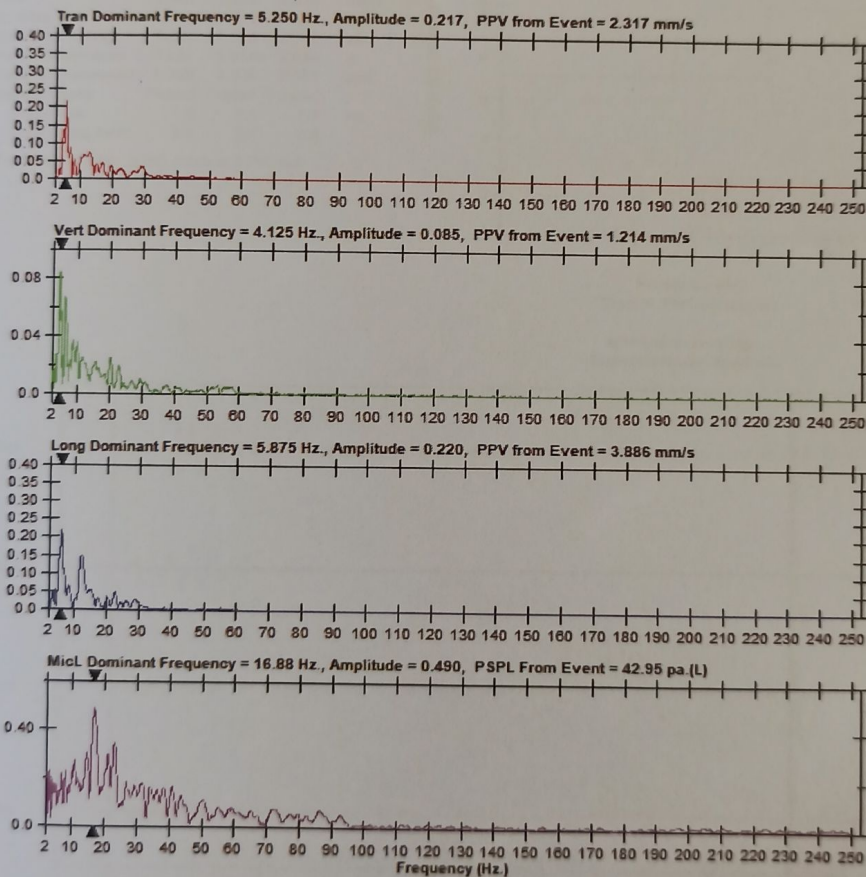
## FFT Report

Date/Time Long at 16:24:20 January 24, 2018  
Trigger Source Geo: 0.700 mm/s  
Range Geo: 254.0 mm/s  
Record Time 5.008 sec (Auto=4Sec) at 1024 sps  
Job Number: 4  
Operator/Setup: Operator/factory h MMB

Serial Number UM7271 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7271\_20180124162420 IDFW

Notes  
Location  
Client  
User Name: CSIR-CIMFR  
General:

Post Event Notes  
Blasting Id b 110 Max charge/delay 43.15 kg. Dist. of seismograph from blasting face 146 m.



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BlastingId:b111



## Event Report

Date/Time Vert at 16:29:26 January 24, 2018  
Trigger Source Geo: 0.500 mm/s  
Range Geo: 254.0 mm/s  
Record Time 5.16 sec (Auto=4Sec) at 1024 sps  
Job Number: 1  
Operator/Setup Operator/factory MMB

Serial Number UM7270 V 10-75 Micromate ISEE  
Battery Level 3.6 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7270\_20180124162926 IDFW

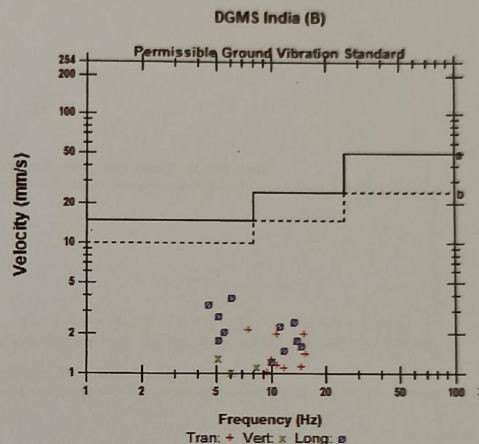
Notes  
Location  
Client  
User Name  
General

Post Event Notes  
Blasting Id: b 111, Max charge/delay 43.15 kg, Dist of seismograph from blasting face: 244 m

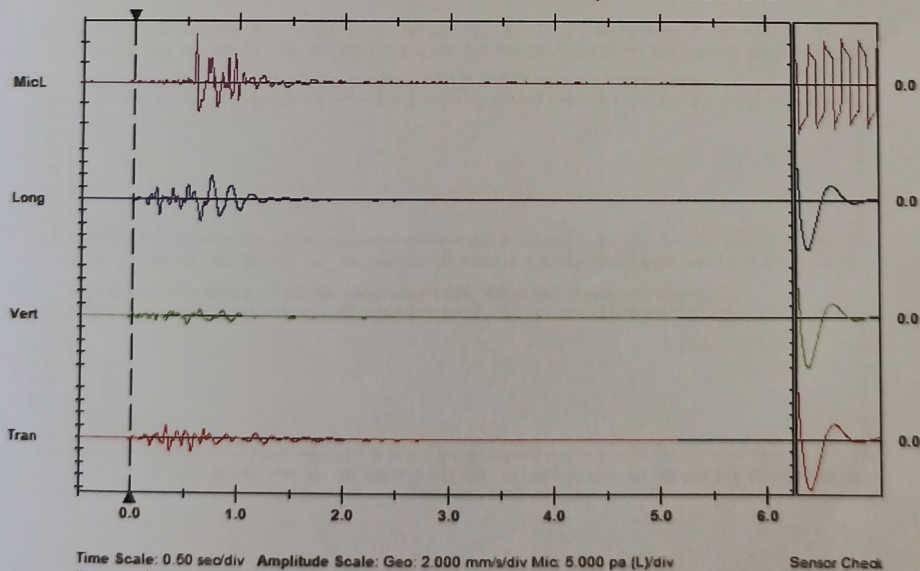
Microphone Linear Weighting  
PSPL 12.16 pa (L) at 0.585 sec  
ZC Freq 16 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1167 mv)

	Tran	Vert	Long	
PPV	2.152	1.308	3.870	mm/s
ZC Freq	7.5	5.2	6.2	Hz
Time (Rel. to Trig)	0.364	0.518	0.740	sec
Peak Acceleration	0.026	0.014	0.049	g
Peak Displacement	0.030	0.028	0.093	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.7	Hz
Overswing Ratio	3.4	3.7	3.5	

Peak Vector Sum 3.991 mm/s at 0.740 sec



a) Industrial buildings  
b) Domestic houses/structures



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Blasting Id: b111



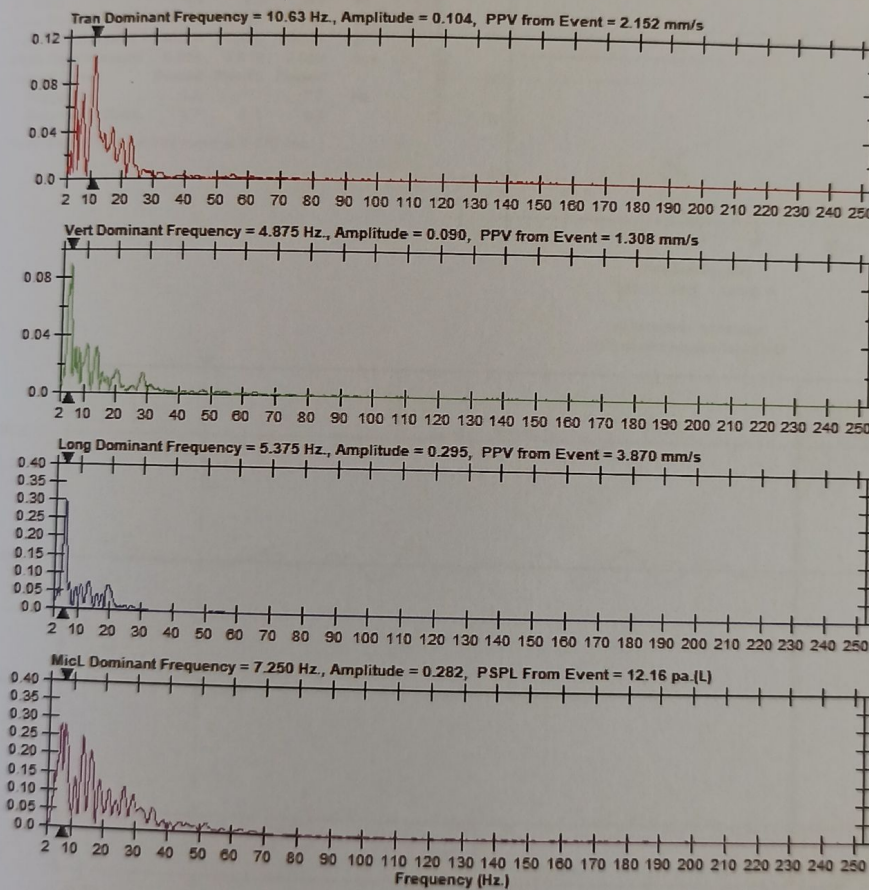
### FFT Report

Date/Time Vert at 16:29:26 January 24, 2018  
Trigger Source Geo: 0.500 mm/s  
Range Geo: 254.0 mm/s  
Record Time 5.16 sec (Auto=4Sec) at 1024 sps  
Job Number: 1  
Operator/Setup: Operator/factory MMB

Serial Number UM7270 V 10-75 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 24, 2015 by Instantel  
File Name UM7270\_20180124162926 IDFW

Notes  
Location:  
Client:  
User Name:  
General:

Post Event Notes  
Blasting Id. b 111, Max charge/delay: 43.15 kg, Dist of seismograph  
from blasting face: 244 m.



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Blast Id: b 112



## Event Report

Date/Time Vert at 16:28:45 May 12, 2018  
Trigger Source Geo 0.700 mm/s, Mic 58.95 pa (L)  
Range Geo 254.0 mm/s  
Record Time 1.0 sec at 1024 sps  
Operator/Setup Operator/Dr R Trivedi MMB

Serial Number UM10779 V 10-51 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 19, 2018 by CIMFR Dhanbad  
File Name UM10779\_20180512162845 IDFW

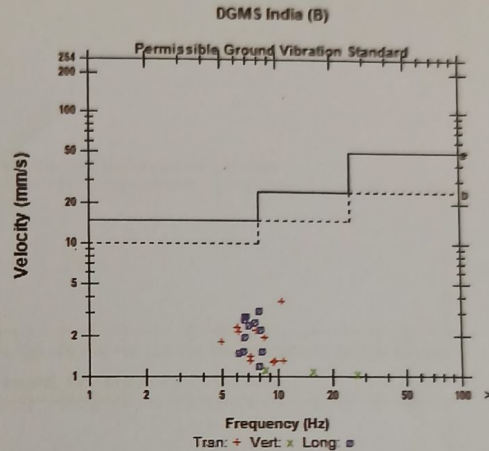
Notes  
Location  
Client  
User Name CSIR\_CIMFR NAGPUR Unit 1  
General

Post Event Notes  
Blasting Id: b112, Max charge/delay: 41.57 kg. Dist. of seismograph from blasting face 211 m.

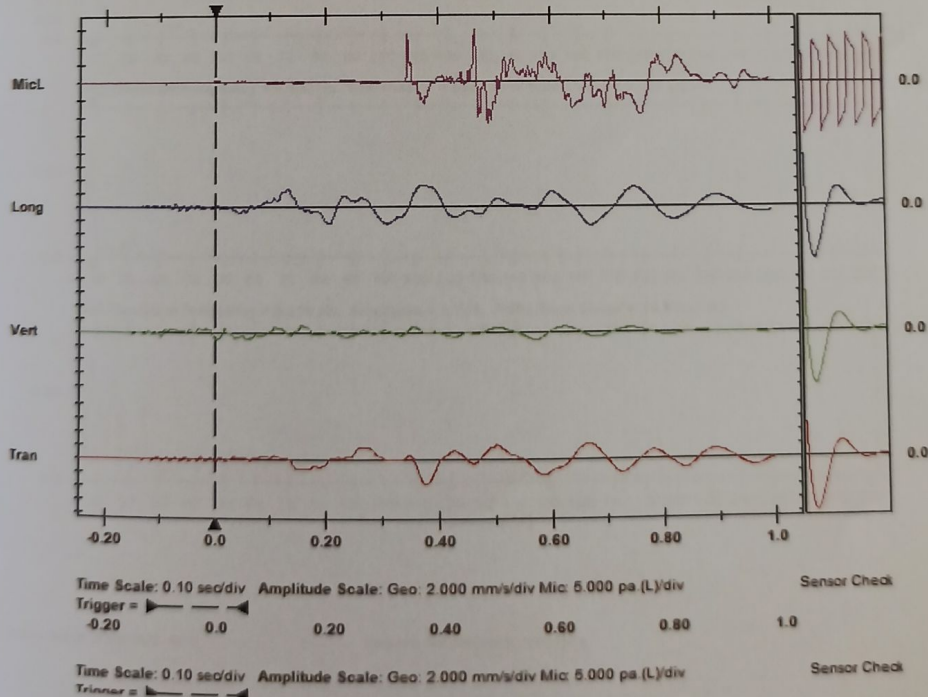
Microphone Linear Weighting  
PSPL 14.62 pa (L) at 0.400 sec  
ZC Freq 39 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1318 mv)

	Tran	Vert	Long	
PPV	3.641	1.143	3.137	mm/s
ZC Freq	11	8.5	8.0	Hz
Time (Rel. to Trig)	0.377	0.570	0.369	sec
Peak Acceleration	0.030	0.026	0.028	g
Peak Displacement	0.054	0.019	0.069	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.7	7.7	Hz
Overswing Ratio	3.7	3.3	3.0	

Peak Vector Sum 4.780 mm/s at 0.376 sec



a) Industrial buildings  
b) Domestic houses/structures







Blasting Id: b112



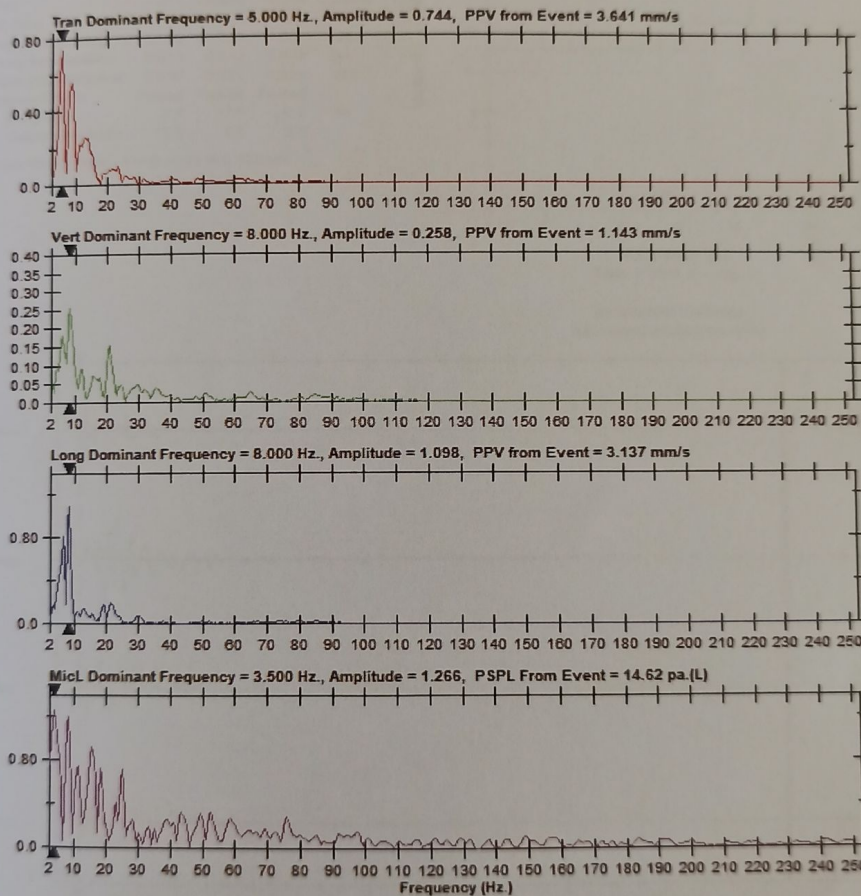
## FFT Report

Date/Time Vert at 16:28:45 May 12, 2018  
Trigger Source Geo: 0.700 mm/s, Mic: 68.95 ps (L)  
Range Geo: 254.0 mm/s  
Record Time 1.0 sec at 1024 sps  
Operator/Setup Operator/Dr R Trivedi/MMB

Serial Number UM10779 V 10-51 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 19, 2018 by CIMFR Dhanbad  
File Name UM10779\_20180512162845 IDFW

Notes  
Location:  
Client:  
User Name: CSIR\_CIMFR NAGPUR Unit 1  
General:

Post Event Notes  
Blasting Id: b112, Max charge/delay: 41.57 kg, Dist. of seismograph  
from blasting face: 211 m.



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Blast Id: b 113



### Event Report

Date/Time Long at 16:42:32 May 12, 2018  
Trigger Source Geo 0.699 mm/s, Mic 4.500 pa (L)  
Range Geo 127.0 mm/s  
Record Time 7.0 sec at 1024 sps

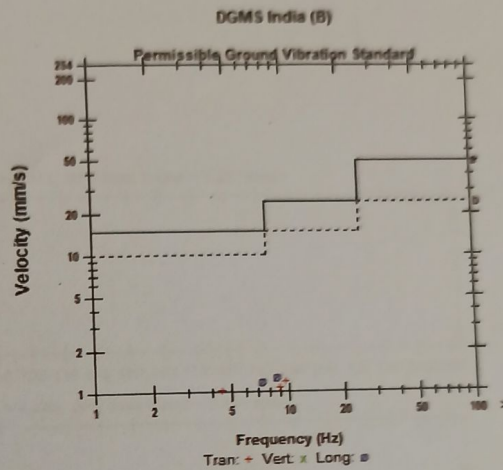
Notes  
Location: JOB # 0001  
Client:  
User Name: CSIR-CIMFR  
Converted: Mei 18, 2018 11:50:18 (V8.12)

Serial Number 5365 V 2.61 MiniMate  
Battery Level 6.4 Volts  
Unit Calibration April 19, 2018 by CIMFR Dhanbad  
File Name G365HEU3 QWB  
Post Event Notes  
Blasting Id: b 113 Max charge/delay: 41.57 kg. Dist of seismograph from blasting face 294 m.

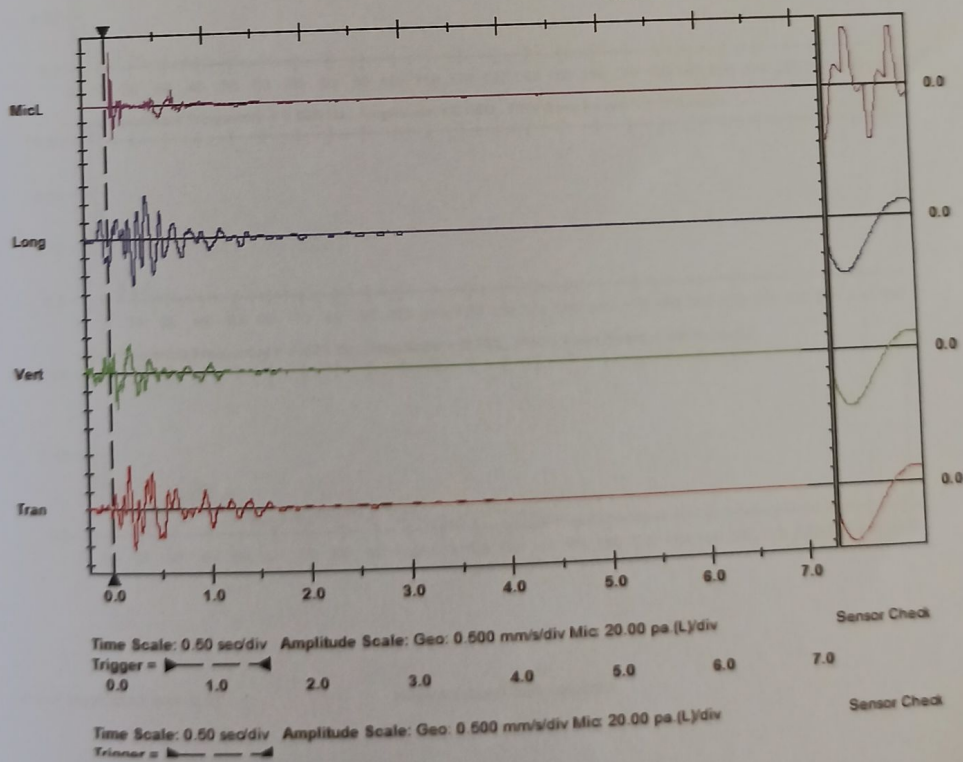
#### Extended Notes

Microphone Linear Weighting  
PSPL 80.00 pa (L) at 0.041 sec  
ZC Freq 64 Hz  
Channel Test Passed (Freq = 20.0 Hz Amp = 308 mv)

	Tran	Vert	Long	
PPV	1.207	0.953	1.270	mm/s
ZC Freq	10	6.0	9.0	Hz
Time (Rel. to Trig)	0.172	0.068	0.261	sec
Peak Acceleration	0.013	0.013	0.013	g
Peak Displacement	0.030	0.021	0.026	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.7	7.7	8.0	Hz
Overswing Ratio	3.6	3.5	3.3	
Peak Vector Sum	1.445 mm/s at 0.402 sec			



a) Industrial buildings  
b) Domestic houses/structures







Blasting Id: b113



### FFT Report

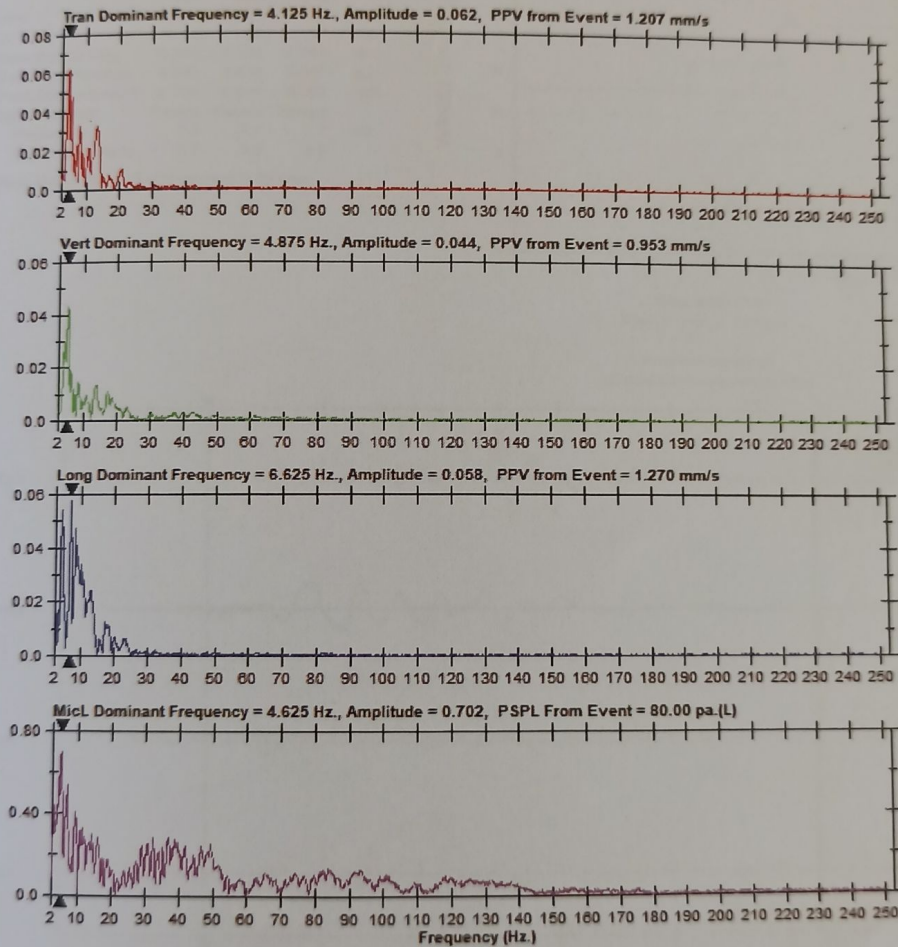
Date/Time Long at 16:42:32 May 12, 2018  
Trigger Source Geo 0.699 mm/s, Mic 4.500 ps (L)  
Range Geo 127.0 mm/s  
Record Time 7.0 sec at 1024 sps

Serial Number 5365 V 2.51 MiniMate  
Battery Level 6.4 Volts  
Unit Calibration April 19, 2018 by CIMFR Dhanbad  
File Name G365HEU3 QW0

Notes  
Location JOB # 0001  
Client  
User Name CSIR-CIMFR  
Converted: May 18, 2018 11:50:16 (V8.12)

Extended Notes

Post Event Notes  
Blasting Id: b113 Max charge/delay: 41.57 kg, Dist of seismograph from blasting face 294 m.



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Blasting Id: b114



### Event Report

Date/Time Vert at 16:51:02 May 12, 2018  
Trigger Source Geo 0.700 mm/s, Mic 68.95 pa (L)  
Range Geo 254.0 mm/s  
Record Time 1.0 sec at 1024 sps  
Operator/Setup Operator/Dr R Trivedi MMB

Serial Number UM10779 V 10-81 Micromate ISEE  
Battery Level 3.8 Volts  
Unit Calibration April 19, 2018 by CIMFR Dhanbad  
File Name UM10779\_20180512165102 IDFW

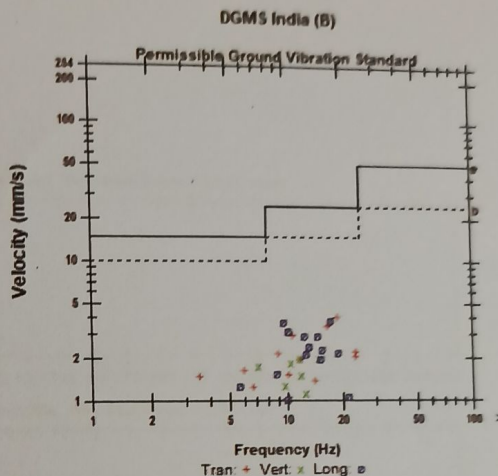
Post Event Notes  
Blasting Id b114, Max charge/delay 41.57 kg. Dist. of seismograph from blasting face 211 m

Notes  
Location  
Client  
User Name CSIR\_CIMFR NAGPUR Unit 1  
General

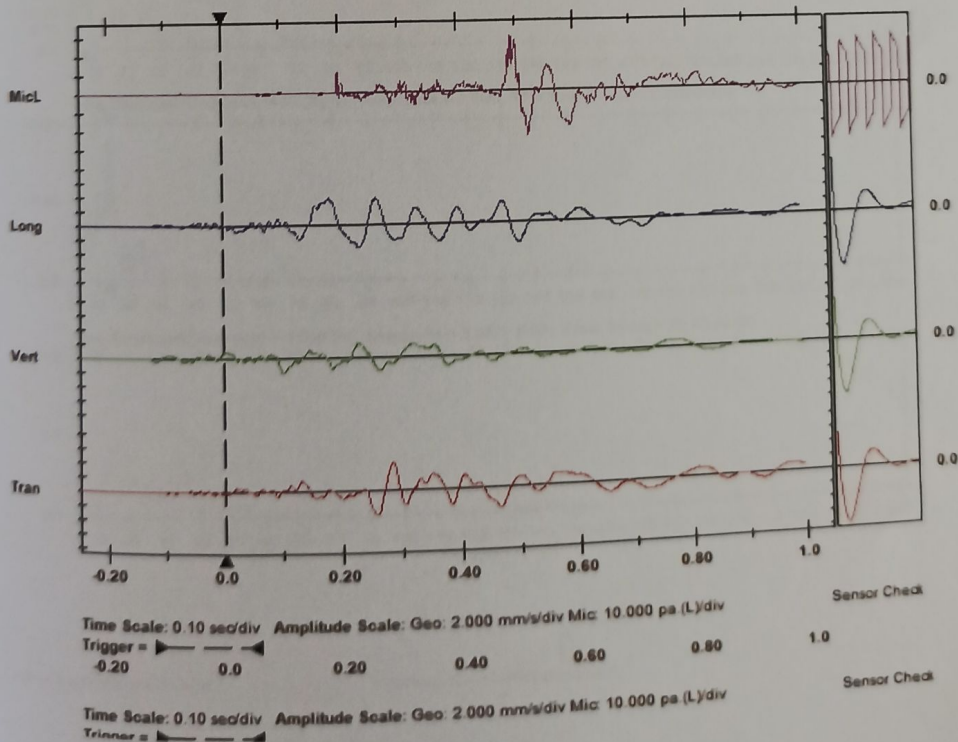
Microphone Linear Weighting  
PSPL 29.42 pa (L) at 0.493 sec  
ZC Freq 16 Hz  
Channel Test Passed (Freq = 19.7 Hz Amp = 1318 mv)

	Tran	Vert	Long	
PPV	3.941	2.034	3.736	mm/s
ZC Freq	19	12	17	Hz
Time (Rel. to Trig)	0.283	0.102	0.261	sec
Peak Acceleration	0.045	0.026	0.047	g
Peak Displacement	0.056	0.044	0.062	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.7	7.7	Hz
Overswing Ratio	3.7	3.3	3.0	

Peak Vector Sum 5.196 mm/s at 0.259 sec



a) Industrial buildings  
b) Domestic houses/structures







Blast Id: b 114



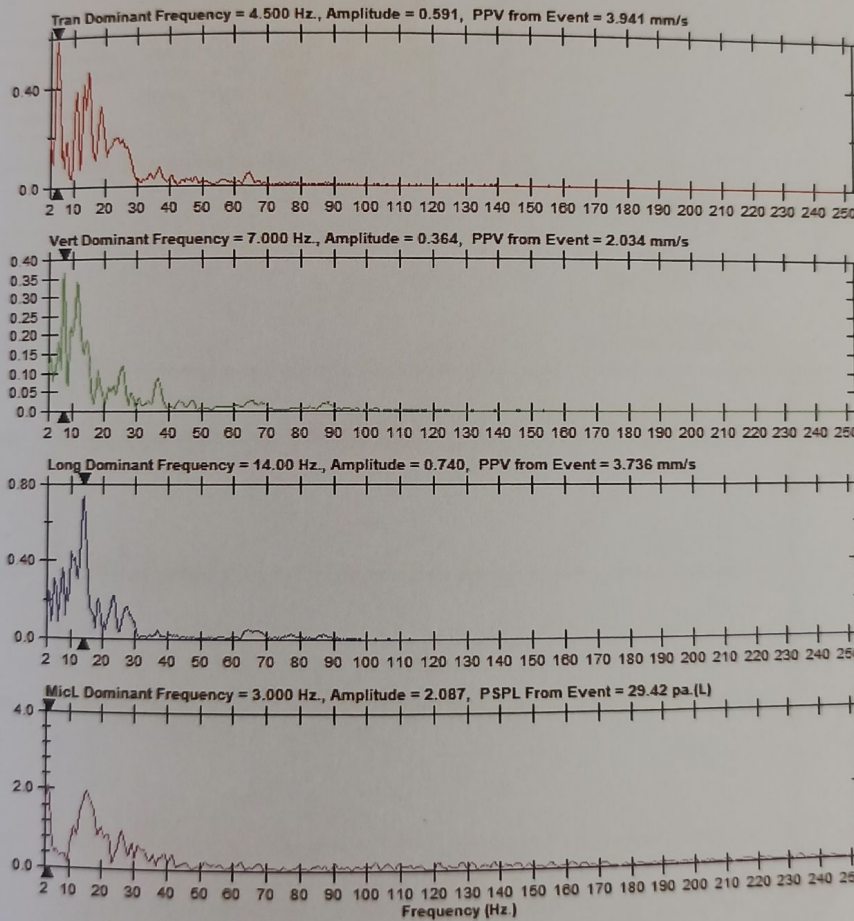
### FFT Report

Date/Time: Vert at 16:51:02 May 12, 2018  
Trigger Source: Geo: 0.700 mm/s, Mic: 68.95 pa (L)  
Range: Geo: 254.0 mm/s  
Record Time: 1.0 sec at 1024 sps  
Operator/Setup: Operator/Dr R Trivedi MMB

Serial Number: UM10779 V 10-91 Micromate ISEE  
Battery Level: 3.8 Volts  
Unit Calibration: April 19, 2018 by CIMFR Dhanbad  
File Name: UM10779\_20180512165102.IDFW

Notes:  
Location:  
Client:  
User Name: CSIR\_CIMFR NAGPUR Unit 1  
General:

Post Event Notes  
Blasting Id: b114, Max charge/delay: 41.57 kg, Dist of seismograph from blasting face 211 m.



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Blast Id: b 115



### Event Report

Date/Time Vert at 17:02:42 May 12, 2018  
Trigger Source Geo: 0.699 mm/s  
Range Geo: 127.0 mm/s  
Record Time 5.0 sec at 1024 sps

Notes  
Location:  
Client:  
User Name  
Converted: May 18, 2018 11:52:27 (V8.12)

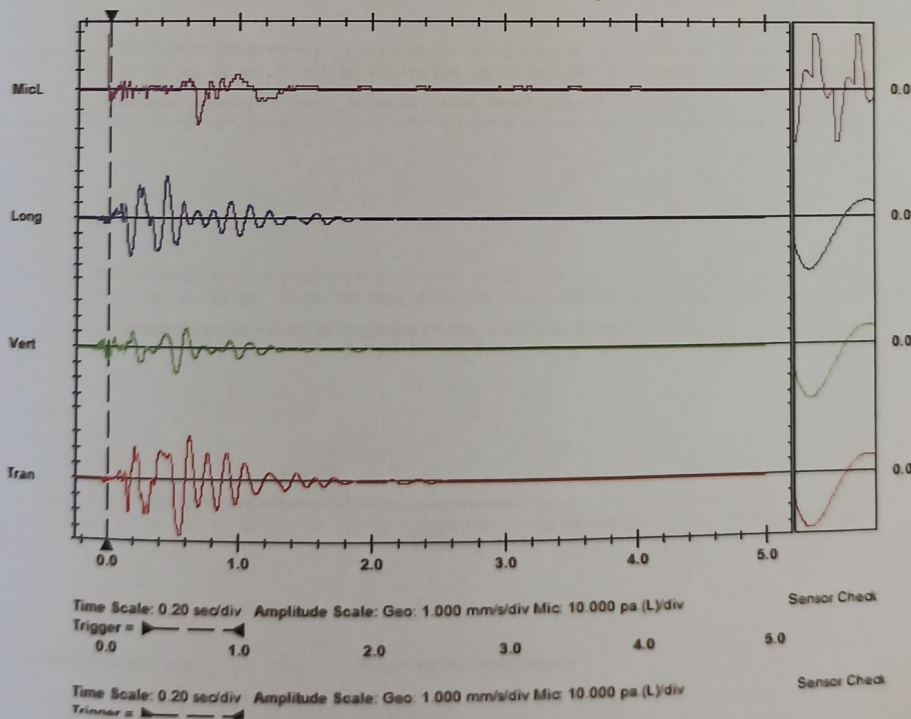
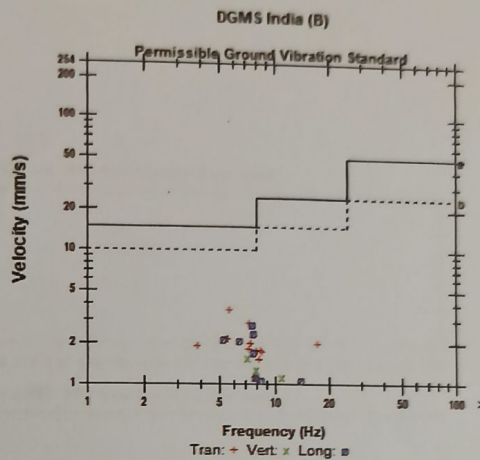
Serial Number 5364 V 2.61 MiniMate  
Battery Level 6.4 Volts  
Unit Calibration April 18, 2018 by CIMFR Dhanbad  
File Name G364HEU4 C10  
Post Event Notes  
Blasting Id: b115, Max charge/delay 41.57 kg. Dist of seismograph from blasting face: 158 m.

#### Extended Notes

Microphone Linear Weighting  
PSPL 28.00 pa (L) at -0.019 sec  
ZC Freq 64 Hz  
Channel Test Passed (Freq = 20.0 Hz Amp = 299 mv)

	Tran	Vert	Long	
PPV	3.556	1.588	2.794	mm/s
ZC Freq	6.0	7.0	7.0	Hz
Time (Rel. to Trig)	0.559	0.525	0.452	sec
Peak Acceleration	0.027	0.020	0.020	g
Peak Displacement	0.110	0.041	0.061	mm
Sensor Check	Passed	Passed	Passed	
Frequency	8.0	8.0	8.1	Hz
Overswing Ratio	3.6	3.2	3.6	

Peak Vector Sum 3.794 mm/s at 0.545 sec







Blast Id:b 115



## FFT Report

Date/Time Vert at 17:02:42 May 12, 2018  
Trigger Source Geo 0.699 mm/s  
Range Geo 127.0 mm/s  
Record Time 5.0 sec at 1024 sps

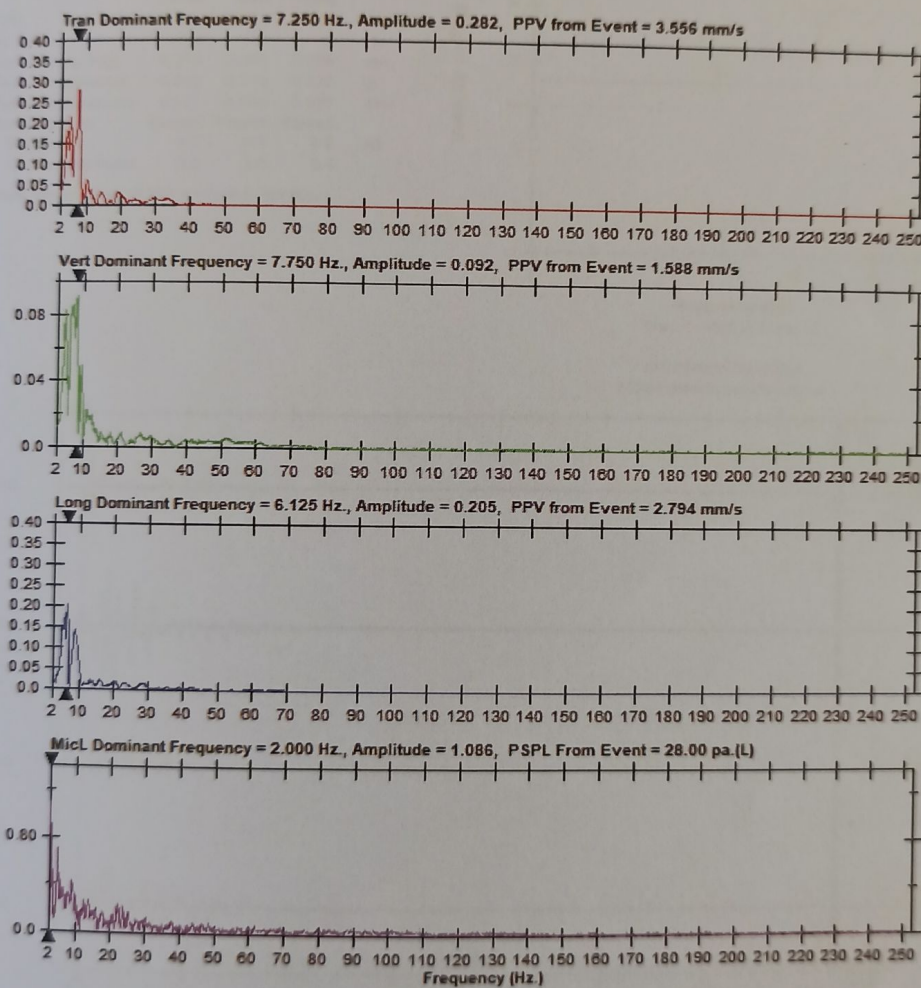
Serial Number 5364 V 2.61 MiniMate  
Battery Level 6.4 Volts  
Unit Calibration April 18, 2018 by CIMFR Dhanbad  
File Name G364HEU4 OIO

Notes  
Location:  
Client:  
User Name:  
Converted: Mei 16, 2018 11:52:27 (V8.12)

Extended Notes

### Post Event Notes

Blasting Id:b115, Max charge/delay:41.57 kg, Dist. of seismograph  
from blasting face:156 m.



Printed: May 29, 2018 (V 16.72 - 16.72)

Format © 1995-2014 Xmark Corporation



Blast Id: b 116



## Event Report

Date/Time Long at 17:18:47 May 12, 2018  
Trigger Source Geo 0.689 mm/s, Mic 4.500 pa (L)  
Range Geo 127.0 mm/s  
Record Time 7.0 sec at 1024 sps

Notes  
Location: JOB # 0001  
Client:  
User Name: CSIR-CIMFR  
Converted: Mei 18, 2018 11:50:18 (V8.12)

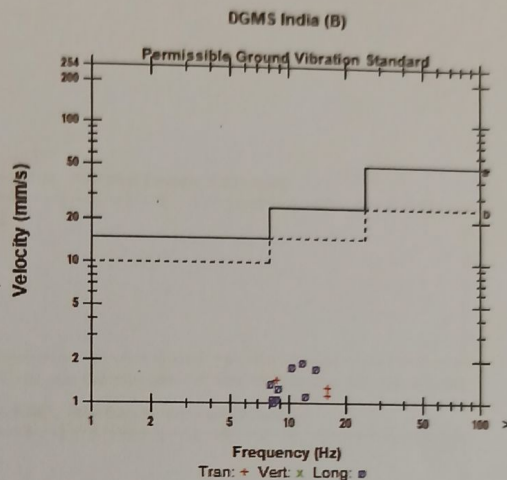
Serial Number 5365 V 2.61 MiniMate  
Battery Level 6.4 Volts  
Unit Calibration April 19, 2018 by CIMFR Dhanbad  
File Name Q365HEU5 FB0  
Post Event Notes  
Blasting Id: b116, Max charge/delay 41.57 kg. Dist. of seismograph from blasting face 278 m.

### Extended Notes

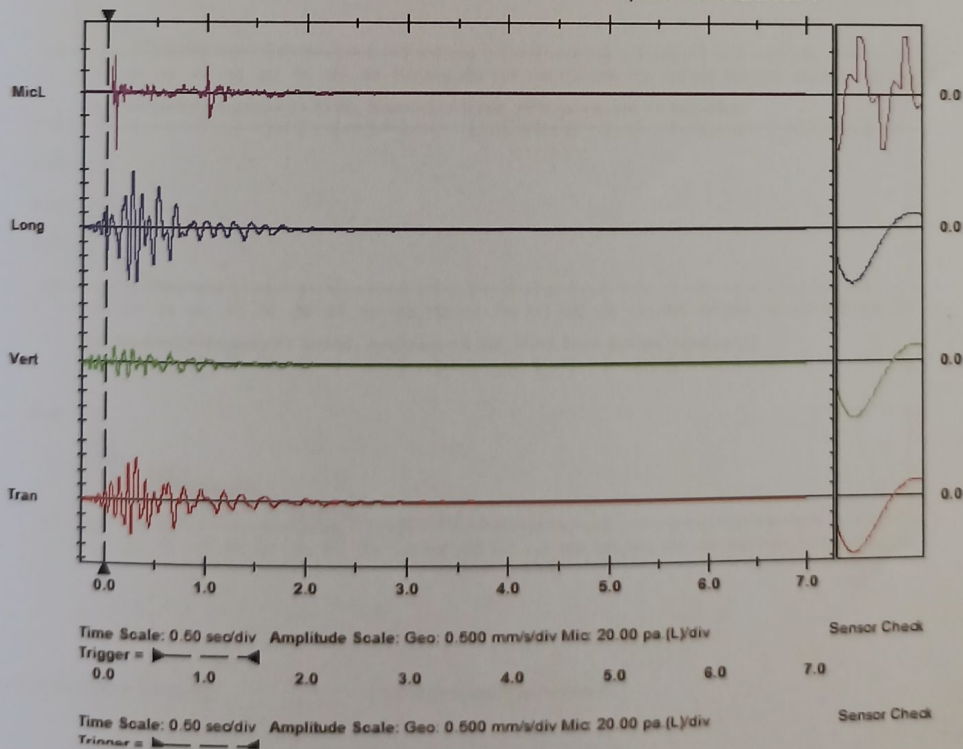
Microphone Linear Weighting  
PSPL 52.00 pa (L) at 0.087 sec  
ZC Freq 18 Hz  
Channel Test Passed (Freq = 20.0 Hz Amp = 308 mv)

	Tran	Vert	Long	
PPV	1.461	0.572	1.989	mm/s
ZC Freq	9.0	17	12	Hz
Time (Rel. to Trig)	0.313	0.091	0.260	sec
Peak Acceleration	0.013	0.013	0.020	g
Peak Displacement	0.027	0.006	0.027	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.7	7.7	8.0	Hz
Overswing Ratio	3.6	3.6	3.4	

Peak Vector Sum 2.318 mm/s at 0.309 sec



a) Industrial buildings  
b) Domestic houses/structures







Blast Id: b 116



### FFT Report

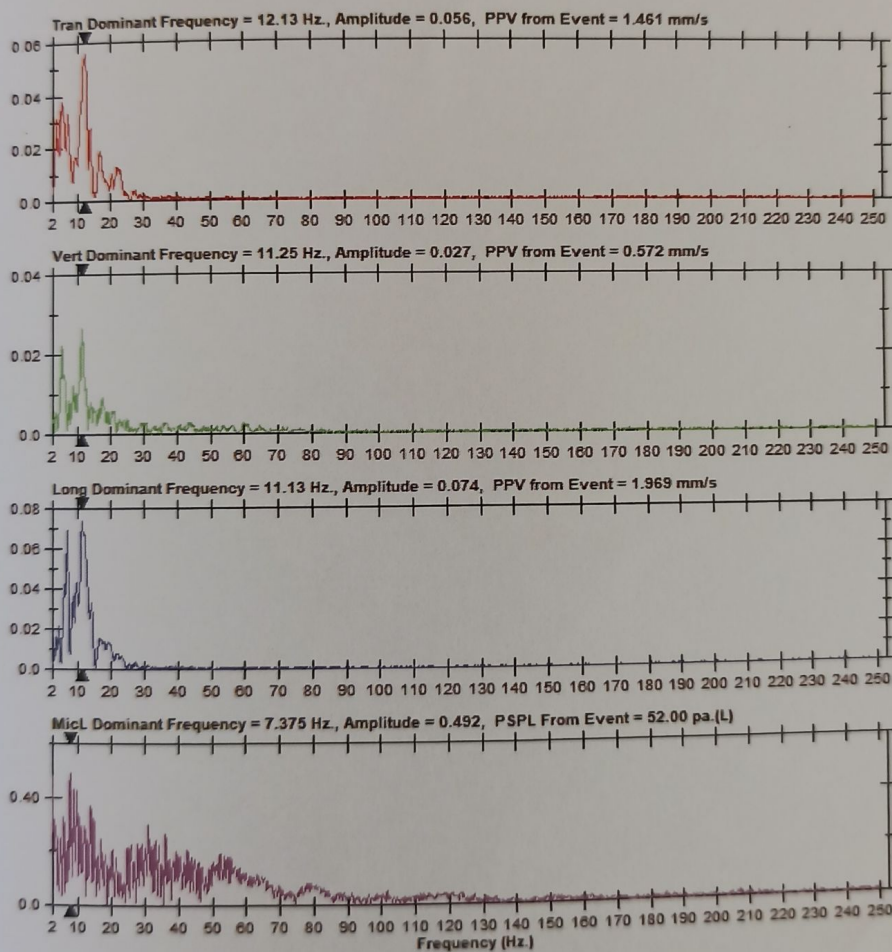
Date/Time Long at 17:18:47 May 12, 2018  
Trigger Source Geo 0.689 mm/s, Mic 4.500 ps (L)  
Range Geo 127.0 mm/s  
Record Time 7.0 sec at 1024 sps

Serial Number 5365 V 2.61 MiniMate  
Battery Level 6.4 Volts  
Unit Calibration April 19, 2018 by CIMFR Dhanbad  
File Name G365HEU5.FB0

Notes  
Location: JOB # 0001  
Client  
User Name CSIR-CIMFR  
Converted: Mei 18, 2018 11:50:18 (V8.12)

Extended Notes

Post Event Notes  
Blasting Id b116, Max charge/delay 41.57 kg, Dist of seismograph from blasting face 278 m.

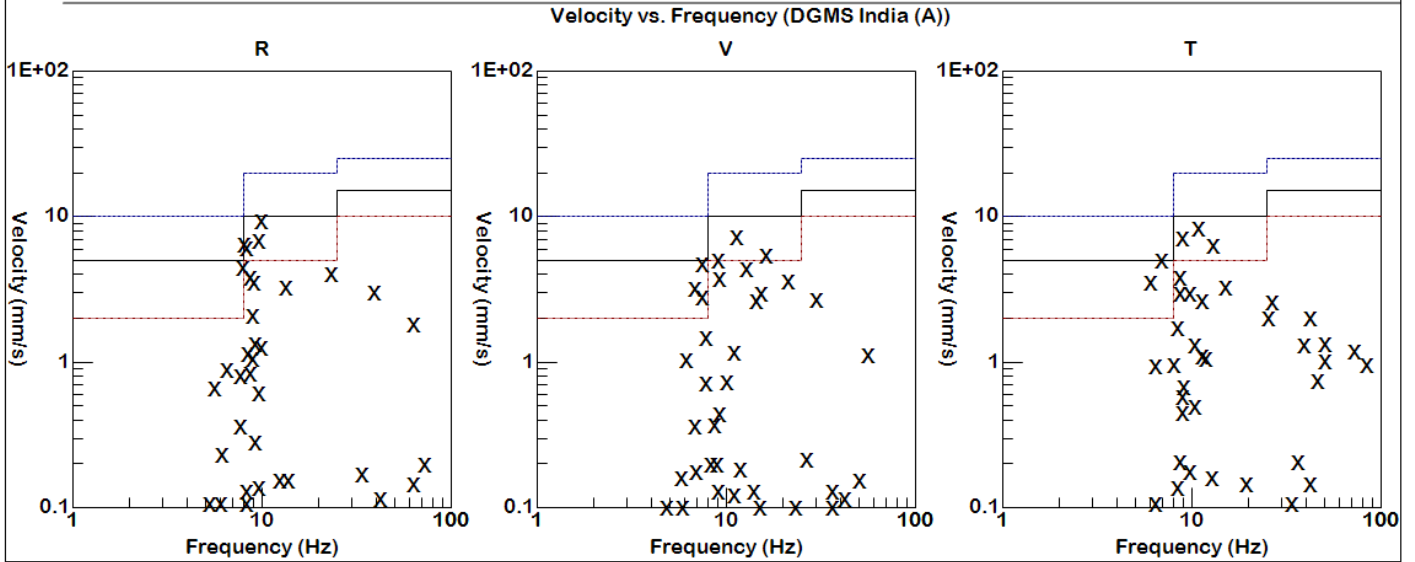
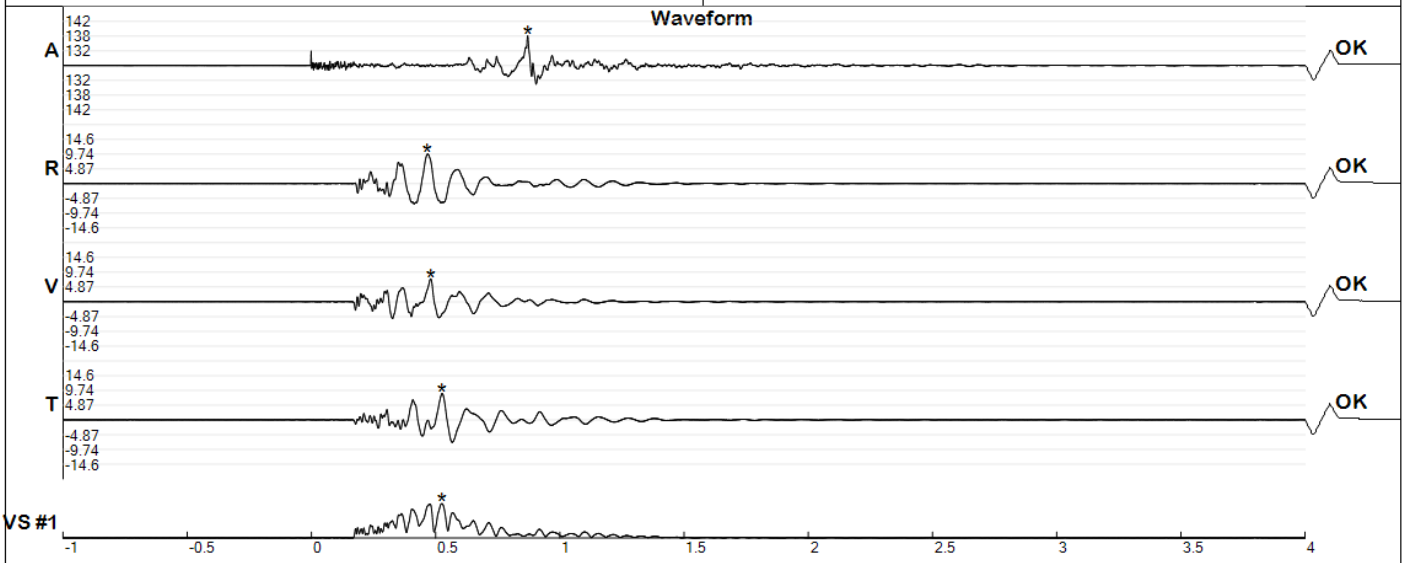


Printed: May 29, 2018 (V 16.72 - 16.72)

Format © 1995-2014 Xmark Corporation

Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202503301616370011.proevt Number: 11 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 30-03-2025 16:16:37 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.508 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.40
<b>* Blast Detail *</b>	
No. of Holes: - 48 Depth of Holes: - 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay: - 62.5 Total Explosive Charged: - 3000 kg Location of Blast: - Coal Face and 2nd Bench Location of Instrument: - 2nd bench Distance from Blast: - 250 meters	

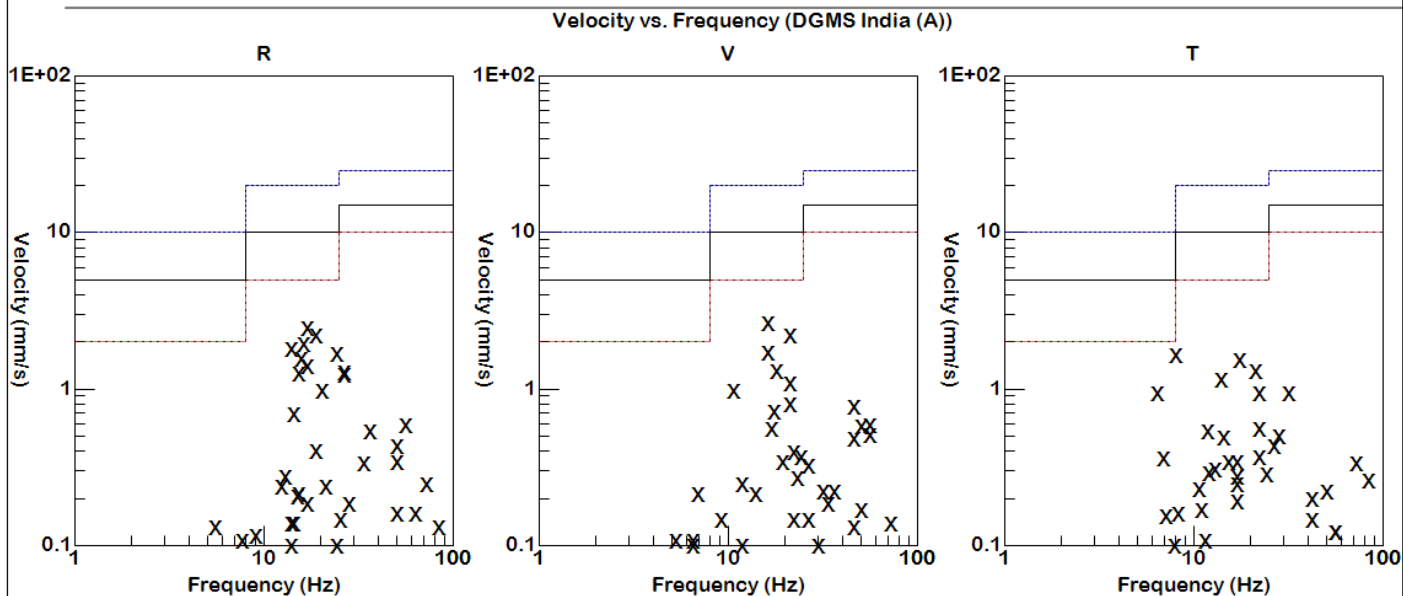
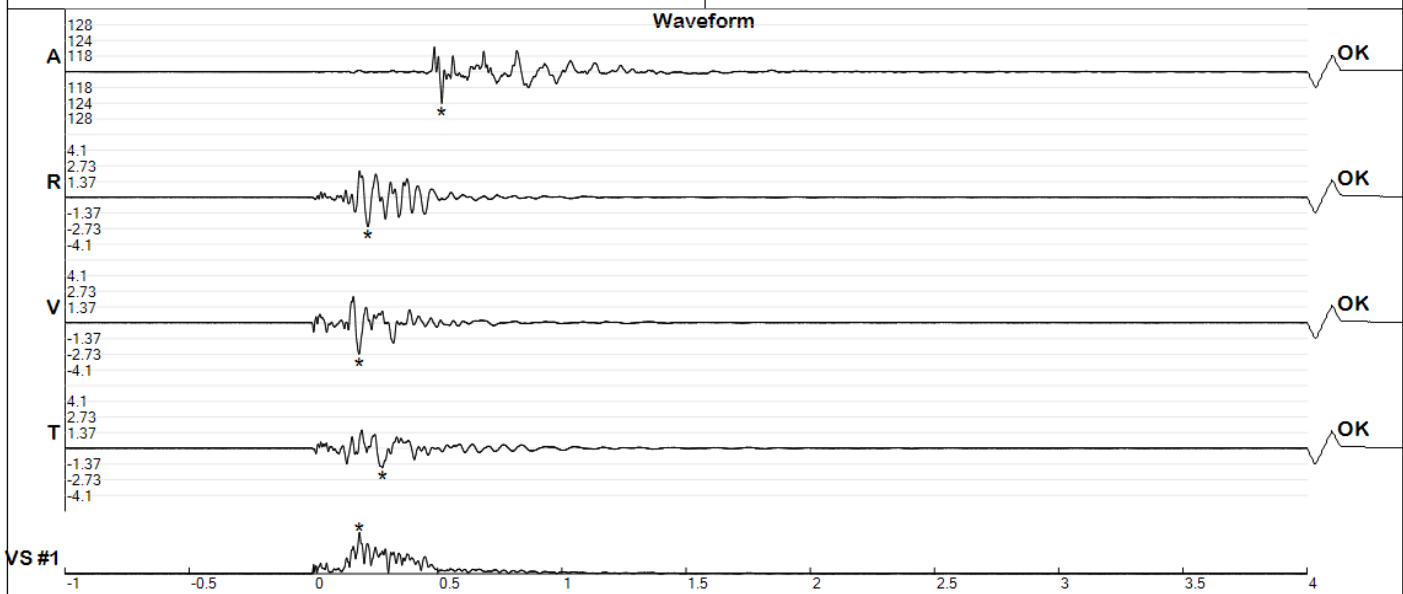
Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 9.74 mm/s Acoustic #1: 138.7 dB @ 9.3 Hz (0.8701172 s) Radial #1: 9.74 mm/s @ 10.0 Hz (0.46875 s) Vertical #1: 7.54 mm/s @ 11.4 Hz (0.4804688 s) Transverse #1: 8.66 mm/s @ 10.9 Hz (0.5263672 s) VS #1: 11.3 mm/s (0.5253906 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds





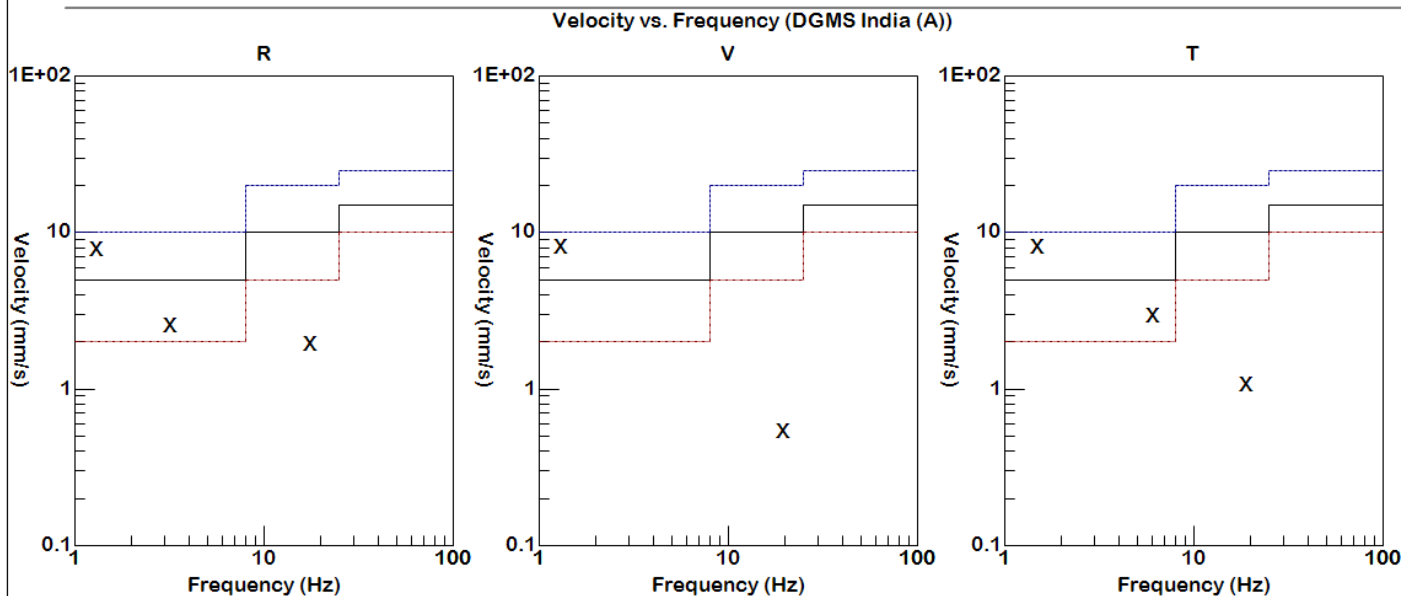
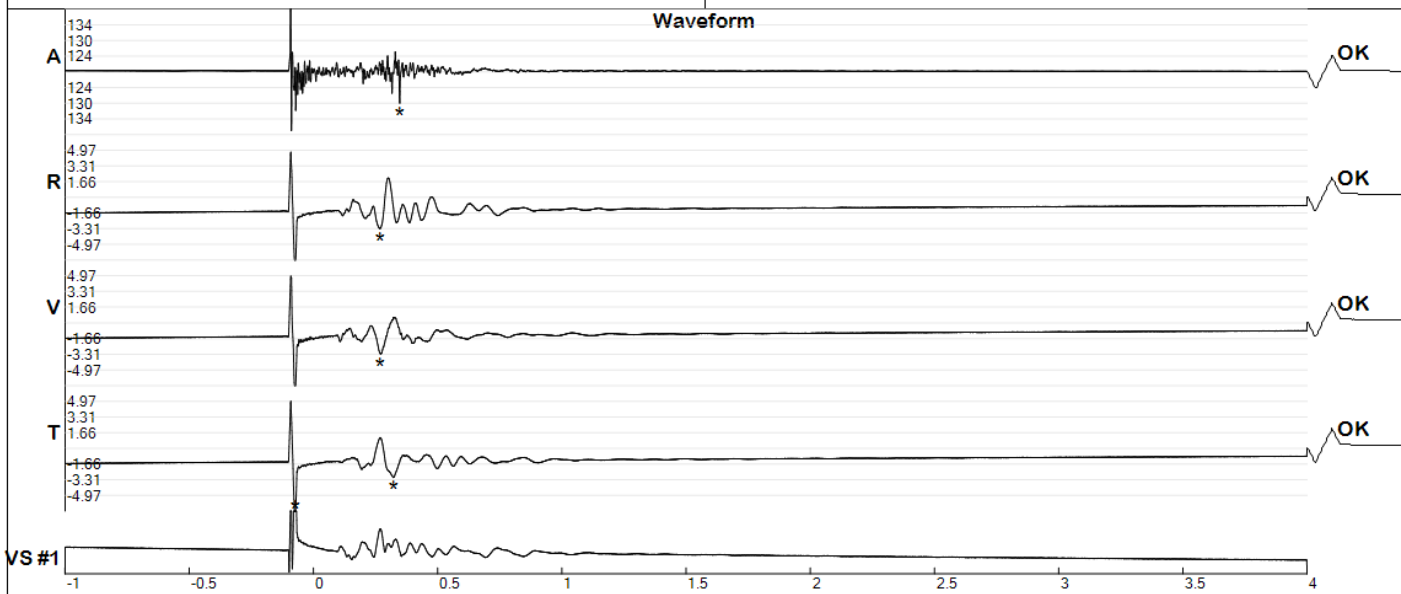
Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202504011617470032.proeyt Number: 32 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 01-04-2025 16:17:47 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.508 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.42
* Blast Detail *	
No. of Holes:- 24 Depth of Holes:- 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay:- 62.5 Total Explosive Charged:- 1500 kg Location of Blast:- 3rd Bench Location of Instrument:- Top bench near BC Soil Distance from Blast:- 350 meters	

Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 2.73 mm/s Acoustic #1: 123.6 dB @ 28.4 Hz (0.5166016 s) Radial #1: 2.55 mm/s @ 17.1 Hz (0.21875 s) Vertical #1: 2.73 mm/s @ 16.5 Hz (0.1835938 s) Transverse #1: 1.7 mm/s @ 8.1 Hz (0.2773438 s) VS #1: 3.59 mm/s (0.1855469 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds



Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202504011654540040.proevt Number: 40 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 01-04-2025 16:54:54 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.508 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.40
* Blast Detail *	
No. of Holes: - 16 Depth of Holes: - 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay: - 62.5 Total Explosive Charged: - 1000 kg Location of Blast: - 2nd Bench Location of Instrument: - Top bench near BC Soil Distance from Blast: - 250 meters	

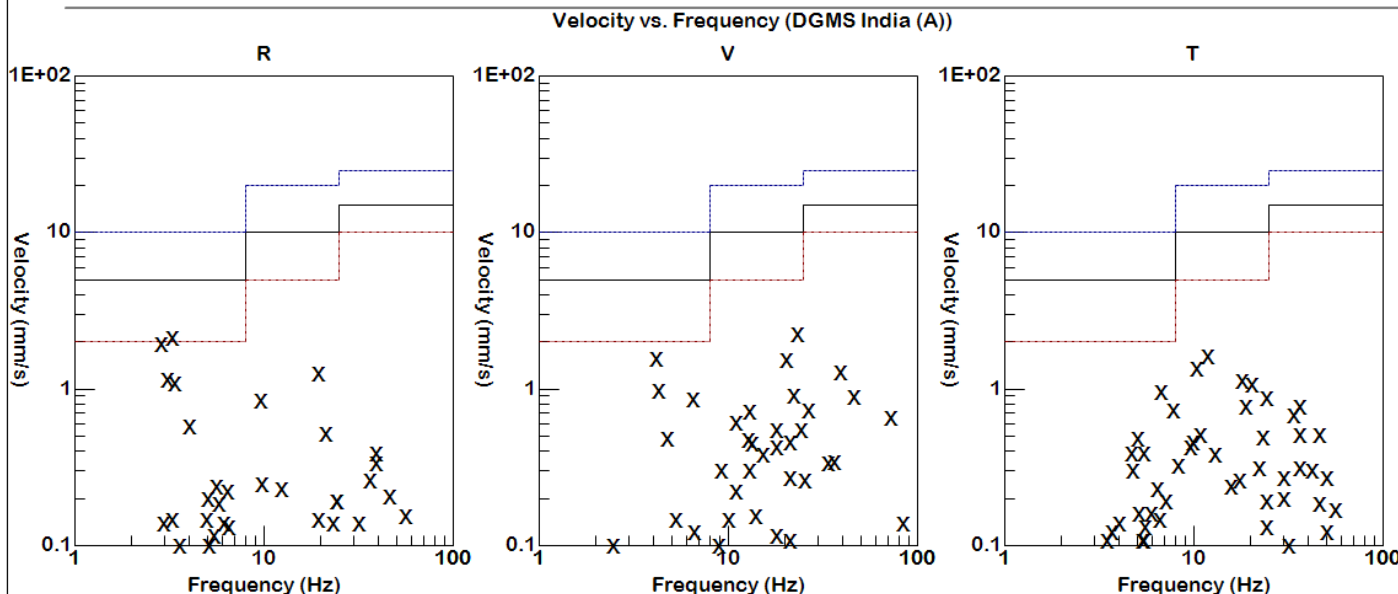
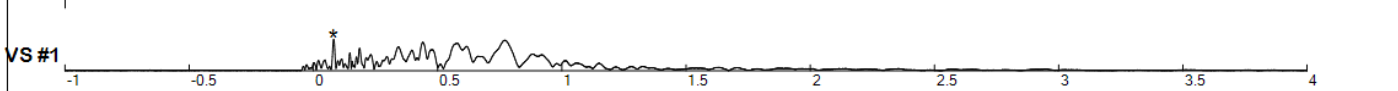
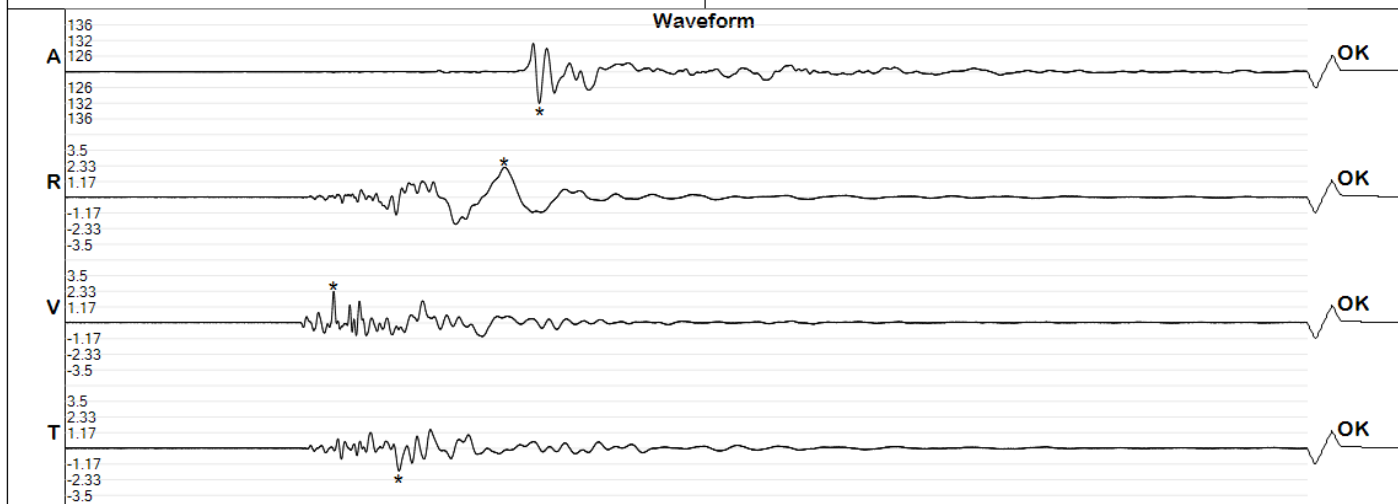
Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 3.31 mm/s Acoustic #1: 129.9 dB @ 56.9 Hz (0.3476563 s) Radial #1: 3.31 mm/s @ 12.2 Hz (0.2675781 s) Vertical #1: 3.3 mm/s @ 6.1 Hz (0.2705078 s) Transverse #1: 3.08 mm/s @ 6.1 Hz (0.3222656 s) VS #1: 14.7 mm/s (-0.07421875 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds





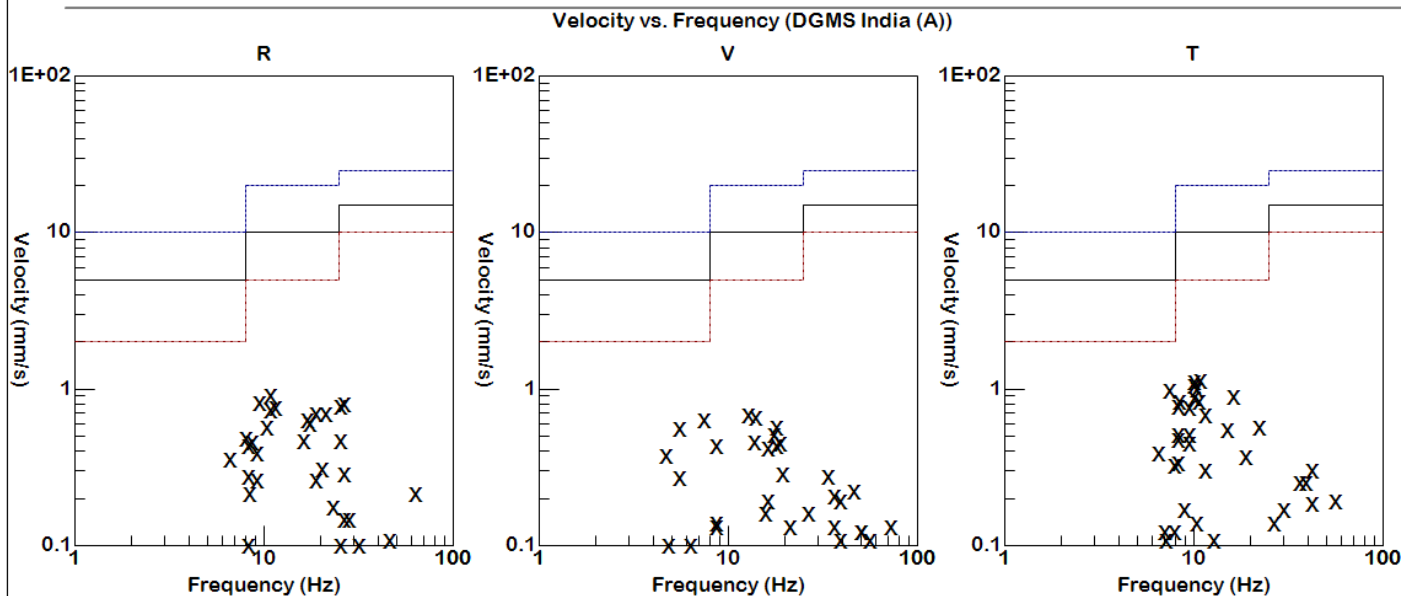
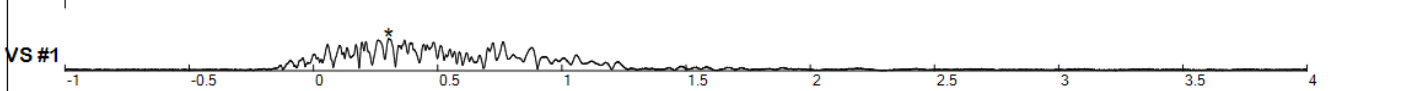
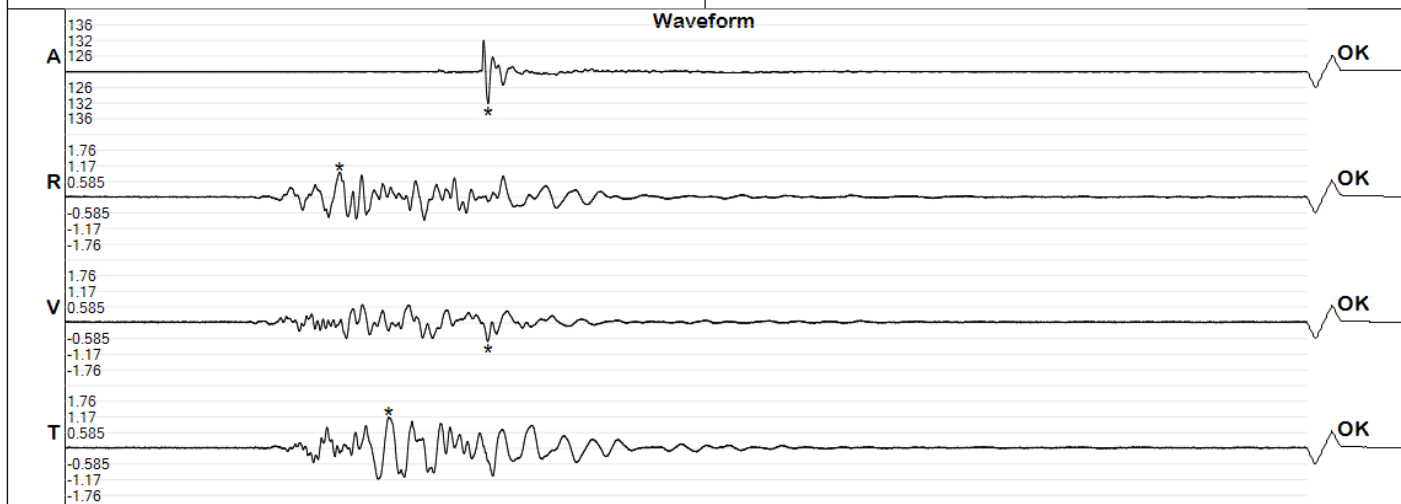
Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202504031548060060.proeyt Number: 60 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 03-04-2025 15:48:06 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.508 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.28
* Blast Detail *	
No. of Holes:- 40 Depth of Holes:- 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay:- 62.5 Total Explosive Charged:- 2500 kg Location of Blast:- 3rd Bench Location of Instrument:- near Zila Parishad Road(Antargaon)@Jn. Distance from Blast:- 400 meters	

Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 2.33 mm/s Acoustic #1: 131.8 dB @ 17.7 Hz (0.9091797 s) Radial #1: 2.22 mm/s @ 3.3 Hz (0.7685547 s) Vertical #1: 2.33 mm/s @ 23.3 Hz (0.08203125 s) Transverse #1: 1.67 mm/s @ 11.9 Hz (0.3447266 s) VS #1: 2.33 mm/s (0.08203125 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds



Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202504051557310071.proevt Number: 71 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 05-04-2025 15:57:31 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.508 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.34
* Blast Detail *	
No. of Holes:- 24 Depth of Holes:- 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay:- 62.5 Total Explosive Charged:- 1500 kg Location of Blast:- 2nd OB Bench Location of Instrument:- near Antargaon Village Distance from Blast:- 400 meters	

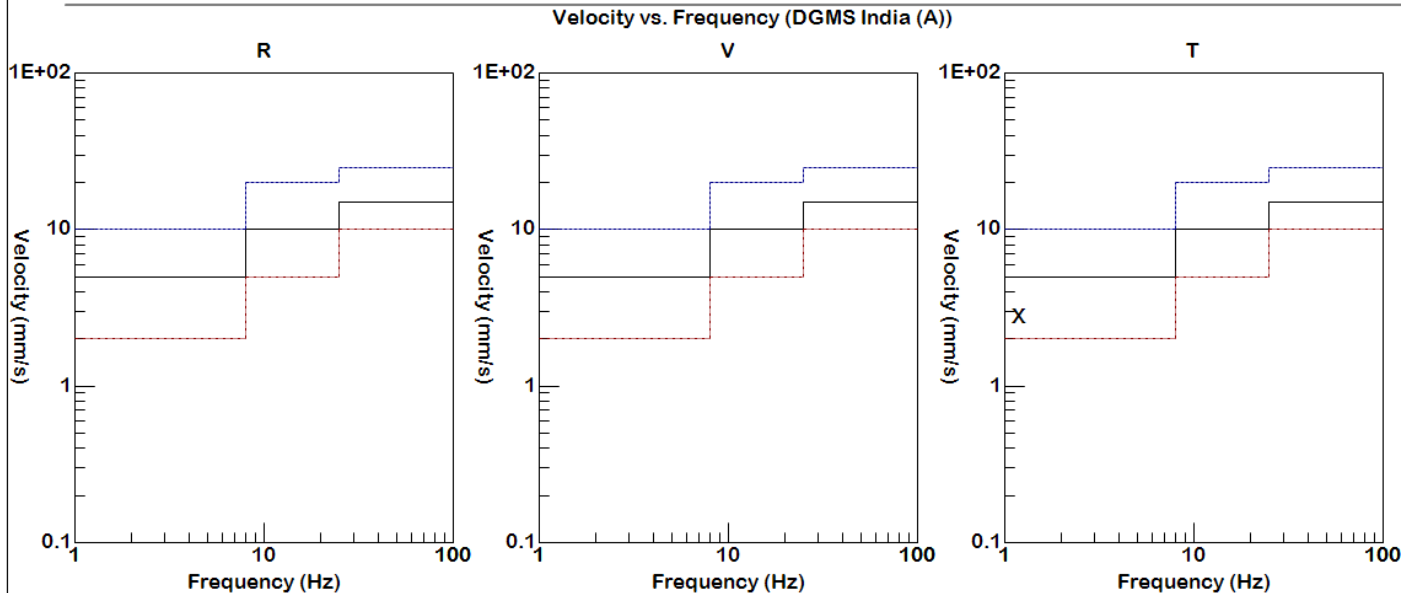
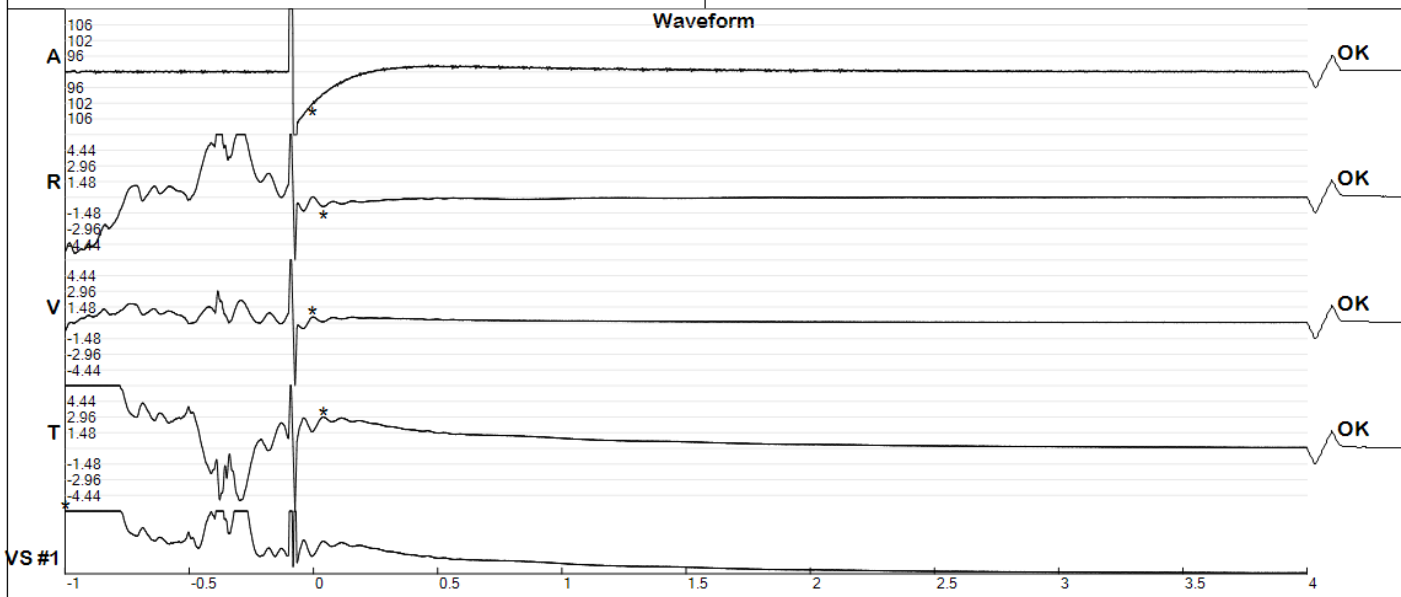
Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 1.17 mm/s Acoustic #1: 132.8 dB @ 25.6 Hz (0.703125 s) Radial #1: 0.937 mm/s @ 10.9 Hz (0.1074219 s) Vertical #1: 0.699 mm/s @ 12.8 Hz (0.7021484 s) Transverse #1: 1.17 mm/s @ 10.9 Hz (0.3027344 s) VS #1: 1.21 mm/s (0.3027344 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds





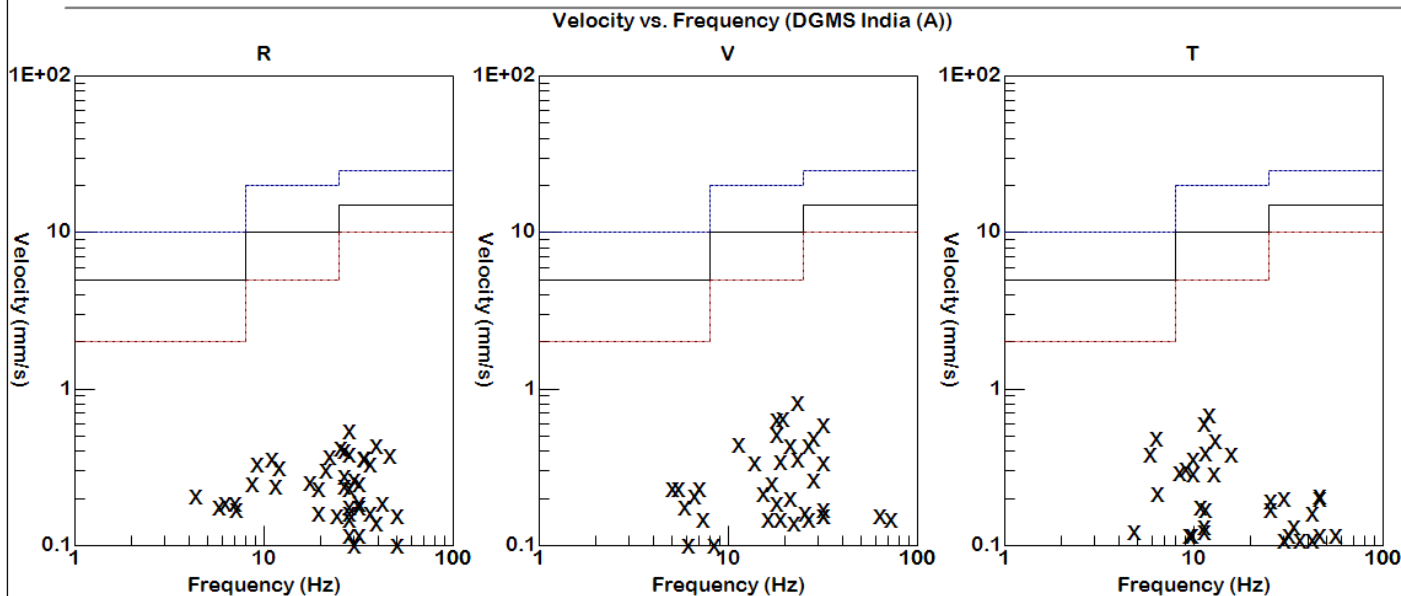
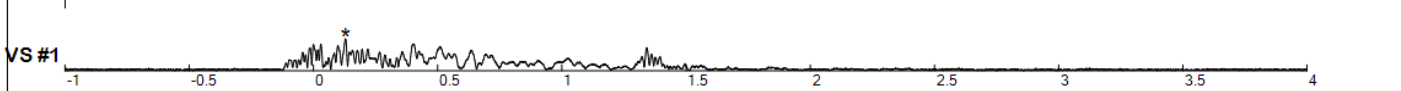
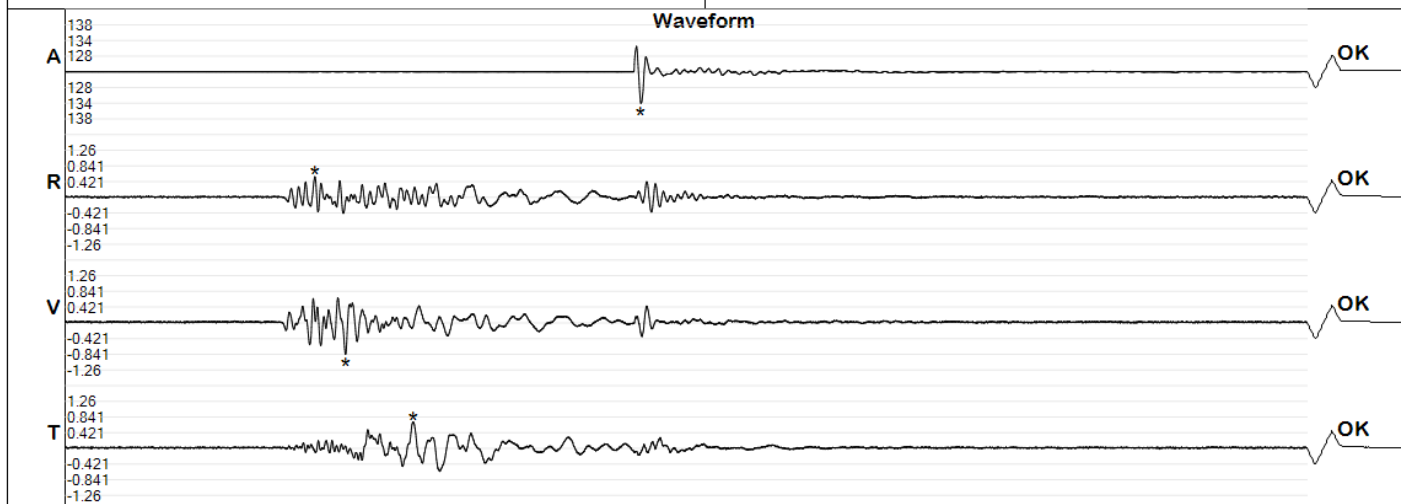
Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202504051558060073.proevt Number: 73 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 05-04-2025 15:58:06 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.508 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.26
* Blast Detail *	
No. of Holes:- 24 Depth of Holes:- 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay:- 62.5 Total Explosive Charged:- 1500 kg Location of Blast:- 1st OB Bench Location of Instrument:- near Antargaon Village Distance from Blast:- 350 meters	

Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 2.96 mm/s Acoustic #1: 102.9 dB @ 0.0 Hz (-0.0009765625 s) Radial #1: 0.881 mm/s @ 0.3 Hz (0.04003906 s) Vertical #1: 0.556 mm/s @ 0.0 Hz (-0.0009765625 s) Transverse #1: 2.96 mm/s @ 1.2 Hz (0.0390625 s) VS #1: 15 mm/s (-0.9990234 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds



Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202504081600280082.proeyt Number: 82 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 08-04-2025 16:00:28 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.635 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.31
* Blast Detail *	
No. of Holes:- 24 Depth of Holes:- 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay:- 62.5 Total Explosive Charged:- 1500 kg Location of Blast:- 2nd OB Bench Location of Instrument:- near Antargaon Village Distance from Blast:- 400 meters	

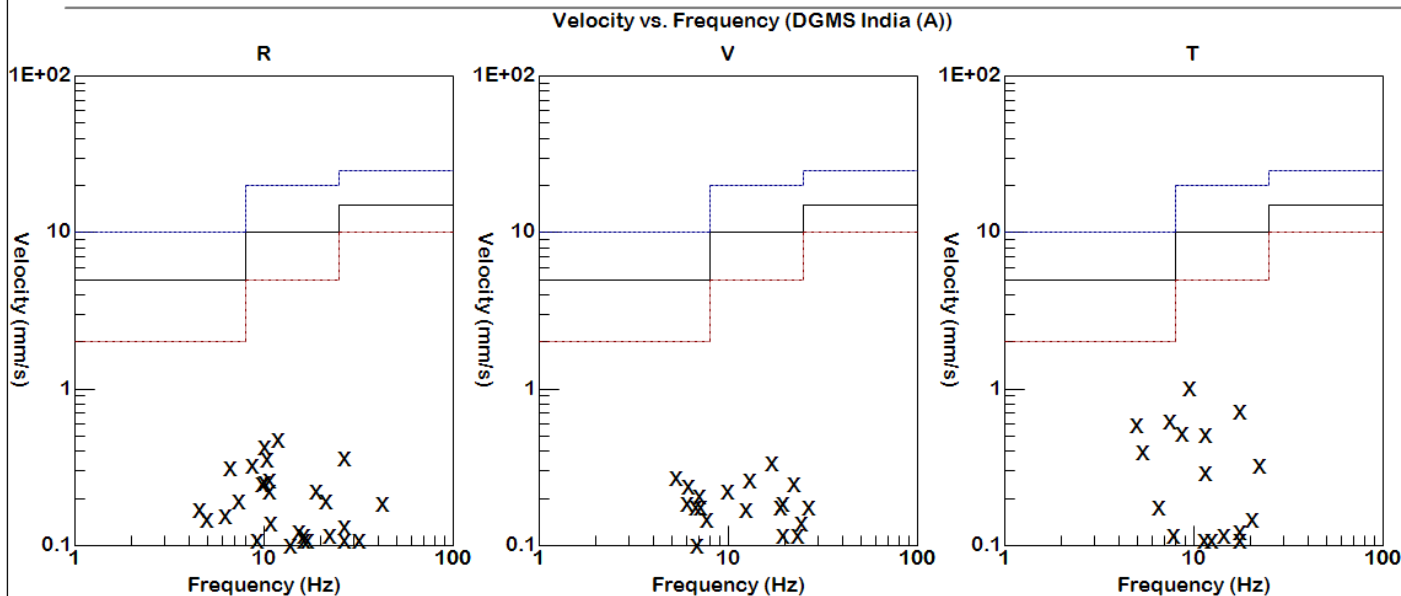
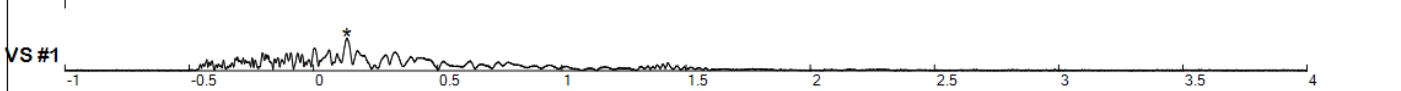
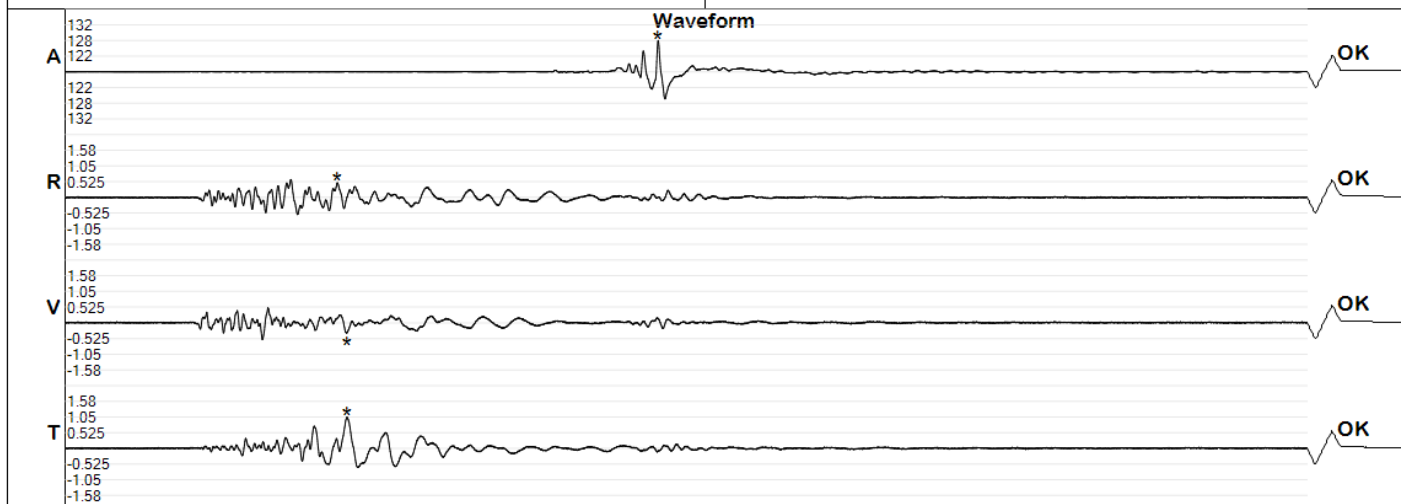
Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 0.841 mm/s Acoustic #1: 134.3 dB @ 21.3 Hz (1.318359 s) Radial #1: 0.556 mm/s @ 28.4 Hz (0.005859375 s) Vertical #1: 0.841 mm/s @ 23.3 Hz (0.1298828 s) Transverse #1: 0.706 mm/s @ 12.2 Hz (0.4003906 s) VS #1: 0.858 mm/s (0.1279297 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds





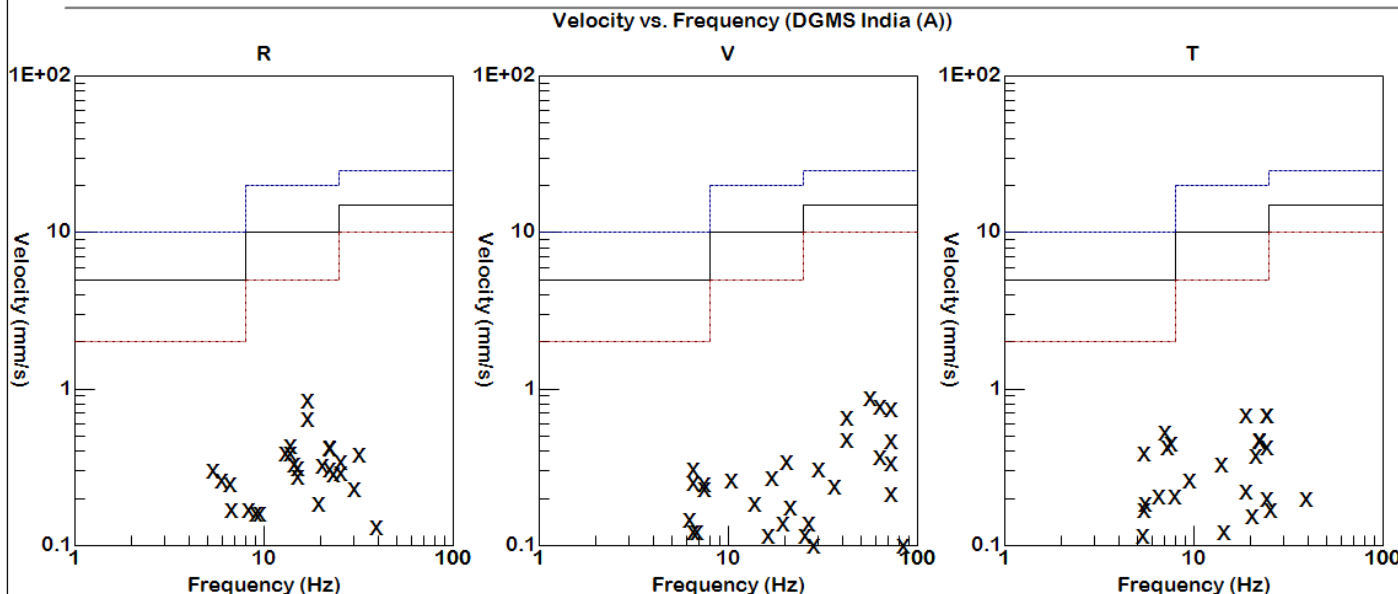
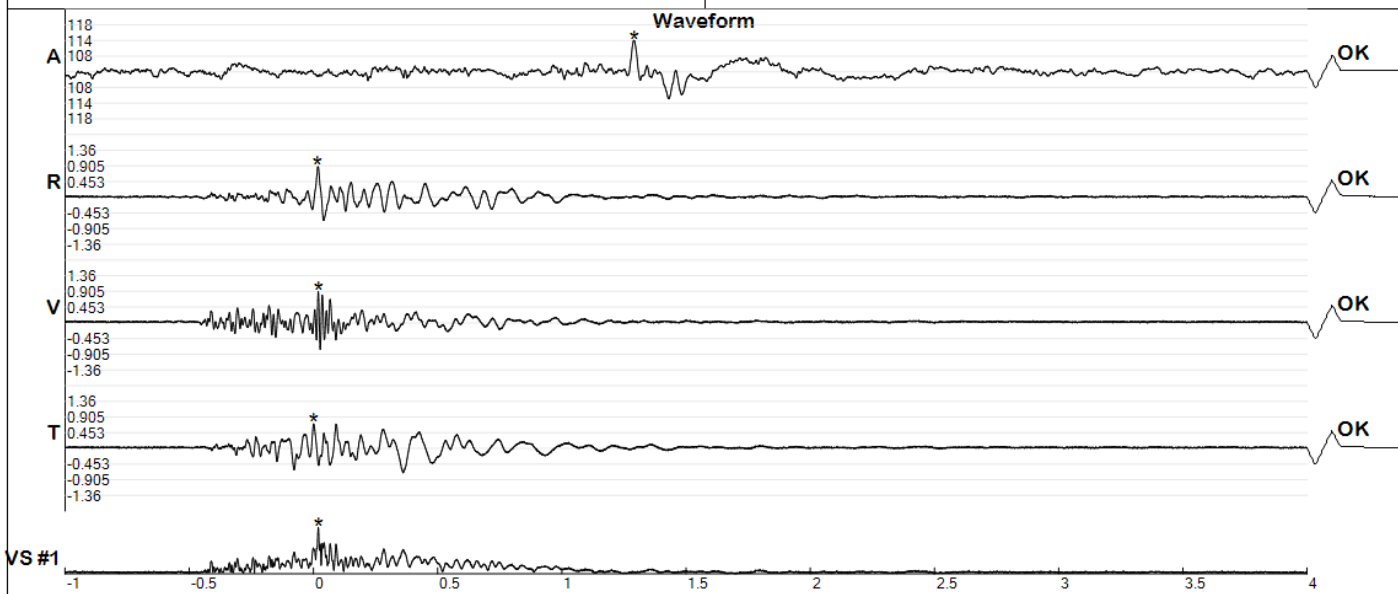
Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202504101546440092.proevt Number: 92 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 10-04-2025 15:46:44 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.635 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.19
* Blast Detail *	
No. of Holes:- 32 Depth of Holes:- 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay:- 62.5 Total Explosive Charged:- 2000 kg Location of Blast:- 3rd OB Bench Location of Instrument:- near Antargaon Village Distance from Blast:- 450 meters	

Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 1.05 mm/s Acoustic #1: 127.9 dB @ 26.9 Hz (1.387695 s) Radial #1: 0.492 mm/s @ 11.9 Hz (0.09667969 s) Vertical #1: 0.349 mm/s @ 17.1 Hz (0.1328125 s) Transverse #1: 1.05 mm/s @ 9.5 Hz (0.1347656 s) VS #1: 1.1 mm/s (0.1347656 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds



Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202504111544380104.proeyt Number: 104 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 11-04-2025 15:44:38 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.635 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.21
* Blast Detail *	
No. of Holes:- 32 Depth of Holes:- 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay:- 62.5 Total Explosive Charged:- 2000 kg Location of Blast:- 2nd OB Bench Location of Instrument:- near Antargaon Village/zila parishad board Distance from Blast:- 400 meters	

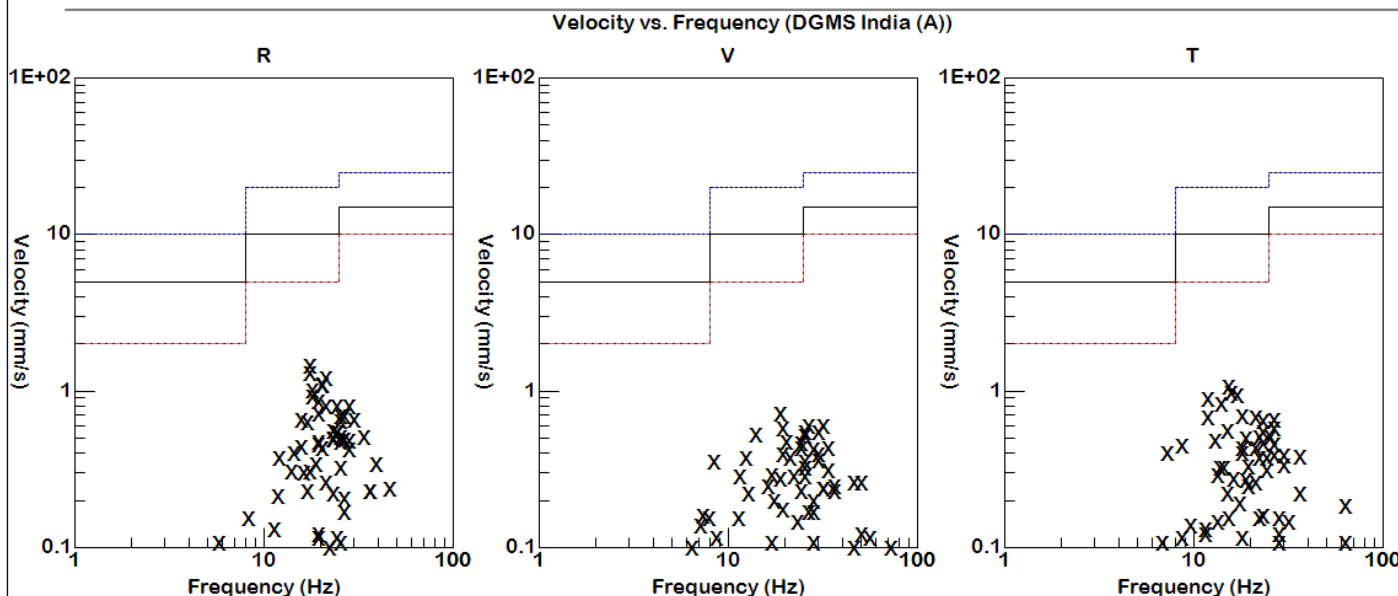
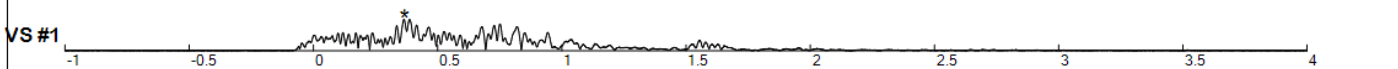
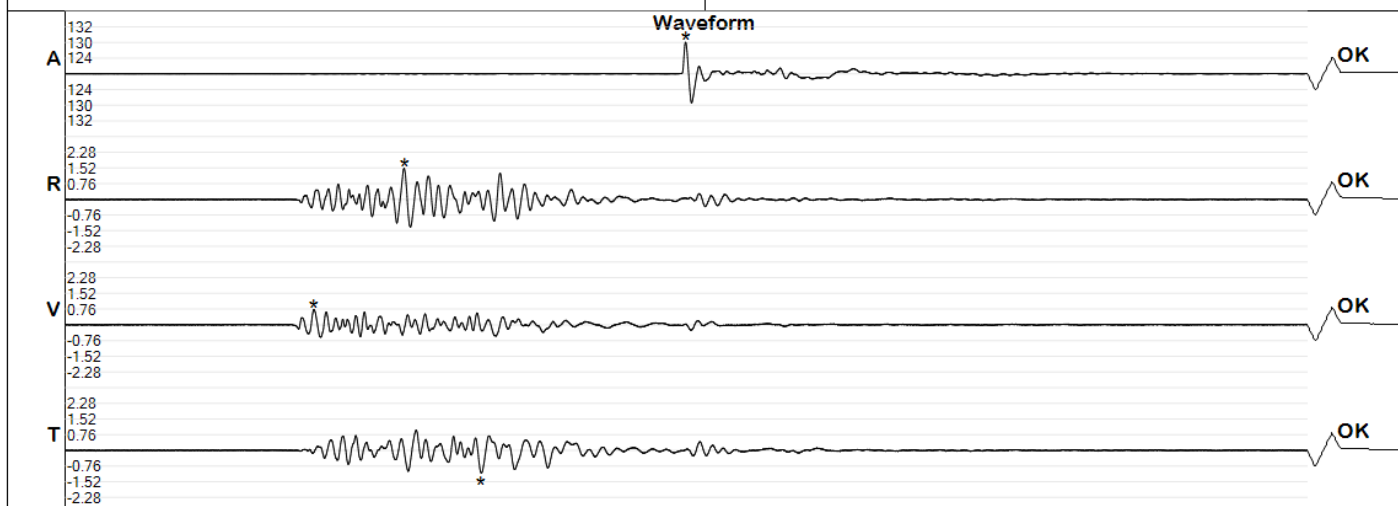
Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 0.905 mm/s Acoustic #1: 113.6 dB @ 13.5 Hz (1.291992 s) Radial #1: 0.881 mm/s @ 17.1 Hz (0.01757813 s) Vertical #1: 0.905 mm/s @ 56.9 Hz (0.01953125 s) Transverse #1: 0.706 mm/s @ 24.4 Hz (0.0009765625 s) VS #1: 1.34 mm/s (0.01953125 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds





Name of The Mine: Gouri Deep Opencast Mine, Ballarpur Area	Record: 11106202504121559410105.proeyt Number: 105 Seismograph: Mini-Seis III Pro 11106 Type of Record: Waveform Date: 12-04-2025 15:59:41 Duration: 5.00 Seconds Sample Rate: 1024 Pre-Trigger: 1 Seconds Seismic Trigger: 0.635 mm/s Acoustic Trigger: 130.0 dB Seismic Gain: 260.096 Acoustic Gain: 148.2 dB Voltage: 6.18
* Blast Detail *	
No. of Holes:- 32 Depth of Holes:- 7meter Dia- 160mm br*sp- 4.5m x 5.4m Charge Per Delay:- 62.5 Total Explosive Charged:- 2000 kg Location of Blast:- 2nd OB Bench Location of Instrument:- near Antargaon Village/zila parishad board Distance from Blast:- 400 meters	

Peaks and Frequencies	Graph Information
PPV Maximum (Geo #1): 1.52 mm/s Acoustic #1: 129.1 dB @ 10.4 Hz (1.498047 s) Radial #1: 1.52 mm/s @ 17.7 Hz (0.3652344 s) Vertical #1: 0.746 mm/s @ 19.0 Hz (0.0009765625 s) Transverse #1: 1.1 mm/s @ 15.5 Hz (0.6757813 s) VS #1: 1.53 mm/s (0.3652344 s) Last Calibration Date: 26-02-2025	Time Range: -0.999 s to 4 s, Intervals: 0.4999 Seconds





# **COAL INDIA LIMITED**



## **CORPORATE ENVIRONMENT POLICY**

**2018**



## **Environmental Policy Statement:**

*Coal India Limited(CIL) is committed to promote sustainable development by protecting the environment through integrated project planning & design, prevention / mitigation of pollution, conservation of natural resources, restoration of ecology & biodiversity, recycling/ proper disposal of wastes, addressing climate change and inclusive growth. It also aims to bringing awareness amongst its stakeholders for continual improvement in environmental performances following best practices.*

## **OBJECTIVES:**

### **Coal India Limited shall endeavor to:**

- 1. Plan & design projects with due consideration to environmental concerns for Sustainable Development.*
- 2. Conduct mining and associated operation in an environmentally responsible manner to comply with applicable laws and other requirements related to environmental aspects.*
- 3. Prevent pollution of surrounding habitation by continuous monitoring and adopting suitable measures for environment protection.*
- 4. Implement Environment Management Plans in all our mines /projects effectively to mitigate pollution, conservation of natural resources and restoration of ecology & biodiversity.*
- 5. Ensure compliance of all applicable Environmental Clearance& Forestry Clearance conditions and other statutory conditions issued by regulatory agencies.*
- 6. Recycling of wastes on the principle of REDUCE, REUSE and RECYCLE.*
- 7. Put special thrusts on efficient energy utilization / renewable energy as a measure to reduce carbon foot-print.*
- 8. Strive for continual improvement in our environmental performances by setting targets, measuring progress and taking corrective action.*
- 9. Taking measures to render productive post mining land use.*
- 10. Implementation of activities applicable to CIL arising out of International Conventions.*
- 11. Create environmental awareness among the employees and the local communities through pro-active communication and training.*

## **STRATEGIES FOR IMPLEMENTATION OF ENVIRONMENTAL POLICY:**

### **Back Ground:**

Coal India Limited subscribes to the view of Sustainable Development. Unless the environment can sustain all the developmental activities, any pursuit of development in isolation can cause irreparable damage to the ecosystem and associated environmental attributes. Keeping this view in mind, Coal India Limited attaches top priority towards sustainable development and approved its 'Corporate Environmental Policy' in December 1995, which was subsequently revised in 2012. However the present policy is the amendment of the 2012 Policy and is complimentary to the National Environmental Policy, 2006.

This modification in the present policy is the outcome of the experience gained since 2012 keeping in view the modifications / amendments made time to time in environmental policies and additional stipulation notified by MoEF&CC (Ministry of Environment, Forest& Climate Change) and other organisations concerning mine closure, reclamation of degraded land, environmental clearance etc. and also with the objective of revisiting the corporate policy.

This Policy has a vision of Green Mining and mission of 100% compliance of environmental statutes applicable to coal mining industry.

**Strategies:** Coal India adopts the strategies appended below for effective implementation:

### **1. MINE/ PROJECT PLANNING & DESIGN FOR SUSTAINABLE DEVELOPMENT:**

- a) Coal being a non-renewal energy source, extraction shall be planned prudently to meet national requirement in a planned way. The projects shall be designed on the principle of Sustainable Development with due consideration to environment, mine closure ,safety and aspirations of the stakeholders at the planning& design stage itself with due regard to mine closer plan.
- b) While preparing the Mining plan/project reports, the effort shall be to incorporate latest mining technologies and equipment's with optimal capacity, which are more environment friendly.



- c) All Mining Plan/ project reports will be provided with detailed provisions for ensuring environmental compliances.

## **2. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) & ENVIRONMENT MANAGEMENT PLAN (EMP)**

- a. All mine planning and design shall be environmentally acceptable and operation shall be carried out in such a way as to facilitate the compliance of stipulated environmental standards.
- b. EIA& EMP for all projects shall be formulated as per the approved ToR (Terms of Reference) and public consultations for obtaining Environmental Clearance (EC) from MoEF&CC. Similarly, in the existing projects needing enhancement of production capacities with or without increase in land, change of technology, renewal of lease and change in land use etc. fresh EC is required to be sought as per norms. The projects shall be operated after obtaining Consent to Establish (CTE)/Consent to Operate (CTO) from State Pollution Control Boards (SPCB).
- c. Detailed Mine Closure Plans shall be prepared for all existing and new mines as per the MoC (Ministry of Coal) guidelines.

## **3. COMPLIANCE OF THE STATUTORY REQUIREMENTS:**

The implementation of EMP and fulfillment of all other statutory requirements like conditions of EC, FC and consents to establish & operate, including timely submission of returns to statutory bodies and various agencies, are to be ensured at all levels.

## **4. MEASURES TO MITIGATE POLLUTION:**

### **a) Air Pollution:**

- i) Generation of dust is to be controlled at the source to the possible extent with necessary control measures during drilling, blasting, loading, unloading, CHP transfer points etc.
- ii) Deployment of eco-friendly mining technologies.
- iii) Dust generation is to be minimized along coal / waste transportation routes.
- iv) Mechanized transportation of coal to be encouraged.
- v) Green belt is to be created around the source of dust.

**b) Water pollution:**

- i) The mine water and other effluent shall be treated to ensure the discharge norms as per statute. The treated effluent shall be utilized to the extent possible with a view to achieve maximum water conservation.
- ii) Oil & grease from the effluent shall be removed by Oil & Grease Traps for proper disposal.

**c) Noise / ground vibration:**

- i) All measures to minimize noise pollution will be taken including maintenance of HEMM, equipment and provision of PPE where required.
- ii) Suitable controlled blasting techniques shall be followed to reduce ground vibration as well as noise pollution.

**d) Land reclamation:**

- i) Progressive and concurrent reclamation of mined out areas will be carried out as per approved EIA/EMP and Mine Closure Plan (MCP).
- ii) Slopes of external dumps are the important area to be suitably graded / terraced for effective reclamation and plantation.
- iii) Preservation of top soil is required for future use. Old as well as existing non-active dumps are to be technically and biologically reclaimed.
- iv) Monitoring of reclamation work of all opencast mines will be done through Satellite Surveillance. The outcome shall be put in the websites.

**e) Mine closure plans:**

Mine Closure Plan (MCP) shall be prepared for each mine. MCP are being delineated in two phases viz. progressive and final mine closure. Appropriate funds are set aside and deposited under a special Escrow fund every year as per MoC guidelines, to be utilized for proper and final mine closure.

For mines closed prior to issuance of MoC guidelines (i.e. 27<sup>th</sup> August, 2009) suitable action to be taken as per provisions of Mines Act 1952.

**f) Mine fire**

CIL shall endeavour to reduce occurrence of mine fire and subsidence due to mining activity. Monthly report shall be submitted to top management of the subsidiary and CIL and Quarterly to company board. Action Plan for mine fire control shall be implemented. Monitoring will be done through Satellite Surveillance/other suitable technology.



**g) Monitoring:**

- I. All receptors in and around the mining projects shall be monitored regularly to assess the efficacy of the pollution control / mitigation measures within stipulated standards.
- II. Effect of mining on the hydrology of the area will be monitored through measurement of water level and its quality of nearby wells and bore holes provided for this purpose. Conservation of water through rainwater harvesting shall be taken up.
- III. Area and Unit environmental cells shall have regular interaction with the people in and around the coal mines and other allied units on matters related to environment to take necessary and timely corrective actions.
- V. Environmental initiatives and monitoring through self and third party environment audit shall be conducted for generating useful data for taking corrective actions and mitigation measures as per guidelines.

**h) Other measures:**

- I. Special emphasis shall be given to undertake R&D related to various facets of coal mine environmental management in collaboration with Central Mine Planning and Design Institute (CMPDI) and other competent institutions.
- II. Besides ensuring statutory compliance, the CIL desires to set high standards and continual improvement.
- III. A number of mines and establishments of CIL are ISO 14001 certified and balance mines & establishments shall be ISO 14001 certified in phased manner.
- IV. CSR and R&R policies of CIL are to be incorporated for better planning and implementation of the socio-economic issues of coal mining areas.
- V. The coal mining environmental issues are complex and require multi-disciplinary approach to address the same. CIL will endeavor to enter into MoUs with expert agencies of repute to assist in environment issues and also help in capacity building of CIL executives.
- VI. CIL conduct periodical medical examination (PME) of its work force on routine basis in compliance of the requirement mining rules and regulation, additional test will be done as and when require.

**5. PRESERVATION OF BIO-DIVERSITY:**

- a) This will start from mine planning including technically and biologically reclamation of mined out areas in collaboration with State Forest Departments, Wild Life Divisions, NGOs etc. working in the fields of bio-diversity conservation.

- b) The selection of species for plantation shall be done in consultation with the local community to include the local species and their preferences, if any.

## **6. COAL BENEFICIATION / COAL WASHERIES:**

- a) For beneficiation of Runoff Mines (ROM) coal, washeries are being set up in a phased manner as per requirement and statutes.
- b) Slurry Management System (SMS) in all washeries shall be organized to ensure collection of fines, gainful utilization of rejects viz. power generation in Fluidized Bed Combustion (FBC) plants, selling to brick manufacturers or adopting other environmental friendly disposal options as feasible.
- c) The reject dumps and tailings shall be suitably handled to avoid any contamination.
- d) The effluent from washeries including tailings pond shall be suitably treated and reused to minimize water consumption with zero discharge concept.

## **7. CONSERVATION AND CLEAN TECHNOLOGY:**

- a) R&D projects shall be taken up to promote clean coal technology and improve the existing technologies.
- b) Energy saved is energy produced. Voluntary energy audit to be done for corrective action to reduce carbon footprint.
- c) Clean Development Mechanisms will be explored for reducing emission of Green House Gases by exploration, identification, preparation of projects reports for extraction of methane from Coal Bed, Coal Mine, Abandoned Mine, Ventilation Air, UG Coal Gasification, generation and utilization of renewable energy etc.

## **8. AWARENESS PROGRAMME:**

- a) Publicity to generate awareness through exchange & communication of information, newsletters and periodicals on environment, seminars, workshops, celebration of World Environment Day etc. at CIL / Subsidiary HQs, Areas & units to be undertaken. Regular training programs to be organized at various levels to inculcate awareness among employees.
- b) Courses on environmental and forestry laws and Environmental Protection Measures and the Corporate Policy to be organized for project executives for improving knowledge.
- c) CIL to give annual awards for achieving excellence in environment related



issues and activities. These awards will be in recognition for implementation of EMP, land reclamation and compliance of statutes, proper maintenance of air & water quality and noise level.

## **9. WASTE MANAGEMENT:**

CIL will undertake appropriate action for safe handling, storage and disposal of solid waste and hazardous waste generated from its industrial set up and colonies as per relevant rules. The biomedical waste generated from hospitals and dispensaries will be collected and disposed in appropriate facilities created as per statutes. E-waste management and handling of various types of e-waste generated in its operations will be done as per rule.

## **10. CORPORATE ENVIRONMENT RESPONSIBILITY:**

Corporate Environment Responsibility (CER) is mandatory for issuing environmental clearance for all the Greenfield and Brownfield projects as per directives of MoEFCC with effect from 1st May, 2018 (O.M.No.22-65/2017-IAIII dt. 19.06.2018). Budgetary provisions should be kept for implementation of provisions of CER for all the projects which will be submitted to MoEFCC for grant of environmental clearance.

## **11. INCORPORATION OF VIEWS OF STAKEHOLDERS:**

CIL will critically examine and incorporate the viewpoints of various stakeholders like PAPs/PAFs, Parliamentary Committees, Standing Sub-Committees, NGOs etc. CIL being a listed entity with stock exchange, it will also take into consideration the observations/viewpoints of international investors.

## **12.IMPLEMENTATION OF POLICY:**

- i) Manpower:** CIL shall have environmental divisions at decision making & operational levels in its structure. The environment department shall be set up and strengthened at:
  - i) CIL Corporate HQ at Kolkata
  - ii) Subsidiary HQs
  - iii) Areas / Units / Collieries / Workshops /Washeries
  - iv) CMPDI (HQ) & CMPDI Regional Institutes
- ii) Roles and Responsibilities:** The environmental department, set up at company HQs, Areas and Unit levels with appropriate manpower and resources, shall be responsible for implementation of policy, obtaining EC, FC, consent to establish

& operate, statutes requirements and undertaking mitigation measures besides preparation of action plan every year and also to intimate the status of implementation to the management regularly.

**iii) Annual Environment Budget (Revenue & Capital):** The Annual Environment Budget (revenue & capital) shall be prepared based on the action plan including monitoring of various bench marks and the budget utilization. The year wise funds earmarked for environmental protection measures shall be kept in separate accounts with Environmental cost code.

### **13. FLEXIBILITY TO THE SUBSIDIARY COMPANIES:**

CEP 2018 will be applicable for all subsidiaries of CIL. The subsidiary company Boards have been authorized to approve necessary modifications in CEP 2018 with reference to unique conditions prevailing at the concerned subsidiary.

### **REVIEW OF ENVIRONMENTAL POLICY:**

In view of the present fast changing social, economic and environmental scenario, this Policy shall be reviewed every 5 years to incorporate the changes in the legal, technical, environmental, economic and social inputs prevailing at that time. Whenever, there is change in National Environmental Policy or other National / State relevant policies, Acts etc, this Corporate Environmental Policy would be reviewed and suitably revised.

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सावंत (५७ रा. बुधगाव) यास अडीच हजार रुपयांची लाच घेताना लाचलुचपत विभागाच्या

Class V (A) & above

४ लोकमत नागपूर, रविवार, दि. २१ मार्च २०१५

**वेस्टर्न कोलफील्ड्स लिमिटेड**  
(कोल इंडिया लिमिटेडची सहायक कंपनी)

**सूचना**

वेस्टर्न कोलफील्ड्स लिमिटेड च्या बल्लारपूर क्षेत्रा अंतर्गत गौरी डीप विस्तारित खुली कोळसा खान (वांदीव उत्पादन क्षता ०.४० मिलियन टन प्रति वर्ष पासून ०.६० मिलियन टन प्रति वर्ष पर्यंत व एमएल क्षेत्र ३५६.११ हेक्टर क्षेत्रा मध्ये) साठी पर्यावरण व वन मंत्रालया द्वारे पत्र क्रमांक J-11015/179/2014-IA-II (M) दिनांक 13.03.2015 अनुसार पर्यावरण स्विकृती दिली आहे. पर्यावरण स्विकृतीच्या पत्राची प्रत महाराष्ट्र प्रदूषण नियंत्रण मंडळ याच्या कडे उपलब्ध आहे आणि पर्यावरण व वन मंत्रालयाच्या खाली दिलेल्या वेबसाईट वर पाहू शकता <http://envfor.nic.in>

**नोट्य रसीकांना मराठी नवीन वर्षाच्या हार्दीक शुभेच्छा**

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Building, Central Railway, Kingway, Nagpur-440001. From where tender form can be purchased. For complete details please visit Railway's website [www.cr.indianrailways.gov.in](http://www.cr.indianrailways.gov.in).

DRM (W), C.Rly, Nagpur

Dial 138 for Rail-related Suggestions/Complaints

**CENTRAL RAILWAY**

Dial 138 for Rail-related Suggestions

**Western Coalfields Limited**  
(A Subsidiary of Coal India Ltd.)

**NOTICE**

Environmental Clearance has been accorded for Expansion of Gouri Deep OCP (from 0.40 MTPA to 0.60 MTPA in ML area of 356.11ha) under Ballarpur Area of M/s Western Coalfields Limited, by Ministry of Environment & Forests vide letter no. J-11015/179/2014-IA-II (M) dated 13.03.2015 and a copy of the clearance letter is available with the Maharashtra Pollution Control Board and may also be seen at website of the Ministry of Environment & Forests (MOEF) at <http://envfor.nic.in>

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