स्टील अथॉरिटी ऑफ इंडिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
राउरकेला इस्पात संयंत्र
ROURKELA STEEL PLANT
बोलानी अयस्क खदान
BOLANI ORES MINES

Ref No: - CGM/B- 588

Date: 24.06.2025

To

Dy. Director General of Forests (Central),
Ministry of Environment, Forest and Climate Change,
Regional Office (EZ),
A/3, Chandersekharpur,
Bhubaneswar – 751023

Sub: Six monthly status of compliance to the conditions stipulated in the Environmental Clearance granted by MoEF&CC for 12 MTPA Iron Ore production from 5.10 sq. Miles ML vide letter no. J–11015/418/2008–IA.II (M) dated 21/12/2012, Amendment vide letter no. J–11015/418/2008–IA.II (M) dated 30/07/2020, dated 05/08/2021, dated 19/09/2022 and dated 13/09/2023 for the period of Oct'24-Mar'25.

Sir,

Please find enclosed herewith the Six monthly compliance report for the period **Oct'24-Mar'25** with respect to the conditions stipulated by GoI, MoEF&CC, New Delhi, in the Environmental Clearance grant order of Bolani Iron Ore Mines for the production of 12 MTPA Iron Ore from 5.10 sq Miles ML vide ministry's letter no. J–11015/418/2008–IA.II (M) dated 21/12/2012, Amendment vide letter no. J–11015/418/2008–IA.II (M) dated 30/07/2020, dated 05/08/2021, dated 19/09/2022 and dated 13/09/2023.

Thank you,

Yours faithfully,

24/06/25

Chief General Manager (Mines)
Bolani Ores Mines, RSP-SAIL

CGM (Mines), BOM
BOLANI

Encl: As above

Copy:

1. Director, IA Division, MoEF&CC, GOI, Indira Paryavaran Bhavan, Aliganj, Jor Bagh Road, New Delhi - 110 003.
2. The Member Secretary, State Pollution Control Board, Paribesh Bhawan, A/118, Nilkantha Naga, Unit – VIII, Bhubaneshwar – 751 012, Odisha

SIX-MONTHLY EC COMPLIANCE REPORT (5.10 ML)

FOR THE PERIOD OCT'2024-MAR'2025

EC Grant Order No:
J-11015/418/2008-IA.II (M) dated 21/12/2012,
Amendment dated.17/02/2014,
dated.30/07/2020, dated. 05/08/2021,
dated.19/09/2022,dated.13/09/2023
PERIOD: OCT'2024-MAR'2025

Name of Lessee: Bolani Iron Ore Mines
(5.10 ML, 1321.45 ha)

सेल SAIL

BOLANI ORES MINES
ROURKELA STEEL PLANT
M/S SAIL

1) **Environmental Clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as applicable.**

Compliance: Complied

The provisions of the Wildlife (Protection) Act, 1972 is not attracted to the project, as it is not located within any protected area or within the Eco-Sensitive Zone (ESZ) of any protected area.

2) **The project proponent shall obtain Consent to establish from the State Pollution Control Board, Orissa and effectively implement all the conditions stipulated therein.**

Compliance: Complied

Consent to Establish for 12 MTPA Iron Ore including excavation and dispatch up to to 3.0 MTPA iron ore dump fines from the existing fines dump/stacks and 0.5 MTPA of fresh iron ore from mines including installation of 06 nos. of mobile Crushing and Screening plants of 300 TPH, 01 nos. of Crushing and Screening plants of 600 TPH and 01 nos. of wet beneficiation plant of capacity 1600 TPH keeping overall capacity within 12 MTPA Iron Ore (ROM), has been obtained from the Odisha State Pollution Control Board(OSPCB) vide consent order No.2151/IND-II-CTE6456dated.14.02.2023 & No. 8815/IND-II-CTE-7319 dated 03.05.2025. All the conditions stipulated therein are under regular compliance.

3) **Forest Clearance for 73.20 ha of Safety Zone has not been obtained by the project proponent. This environmental clearance subject to the grant of forest clearance for diversion of 73.20 ha of safety zone within one year.**

Compliance: Complied

Forest clearance over 73.20 hectares of forest land coming with the Safety Zone has been obtained from MoEF & CC; vide F.No.8-17/1997-FC (vol.)dt.12/11/14. The copy of the same was enclosed with six monthly EC compliance report for the period Apr'14 to Sep'14, submitted vide our letter no BOM /ENV/HD-1401 Dt. 14.01.2015.

4) **The Company shall submit within 3 months their policy towards Corporate Environment Responsibility which should inter- alia provide for (i) Standard operating process/ process to bring into focus any infringement/ deviation/ violation of the environmental or forest norms/ conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders.**

Compliance: Complied

The policy towards Corporate Environment Responsibility and Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions has been set up along with System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or

shareholders or stakeholders were submitted to Ministry vide our letter no RMD/BOM/E&L/ 5.1 sq. Miles/EC/2013/91 dt.18-03-2013.

5) **The mining operation shall be restricted to above ground water table and it shall not intersect groundwater table. In case of working below the ground water table, Prior approval of the Ministry of Environment & Forest and Central Ground Water Authority shall be obtained for which a detailed hydrogeological study shall be carried out.**

Compliance: Complied

The mining operations in all 04(four) active quarries (F-area, G-area, D-area and Panposh quarry) are restricted to levels above ground water table, as on preparation of this report. The mine working is not intersecting with ground water table.

6) **Mitigation measures to control RSPM levels shall continue to be implemented and air quality data will also be collected during operation of the mines. The data so collected shall be analyzed to see the effectiveness of the mitigation measures implemented. Based on the same, additional safeguard measures, as may be required shall be implemented in the project.**

Compliance: Complied

Mitigation measures are regularly undertaken to control RSPM levels. Fugitive Air quality data is collected during operation of the mines. The analysis of air quality monitoring data during the period of Oct'24 to Mar'25 is enclosed in **Annexure-VIII**. The collected data are analyzed on periodical basis to see the effectiveness of the mitigation measures implemented. Based on the same, additional safeguard measures are planned and implemented.

Some additional safeguard measures planned during 2023-24 & 2024-25 and implemented as on date are as follows:

(1) Installation of fixed water sprinkling system (in addition to mobile water sprinklers) on F-area, G-area, D-area and Panposh area haul road, along approach road near loading plant premises.

(2) Increasing plying frequency of mobile water sprinklers on haul roads and approach roads.

(3) Additional fugitive dust emission control measures listed as follows:

   a. Dry Fog Dust Suppression system has been installed over entire Ore Crushing Plant and Washing Plant circuit including the Primary Feed Hopper of Mineral Handling Plant and loading plant.
   b. Installation of Dry fog dust suppression system at Loading plant is complete and in commissioning / trial operation stage.
   c. Rotating Fog Cannon has been installed at Lump Loading plant, Fines Loading Plant, Fines Complex & Secondary Stock Pile.
   d. Truck Mounted Mist cannon with a throw of 40-50m is being used in shovel pit.
   e. Two numbers additional water sprinklers (one no 28 KL + one no 09 KL) were procured in year 2022-23 and one no 09 KL was procured in year2023-24.
   f. Wheel Washing system has been installed at the exit gate of Fines Selling area.
   g. Photograph taken during monitoring are attached at **Annexure-II**.

Table – A

Name of quarry	Fugitive emission control facilities	Departmental / Contractual	Remarks
F & G Area	03 nos 28 KL Mobile Water Sprinkler	Departmental	9 trips per day on temporary haul roads and permanent haul roads
	Fixed Water Sprinkler of 800 Meter completed		Additional arrangement installed during 2023-24
D & Panposh Area	Water sprinkling arrangement in the In-pit mobile crushing and screening plant at Panposh	Contractual	contractual deployment
	02 nos 9 KL Mobile Water Sprinkler	Contractual	Contractual deployment with plying frequency 6 trips per day
	Fixed Water Sprinkler of 1450 Meter completed	Departmental	Additional arrangement installed during 2023-24

7) **The biological survey shall be repeated during October - December and mid -May month to see the existence of wildlife corridors, if any. Based on the same, necessary Wildlife Conservation Plan as may be required shall be prepared and implemented in consultation with the state Forest and Wildlife Department.**

Compliance: Complied

1. Necessary biological surveys were conducted by expert committees and Wild Life Experts and based on the same Site Specific Wildlife Conservation Plan (SSWCP) has been prepared and approved by the state Forest and Wildlife Department vide order no.4506/1WL(C) SSP-126/2012 dated 23.06.2014 with a total financial outlay of Rs.1676.41 lakhs.
2. The plan is being implemented in consultation with the State Forest and Wildlife Department.

8) **The biological survey shall also be undertaken to identify the trees with orchids, if any such trees, so identified shall be protected and if need be, these trees may be relocated.**

Compliance: Complied

1. Biological survey has been undertaken by engaging MoEF & CC empanelled consultant, M/s Grow Green Consortium Pvt. Ltd, for identification of orchids in and around ML areas and the report had been prepared. The Report based on survey including recommendations for preservation of the species has been submitted to Regional Office of MoEF & CC vides our letter no. BOM/ENV/HD-1707A dt.17.07.2019. The recommendations in regards to plantation of species etc. are under implementation in consultation with state forest department.

2. The trees with orchids are not felled till date, for mining purposes, while taking working permission for virgin areas , in consultation with DFO, Keonjhar, till date,

9) **The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations.**

Compliance: Complied

1. No water course and/or water resources are obstructed due to any mining operation as Mining operation is continuing on hill tops in every quarry. The same has been ensured during preparation of the mining plan so that no scope of any activities are planned which would obstruct water course and water resources. A safe distance of 30 meters have been left on both sides of all the streams & water course and/or water resources as safety zone where no mining activity has been planned . The safety zone plan has been authenticated by Divisional Forest Officer Keonjhar and Deputy Director of Mines, Joda.
2. In the hill slope portion of such seasonal water courses check-dams of temporary nature are constructed across to counteract erosion by reducing water flow velocity. In the downstream valley portion of these seasonal and perennial water courses, regular de-silting is done before monsoon season, to remove silts and debris.

10) **The top soil, if any, shall temporarily be stored at earmarked site only and should not be kept unutilized for a period more than three years. The topsoil should be used for land reclamation and plantation.**

Compliance: Complied

The top soil generated during the expansion of the mine pits to virgin areas is concurrently utilized for reclamation & rehabilitation of OB/reject dumps and nursery development and plantation activities. The details of top soil generated and utilization are mentioned in the following table:

Table - B

Year	Name of quarry	Top soil generated in cum	Top soil utilized	Top soil storage quantity
2023-24	F -area	Not generated	-	NIL
	G -area	15 cum	in G area OB dump	NIL
	D area	Not generated	-	NIL
	Panposh-area	Not generated	-	NIL
2024-25	F -area	Not generated	-	NIL
	G -area	35 cum	Concurrently used in G area OB dump stabilization	NIL
	D area	Not generated	-	NIL
	Panposh-area	Not generated	-	NIL

Quantity of top soil, un-utilized, if any, is stored temporarily at earmarked site and used in subsequent year.

11) **The Over Burden (OB) generated during the mining operation shall be stacked at earmarked dump sites(s) only and should not be kept active for long period. In critical areas, use of geo textiles shall be undertaken for stabilization of dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest and its Regional Office located at Bhubaneswar on six monthly-bases.**

Compliance: Complied

1. During amendment of EC during the year 2020, on the basis of exploration data, the mineral reserve was updated from 137.72 MT (with life of Mine 12 years) to 315 MT (Life of Mine 26 years) Further, the waste generation quantity (overburden + intercalated wastes + mineral rejects) has also been updated from 13.729 Million m^3 to 56.042 Million m^3 till the end of conceptual period. Accordingly, there was increase in the land use area under OB dumping from 38.02 ha to 64.81 ha till conceptual period with creation of some new OB dumps and in-pit dumping, at locations earmarked in the Modification of review of Mining Plans (MRMPs) duly approved by Indian Bureau of Mines (IBM) . As such, the waste (overburden + intercalated wastes + mineral rejects) generated during the mining operation in subsequent areas are being stacked at earmarked dump sites, as per MRMP approved by IBM.
2. Details of waste /OB practices are as follows :

- ✓ Two types of dumping practice is being followed at Bolani Iron Ore Mines:
  (a) External dumping of OB adjacent to respective quarry/pit
  (b) In-pit dumping / back filling of intercalated waste/mineral rejects inside the pit-limit
- ✓ Old dumps are not kept active for long period and after dumping is suspended, slope stabilization and rehabilitation activities are undertaken.
- ✓ Dumping is progress in active dumps, earmarked as per MRMPs.
- ✓ The details of such Waste dumps as per approved MRMP, as on 20.06.2024 , are as follows :

Name of Pit	No of OB dumps/ active /old	Area in ha	Name as per MRMP and Location (co-ordinates)	In-pit/ External	Temporary/ Permanent	Stabilization method, if any
F –area	1 – Old	2.48	WDF1 22° 5'29.71"N, 85°17'47.18"E	External	Permanent	Plantation Retaining wall
F –area	1 – Active	5.39	WDF 22° 5'19.95"N, 85°17'48.38"E	In-pit	Permanent	-
G –area	1 – Old	5.49	WDG 22° 6'5.89"N, 85°17'55.58"E	In-pit	Permanent	Terracing and laying Coir geotextile, Grassing and Plantation, Retaining wall
G-area	1-active	2.30	WDG1 22° 6'7.30"N,	In-pit	Temporary	Retaining wall

			85°18'10.31"E			
J-area	1-active	1.09	WD-J 22° 6'45.56"N, 85°18'34.12"E	External	Permanent	Retaining wall Proposed
D –Area	1-old	2.05	WD-D1 22° 7'15.21"N, 85°20'4.41"E	In-pit	Temporary	Grassing. In the current Plan Year it is being Re handled
D-Area	1-active	2.95	WD-D 22° 7'34.83"N 85°20'10.15"E	In-pit	Permanent	Retaining wall
Panposh	1-old	1.03	WD-P1 22° 6'36.09"N, 85°19'43.35"E	External	Permanent	Retaining wall, Plantation
Panposh	1-active	10.48	WD-P2 22° 6'50.40"N, 85°19'20.23"E	In-pit	Permanent	-
Panposh	1-active	4.07	WD-P 22° 6'37.92"N, 85°19'38.25"E	In-pit	Permanent	Retaining wall
E – area	1-active	1.30	WD-E 22° 7'15.61"N, 85°19'37.50"E	External	Permanent	-

1. Total number of OB dumps= 11.
2. Total number of Active OB dumps= 07.
3. Total number of stabilized OB dumps= 03.
4. In critical areas, use of geo textiles is being undertaken for stabilization of dump.
5. Monitoring and management of rehabilitated areas is being done until the vegetation is self-sustaining.
6. Total plantation area in reclaimed OB dumps – 10.8 Ha.
7. Total number of plantations in above – 17500.
8. Total Backfilled area-14.5 Ha.
9. Total Reclaimed backfilled area- 4.0 Ha.
10. Total no. of plants in Reclaimed backfilled area- 6,500.
11. Compliance status of above has been submitted.

Over Burden (OB) generated from the mines is dumped, as per approved Modification of review of Mining Plan, at earmarked sites only; the details of storage are as follows:

a. During 2023-24, an area of 30,000 sq. meter of G area OB dump is covered under Geo-textile for stabilization with grassing on slopes and plantation on terraces. Photographs enclosed at **Annexure-III**.
b. Over Burden (OB) generated from F-mining Area is dumped as backfilling inside the quarry in the southern part. 15000 trees have been planted to rehabilitate 4.0 hects of already backfilled area. Photographs enclosed at **Annexure-III**.
c. Over Burden (OB) generated from other mining Areas is dumped on the existing earmarked active OB dumps as per the Mining Plan (MRMP) approved by Indian Bureau of Mines, which

are adjacent to the respective quarries. Stabilization measures are undertaken over inactive dumps.

d. The active OB Dumps of D-area, G-Area and Panposh have been provided with Retaining Wall and necessary terracing for runoff management and slope stability respectively.
e. The Old OB Dumps of F-Area and D-area have been rehabilitated by Plantation. Plantation of around 25,000 nos plants have been completed as yet. Gap filling activities are also undertaken by suitable replacement of species with low growth rate.
f. In the identified critical areas such as Fines dump near DH-5 Location and Old Fines Dump near 600 TPH, an area of 11,000 sq meters has been covered with Geo Textiles. Vetiver slips plantation over an area of 5,000 sq. m has been done over Old Fines Dump for slope stabilization.
g. Seeds of native grass species of *Thysanolaena Maxima* and *Stylosanthes Hamata* have been broadcasted and native grasses have been planted over D-area OB dump slope for stabilization.
h. Plantation of over 2500 nos. of saplings over 1.0 ha of G-area OB dump had been undertaken.
i. The photographs of above measures are attached as **Annexure-III.**
j. Compliance status in this regard is submitted to the Ministry of Environment, Forest & Climate Change and its Regional Office located at Bhubaneswar in the six-monthly compliance reports.

12) **Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from mine working, soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted particularly after monsoon and maintained properly. Garland drain of appropriate size, gradient and length shall be constructed for both mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 Years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate settling of slit material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals.**

Compliance: Complied

Bolani Ores Mines, at regular interval, prepares run off management and mitigation plan in consultation with Regional Officer of Odisha State Pollution Control Board, State Forest department and expert agencies viz. Research Institutions such as NIT Rourkela, IIT(ISM) Dhanbad etc. with the objective to check runoff and arrest silt and prevent the direct discharge of runoff water from mining areas by providing retaining wall, check dam and siltation ponds.

Continuous efforts are made to retain, divert and settle the run offs / effluents by constructing necessary site-specific structures. Following are some examples:

1- Catch drain-siltation pond system has been provided along toe of slopes to collect sediment and silt from Runoff water from slopes to roads and low lying grounds and subsequent settling of the same for ground water re-charge and discharge clear water to natural water course.
2- The drains are being de-silted after monsoon and maintained properly as a part of monsoon preparation plan.
3- Garland drain of appropriate size, gradient and length has been constructed for both OB dumps and mine pit mine pit.

The details of catch drains and siltation pond system, in last 5 years, are mentioned in the following table:

Sl.	Year of construction	Location of catch drain	Description	Length of catch drain in meter	Location of connecting Siltation Pond	Use of water from the settling pond	Dimension of siltation pond
1	2018-19	Along toe of Fines stockpile and degraded land from 22° 5'48.80"N 85°19'47.14"Eto 22° 5'56.93"N 85°19'51.27"E	Catch drain from Mineral stockpiles of fines loading area (6.90 ML) along approach road to settling pond	280	22° 5'59.83"N 85°19'52.04" E (Outside ML, inside 6.90 ML)	discharge clear water to natural water course outside ML	3 settling ponds in series 45m x 30m 70m x 50m
2	2019-20	Around OB dump of G area 22° 6'2.94"N 85°17'54.06"E to 22° 6'1.68"N 85°18'7.67"E	From OB dump of G area , boulder lined earthen drain	430	85°18'7.58"E 22° 6'1.51"N	Discharge clear water to natural water course	8m x 8m
3	2021-22	Along approach road to Hill Top From 22° 6'12.91"N 85°19'24.71"E to 22° 6'17.86"N 85°19'30.79"E	From old mine working of B&C area , masonry drain along approach road near valley plant	250	85°19'36.37" E 22° 6'18.43"N	Recharge and settling of sediment and silt from water and discharge clear water to natural water course	3 settling ponds in series 60m x 20 m 80m x 60 m & 30 m x 30 m
4	2022-23	Along approach road to Hill Top From 22° 6'10.80"N 85°18'53.92"E to 22° 6'24.85"N 85°19'17.03"E	Earthen and masonry drain along approach road From D-zero to turning near Make-up water tank	830	85°19'36.37" E 22° 6'18.43"N	-do-	-do-
5	2024-25	Catchment of North of Panposh Quarry	Primary Settling Pond	70M x 40Mx3 M	22° 6'57.89"N 85°19'33.79"E	-do-	2 settling ponds in series
6	2024-25	Catchment of South of Panposh Quarry	Primary Settling Pond with spillway arrangement	60Mx35 Mx3M	22° 6'34.04"N 85°19'33.84"E	-do-	2 settling ponds in series
7	2024-25	Catchment of East of Panposh Quarry	Desilting of Settling Pond	80Mx60 Mx3M	22° 6'40.23"N 85°19'47.17"E	-do-	
8	2024-25	Maintenance of Checkdam/spillway arrangements	Maintenance of Checkdam/spill way arrangements		22° 7'5.06"N 85°19'44.60"E 22° 6'28.45"N 85°19'42.64"E		

Sl.	Year of construction	Location of catch drain	Description	Length of catch drain in meter	Location of connecting Siltation Pond	Use of water from the settling pond	Dimension of siltation pond
					22° 6'18.24"N 85°19'36.84"E		

Some of the photographs are attached as **Annexure-IV & VI.**

13) **Dimension of retaining wall at the toe of dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.**

Compliance: Complied

As per various recommendations of technical schemes approved by State Forest Department, observations by OSPCB and commitments submitted along with expert agency reports (prepared on the basis of Rainfall data), retaining walls and check weirs etc. are constructed with dimensions suitable to site specific requirements. Retaining walls were already erected before this EC period and details were submitted in earlier compliance reports. Additional retaining walls, garland drains and settling pits are regularly constructed at the toe of all dumps to prevent wash-off from OB dump slopes and mines & contamination of water. A summary of such additional retaining walls and check weirs undertaken in the post EC era by Bolani Ores Mines is enclosed as below:

Sl. No.	Year	Location	Co-ordinates	Retaining wall details
1.	2012-13	Around Old fines dump	From 85°19'47.66"E, 22° 6'13.45"N To 85°19'55.05"E, 22° 6'10.90"N	Retaining Boundary wall with garland drain 400m x 1.5 m x 0.5m
2.	2014-15	South of DH-5 Sub grade Fines Stockpile	From 85°19'35.54"E,22° 6'10.54"N To 85°19'40.95"E,22° 6'10.90"N	Retaining Wall with Garland Drain & Settling Pits 170m x 1.5m x 1.5m
3.	2014-15	North of DH-5 Sub grade Fines Stockpile	From 85°19'33.56"E 22° 6'15.40"N To 85°19'40.40"E,22° 6'14.89"N	Retaining Wall with Garland Drain & Settling Pits 280m x 1.5m x 1.5m
4.	2015-16	Panposh OB Dump in eastern side	From 85°19'31.61"E,22°6'35.88"N To 85°19'41.16"E,22° 6'37.76"N	RRM Retaining Wall with Garland Drain 600m x 1.5m x 1.0 m
5.	2015-16	Western side of Panposh	From	Loose Boulder retaining wall

Sl. No.	Year	Location	Co-ordinates	Retaining wall details
			85°19'42.13"E, 22°7'2.08"N To 85°19'25.63"E, 22° 6'54.56"N	500m x 1.5m x 1.0 m
6.	2018-19	D-area OB dump in the south east	From 85°20'7.40"E, 22° 7'18.69"N To 85°20'4.49"E, 22° 7'10.15"N	RRM retaining wall with Garland Drain 275 m x 1.3 m x 0.8m
7.	2019-20	Around Stockpile in Fines Loading plant	From 85°19'46.37"E, 22° 5'47.95"N to To 85°19'48.55"E, 22° 5'50.87"N	RRM retaining wall with Garland Drain 100 m x 1.5 m x 1.2 m
8.	2020-21	G-area OB Dump-2	From 85°18'8.84"E, 22° 6'3.97"N To 85°18'11.18"E' 22° 6'2.42"N	Loose Boulder Retaining Wall 85m x 1.5m x 1.0m
9.	2021-22	D-area OB Dump North east	From 85°20'7.39"E, 22° 7'38.02"N To 85°20'13.66"E, 22° 7'39.10"N	Loose Boulder retaining wall 200m x 1.0m x 1.0m
10.	2021-22	Around mineral Dump near 600TPH	From 85°19'48.49"E, 22° 6'14.07"N To 85°19'53.21"E, 22° 6'11.05"N	Retaining wall with garland drain 260m x 1.5 m x 0.5m

Some proposal of retaining walls around new OB dumps are under construction phase, as follows:

Sl. No.	Year	Location	Co-ordinates	Retaining wall details
1.	2024-25	Around J-area OB dump	From 85°18'34.41"E, 22° 6'52.00"N To 85°18'37.91"E, 22° 6'42.63"N	RCC Retaining wall with garland drain 630m x 1.5 m x 0.5m Under Construction
2.	2024-25	Around mineral stockpiles and fines dumps	Loading plant	Retaining Wall with Garland Drain & 03 nos Settling Pits 400m x 1.5m x 1.5m Completed

The photographs of Retaining walls and garland drains are attached herewith as **Annexure-III**.

14) **Plantation shall be raised in an area of 33.487 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around OB dumps, reclaimed area, mine benches, along the roads etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per hectare. Greenbelt shall be developed all along the mine lease areas in a phased manner and shall be completed within first five years.**

Compliance: Complied

1. Plantation has been raised in an area of 219.0 ha, **in excess of stipulated quantity** which includes 7.5m wide green belt in the safety zone around the mining lease and areas viz. OB dumps, reclaimed/backfilled area, mine benches, along the roads, degraded lands within ML, etc. in consultation with the local DFO / Forest Department. Technical schemes have been prepared in consultation with DFO Keonjhar and the same is being implemented.
2. Total Green Belt area= 329.20 Ha (The intermediate degraded forest land inside ML is considered as greenbelt)
3. Total area with natural preserved forests= 529.46 Ha.
4. Total safety zone area= 73.2 Ha.
5. Plantations carried out in safety zone= 11 Ha.
6. Number of Plantations carried out in safety zone= 8,000.
7. Native species have been planted such as Karanj, Mahaneem, Neem, Mango, Jackfruit, Krishnachura, Radhachura, Teak, Sal, Jamun, Tamarind, Aonla, etc.
8. Density of plantation in intermediate forest land = 2500 per Ha. However the same is siting specific as gap plantation in ANR 1600/Ha and 800/ha is also resorted where standing trees exist.
9. Greenbelt has been developed inside the mine lease area where ever gaps or vacant spaces were available.

   Year wise plantation of last 3 years is as below:

Year	Location	No of saplings	Area	Survival
2022-23	85°19'26.40"E, 22° 5'58.34"N (Rehabilitation of fines excavation site)	2000	0.75 ha	65%
2023-24	Casualty replacement in Safety zone near Kiriburu, Casualty replacement in plantation site near Kiriburu, Casualty replacement near B&C area plantation site,Safety zone near D-area, Near Centre fines, OB Dumps	9084	3.4 ha	97%
2024-25	G-area dump, Panposh, Casuality replacement near Debraj harting,	8965	4.0ha	90%

Some photographs of plantation area are attached herewith as **Annexure-V.**

15) **Effective safeguard measures such as Regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of particulate matter such as haul road, around crushing and screening plant, loading and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the**

Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

Compliance: complied

1. Regular and extensive water sprinkling are carried out in all areas prone to air/dust pollution and having high levels of particulate matter such as haul road, around crushing and screening plant, loading and unloading point and transfer points.
2. Extensive water sprinkling is carried out on haul roads

The list of existing measures to suppress the dust-by-dust suppression systems already installed in the operation is attached as follows:

Sl. No.	Location of critical points	Safeguard measures	Remarks
1.	Drilling Machines at all quarries	Drilling Machines at all quarries are fitted with dust extraction system	Wet Drilling is practiced in semi-mechanized sections of D and Panposh quarry along with F & G quarry
2.	Haul Roads of F & G approach road to Hopper	Fixed water sprinkling alongside haul road	The road is kept wet
3	Haul Roads of F & G quarry & dumping area	28 KL BEML water sprinklers	Frequency: Hourly in summer season, less frequent in rainy days
		Plantation along two sides of F-G area Haul Road	1000 nos plants have been planted along two sides of Haul Road
4	Approach Road from D-area Panposh up to 600TPH Plant	Installation of Fixed water sprinkler for 1450 meter completed in October 2024.	The road will be kept wet
3.	Haul Roads of D & Panposh & dumping area	Water sprinklers are provided contractually as per provision of ROM transportation contract	Frequency: Hourly in summer season, less frequent in Monsoon
		Plantation along two sides of D & Panposh area Haul Road	3000 nos plants have been planted along two sides of Haul Road
		Haulage roads are regularly maintained	Roads are graded to eliminate ruts and potholes.
4.	1600 TPH Primary Gyratory Crusher F area	Dry Fog Dust Suppression system with Annual Maintenance contract	It operates during Feeding of Ore to Hopper

Sl. No.	Location of critical points	Safeguard measures	Remarks
6	Ore Transportation from F & G Mining areas to Secondary Stock Pile / Ore Beneficiation Plan	Covered Conveyor system along with covering of Transfer points and Dust suppression system	There is no road transport from Hill Top Mining (F & G areas) till loading point
7.	Ore Beneficiation/ washing Plant	Dry Fog Dust suppression system at all Transfer points	All transfer points are covered
8.	Approach Road from Hill Top Mines	Dense Plantation alongside approach road to act as barrier to dust pollution	Around 50,000 plantations have been undertaken along both sides of 4000m approach road
		Water sprinkling by 12 KL mobile water sprinkler	Frequency: Hourly in summer season, less frequent in Monsoon
9.	Loading Plant areas	Fixed water system in front of 600TPH Haul Road	Fixed water sprinkling over 300 m has been provided along road side
		Provision of Rubber flaps along discharge chutes	Hanging Rubber flaps have been provided at discharge chutes to prevent fines becoming airborne
		Provision of 2 nos Roating Fog canons at Lump Loading plant and 2 nos Roating fog canons at Fines Loading plant	Completed in October 2024
10	Wagon Loading system	Covered Shuttle conveying system at Lump & Fines Loading plant to wagons	conveying system to wagons is covered to prevent fines becoming airborne
11.	600TPH Plant	Dry Fog Dust Suppression system	Dry Fog Dust Suppression system exist in the 600TPH Crushing & Screen plant
		Fixed water sprinkling system in fines dump side	Water sprinkling at Hopper of 600 TPH plant
12	Approach Roads, Township & Village Roads	Water sprinklers of 12 KL capacity and others on approach roads to Bolani	Frequency: Six Hourly in summer season, less frequent in Monsoon
		Deployment of vaccum sweep truck on Township & Village Roads	Vaccum sweep Truck deployed in August 2024
13	Work zone personal Dust	Provisions of dust masks to the persons all persons employed in work zone	Regular Use ensured by respective section In charges

Sl. No.	Location of critical points	Safeguard measures	Remarks
14	Fines Handling area	Contractual deployment mobile water sprinkling system, Frequency: 2-3 Hourly basis in dry season, less frequent in Monsoon	Deployment of Truck Mounted Mist Cannon of 50m Throw by material handling contractor// buyer though condition of contract is in process.
15	Contractual deployment of in-pit Screening plants	Contractual deployment of fixed water sprinkling system in the screening plant	Deployment of Truck Mounted Mist Cannon of 50m Throw by raising contractor though condition of contract is in process.
16	Secondary stockpile	2 nos of rotating fog canon have been installed	Completed in 2024

The monitoring report for the period is attached in Annexure - VIII. It can be observed that the data conform to the norms prescribed by the Central Pollution Control Board in this regard. Some of the photographs of above measures are attached herewith as **Annexure-I.**

16) **The project Authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.**

Compliance: Complied

1. The ground water recharge measures proposed in report prepared by the consultant, M/s KRG Rainwater Foundation, have been approved by CGWB Bhubaneswar vide their letter dated 26.12.2018.
2. Rain water harvesting ponds have been constructed in the mine lease area to collect rain water and promote ground water recharge.

The ground water recharge measures proposed in report of "Technical Feasibility Study on Rain Water Harvesting & Master Plan for Ground Water Recharges" prepared by the consultant, M/s KRG Rainwater Foundation, have been approved by CGWB Bhubaneswar vide their letter no. 5-22/ CGWA/ SER/2018-19-1306 Dt. 26.12.2018.

Sl. No.	Recharge Structure	Dimensions	Location	Present Status
1	Construction of De-Silting Cum Percolation Pond	Pond Dia - 80 m, d- 5m De-silting chamber Dia - 3 m, Depth - 3 m	Broad valley on eastern side of Kutcha road and Panposh OB dump	Completed
2	Recovery Well	Dia – 3m, Dep – 4 m		
3	Spring Box	Dia - 3 m, Depth - 3 m	across Panposh nallah besides Panposh OB dump	constructed
4	Linear Retaining Wall	L-175 m, W-1 m, H-1.2m weepholes Dia-40mm	Across valley around Panposh area	Completed
5	Linear Desilting Pond with De-silting pit	L-175 m, W-5m, D-2m		Completed

6	Settling Pond with RRM spillway	L-50m W-20m D-3m	Besides Project office	Completed
7	Settling Pond	L-60m W-20m D-3m	Near valley plant workshop	Completed
8	Mega Settling Pond	L-80 m, B-50m, D-2.25m	across Panposh Nallah near checkdam	Completed

Some of the photographs of above measures are attached herewith as **Annexure-VI.**

17) **Regular monitoring of ground water level and quality should be carried out in and around the mines lease by establishing a network of existing wells and installing new piezometers during the operation. The periodic monitoring (at least four times in a year: Pre- monsoon (April-May) monsoon (august), Post monsoon (November) and winter (January); once in each season) shall be carried out in consultation with the State Ground Water Board / Central Ground Water Authority and the data thus collected may be sent regularly to Ministry of Environment and Forests and its Regional Office, Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.**

Compliance: Complied

1. M/s Ecomen Pvt. Ltd has been awarded the job of Environmental Monitoring jobs which include ground water monitoring job, which is recognized by NABL.
2. Regular monitoring of ground water level and quality is carried out in and around Bolani Ores Mines from a network of existing wells and piezometers.
3. The data is collected four times a year.
4. The values are within permissible limits.

Regular monitoring of ground water level and quality is carried out in and around 5.10 ML of Bolani Ores Mines from a network of existing wells. The data is collected four times a year as directed and the same is regularly sent along with the six-monthly EC compliance reports to Ministry of Environment, Forest & Climate Change and its Regional Office, Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground Water Board.

The water quality monitoring data indicates no abnormalities or violations of the prescribed standards.

18) **The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water, if any, required for the project.**

Compliance: Complied

1. Necessary permission of competent authorities has been obtained for drawl of requisite quantity of surface water, required for the project.
2. Water Drawl agreement for extraction of the 7 cusec (for envisaged level of production) of surface water from Karo River and tributaries has been executed with Executive Engineer, Baitarini Division, Salapada vide agreement no.839 Dt.21.02.2025, with validity of 01 year.

3. The average water consumption during the period is 0.6 Cusec, which is within the permitted quantity.

19) **The safeguard measures as suggested by the Central Ground Water Board vide letter No. 21-4(231)/CGWA/SER/2010-1010 dated 11.06.2010 shall be effectively implemented.**

Compliance: Noted

No groundwater withdrawal is done. Safeguard measures as suggested by the Central Ground Water Board will be implemented in case of withdrawal of ground water.

20) **The project proponent shall practice Suitable rain water harvesting measures on long term basis and work out detailed scheme rain water harvesting in consultation with Central Ground Water Authority and submit a copy of the same to the Ministry of Environment & Forests and its Regional Office, Bhubaneswar.**

Compliance: Complied

1. No groundwater withdrawal is done.
2. Further, a study report has been prepared by engaging expert consultant M/s KRG Rainwater Foundation which was submitted to CGWA which has been approved vide letter no.: 5-22/ CGWA/ SER/2018-19-1306 Dt. 26.12.2018. The copy of the report was submitted to MoEF & CC in the compliance reports.
3. The site specific recommendations of the aforesaid approved report are implemented in form of impoundments and mega ponds for collecting rainwater during Monsoon.
4. As such seepage of the impounded water through fractured mother rocks and porous substrata cause recharge of groundwater.

21) **Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of Mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.**

Compliance: Complied

1. Regular emission monitoring of HEMM and Light vehicles deployed by BOM in Mining operations is done by Mechanical Maintenance section of BOM to ensure emission within norms.
2. Preventive Maintenance of all these HEMM & light vehicles is undertaken by Mechanical Maintenance section regularly to keep the vehicular emissions under control.
3. All the vehicles engaged in mining and transporting activity in the mine have Pollution under Control (PUC) certificate.
4. Transportation of Mineral from Hill Top to Dispatch point is done by covered conveyor belts. The ore is transported to various Steel Plants, through Railway wagons only.
5. Vehicles/Trucks carrying dump fines are weighed at in-house weigh bridges and the load is adjusted immediately if any discrepancy is found. Then, the vehicles are covered by tarpaulin before leaving the premises.

6. Covering of Trucks by tarpaulin is ensured by including a special condition in the auction contract which is followed strictly by the concerned Mining department with record keeping.
7. The list of vehicles engaged and their PUC details are mentioned as follows:

SL NO.	EQUIPMENT TYPE	AREA	EQUIPT. NO	MAKE	PUCC VALIDITY
1	Road sweeper	Mechanical	Od09v7220	Tata motors	25-06-2025
2	Explosive van	Mines	Od09c6302	Tata motors	11-10-2025
3	Explosive van	Mines	Od09v9850	Ashok leyland	30-12-2025
4	Diesel browser	Mines	Od09v2926	Ashok leyland	27-08-2025
5	Diesel browser	Mines	Up16bt8809	Ashok leyland	11-10-2025
6	Truck	Mechanical	Od09p1842	Mahindra	30-09-2025
7	Truck	Store	Od09v7507	Eicher	15-07-2025
8	Truck	Mechanical	Od09v5010	Mahindra	24-01-2025
9	Truck	Opp	Od09p3263	Tata motors	30-09-2025
10	Mist cannon truck	E&I	Od09p6495	Eicher	30-09-2025
11	Water tanker	Mines	Od09a2122	Ashok leyland	11-10-2025
12	Water tanker	Mines	Od09w7884	Ashok leyland	05-07-2025
13	Water tanker	Mines	Od09v9936	Tata motors	05-01-2026
14	Maint. Van	Mechanical	Or09q9263	Tata motors	11-10-2025
15	Ambulance	Hospital	Od09k3343	Tata motors	30-09-2025
16	Ambulance	Hospital	Od09aa9536	Tata motors	06-02-2025
17	School bus	Mines	Od09a0946	Tata motors	11-10-2025
18	Scorpio	Hr	Or09p7545	Mahindra	11-10-2025
19	Scorpio-s11	Cgm pool	Od09k6668	Mahindra	30-09-2025
20	Bolero jeep	Plant	Od09k3576	Mahindra	30-09-2025
21	Bolero jeep	Mines	Od09c2376	Mahindra	11-10-2025
22	Bolero jeep	Electrical	Od09c2375	Mahindra	11-10-2025
23	Bolero jeep	Mines	Od09c2374	Mahindra	11-10-2025
24	Bolero jeep	Cgm pool	Od09v1162	Mahindra	30-05-2026
25	Bolero camper	Survey	Od09c2371	Mahindra	11-10-2025
26	Bolero camper	Electrical	Od09c2372	Mahindra	11-10-2025
27	Bolero camper	Plant	Od09c2373	Mahindra	11-10-2025
28	Bolero camper	Plant	Od09k2575	Mahindra	30-09-2025
29	Bolero camper	Mechanical	Od09k2576	Mahindra	30-09-2025
30	Tata yodha camper	Mechanical	Od09w8346	Tata motors	05-07-2025
31	Tata yodha camper	Civil	Od09w8376	Tata motors	05-07-2025
32	Crane-6	Mechanical	Od09c0672	TIL	N/A
33	Crane-7	Mechanical	Od09k6541	ACE	N/A
34	Crane-8	Mechanical	No registration	Uttam construction	N/A

22) **No Blasting shall be carried out after the sunset. Blasting operation should be carried out only during the day time. Controlled Blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.**

Compliance: Complied

1. Blasting is not carried out after the sunset. Blasting is carried out once in a notified fixed interval (12:00 PM – 02:00 PM) of daytime only.
2. There is a special expert team under mining department overlooking blasting in mines and periodic conduction of blast related vibration studies. The team follows the practice of controlled blasting as per the expert recommendations and related statutes and stipulations of DGMS and the related permission orders.

23) **Drills shall either by operated with dust extractors or equipped with water injection system.**

Compliance: Complied

Drills are operated with dust extractors and equipped with water injection system. BOM has deployed 04 nos. of IDM 30 model Drill machines of Atlas Copco make in the Hilltop Mining areas for winning of ore. All the 04 drill machines are equipped with state-of-the-art, integrated Dry Dust collection and wet drilling systems. The photograph of the wet drilling is attached herewith in the **Annexure-I.**

24) **Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer point should also have efficient dust control arrangements. These should be properly maintained and operated.**

Compliance: Complied

Mineral handling areas are already covered under critical areas for the details of mitigative measures are already discussed under compliance condition no. 15 of this report. However, brief details are discussed here also.

1. Dry Fog Dust Suppression system has been installed over entire Ore Crushing, Primary Stock Pile and Washing Plant circuit including the Primary Feed Hopper of Mineral Handling Plant. And transfer points.
2. The ore processing plant of BOM keeps the entire dry fog dust suppression unit always well maintained through Annual Maintenance contracts and is always kept functional during plant operation.
3. Dry Fog Dust Suppression system has been installed in Loading and dispatch plant and the same is also well maintained through Annual Maintenance contracts by respective unit and is always kept functional during plant operation .
4. The photographs of such air pollution control measures were submitted in earlier compliance reports and are enclosed as **Annexure - I.**

5. Additional dust suppression measures are also installed within the mines is detailed in compliance status of **condition no. 15.**

25) **Sewage treatment plant should be installed for the colony. ETP should also be provided for the workshop and wastewater generated during mining operation.**

Sewage treatment plant in colony is in construction stage in the township. As such, individual septic tanks followed by soaking pits have been provided in all quarters and office locations. 2 nos. of ETPs (Oil and Grease catch traps) have been provided at mechanical workshops and equipment washing junctions, to collect and treat workshop effluent. As on date of preparation of report, the job of installation of Mechanical ETP at Bottom Garage Work shop has been Completed and installation at Work Shop of Machine Mining is under progress is in progress.

26) **Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.**

Compliance: Complied

1. Pre-placement medical examination and periodical medical examination of the workers engaged in the project is being carried out and records maintained.
2. Schedule of health examination of the workers has been drawn and is being followed accordingly.

The summary of medical examinations carried out during 2024-25, is as follows:

Contractual workers		Employees	
Pre-placement medical examination	Periodical medical examination	Pre-placement medical examination	Periodical medical examination
444 nos.	292 nos.	35 nos.	124 nos.

27) **Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.**

Compliance: Complied

1. In compliance to conditions of Forest Clearance grant order, no forest land is being used for housing of laborers. As such, the laborers engaged in the construction activity belong to nearby villages.
2. The housing of construction labour are allotted company's quarters in township as per availability where there is proper sanitation facilities and health care in company's hospital are provided to them

3. However, provision are made, as and when necessary, for the housing of construction workers adjacent to the construction sites, in non-forest lands, in the form of temporary structures removed after the completion of the project.

28) **The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna such as elephant, leopard, sloth bear, wolf, gaur, python etc. Spotted in the study area and contribute towards the cost of implementation of the plan and/ or Regional Wild life Management plan for conservation of flora and fauna so prepared by the State Government. The amount so contributed shall be included in the project cost. A copy of action plan may be submitted to the Ministry and its Regional Office, Bhubaneswar within three months.**

Compliance: Complied

The following precautionary measures have been adopted for conservation of Flora and Fauna at the project site is as follows:

1. A Site-Specific Wild Life Conservation plan has been prepared, approved and is being implemented in consultation with DFO Keonjhar. The plan has been approved by the State Forest and Wildlife Department vide order no 4506/1WL(C) SSP-126/2012 Dt.23.06.2014 with a total financial implication of Rs.1676.41 lakhs.
2. The necessary funds towards implementation of Regional Wild life management plan, i.e., an amount of Rs.5,68,22,350 (Five cores sixty-eight lakhs and twenty-two thousand, three hundred and fifty only) has been deposited in CAMPA on A/C No.-1585 for Regional Wild Life Management fund.
3. Necessary Infrastructural Supports are provided to local forest departments as and when required for the cause of Wild Life Conservation.
4. In compliance to Site-Specific Wild Life Conservation Plan, necessary steps were taken up to prevent forest fire and as a result during summer of 2024-25, there were no forest fire incidences inside the ML area.

29) **The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e. PM_{10} and NOx in the ambient air within the impact zone, peak particle velocity at 300 m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006- IA.II (M) dated 27.05.2009 issued by Ministry of Environment and Forest, which is available on the website of the Ministry www.envfor.nic.in, shall also be referred in this regard for the compliance.**

Compliance: Complied

The ambient monitoring locations and parameters are as follows:

AMBIENT AIR QUALITY MONITORING STATIONS				
SL. NO.	LOCATION	PARAMETERS MONITORED	ZONE	REMARKS
1	CISF Colony	PM10, PM2.5	CORE ZONE (5.10 ML)	CAAQMS (Online)
2	Campus Office	PM10, PM2.5,SOx, NOx	CORE ZONE (5.10 ML)	CAAQMS (Online)
3	JNRC	PM10, PM2.5	BUFFER/IMPACT ZONE (6.90 ML)	CAAQMS (Online)
4	Near Karo Bridge	PM10, PM2.5	BUFFER/IMPACT ZONE (6.90 ML)	CAAQMS (Online)
5	Bolani Village Community Centre	PM10, PM2.5, SO2, NOx & CO	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)
6	DAV Public School	PM10, PM2.5, SO2, NOx & CO	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)
7	Main Gate	PM10, PM2.5	CORE ZONE (5.10 ML)	AAQMS (Manual)
8	Bolani Mines Office Complex	PM10, PM2.5	CORE ZONE (5.10 ML)	AAQMS (Manual)
9	Limtur Village (Near Quarry-5)	PM10, PM2.5	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)
10	Karo Guest House	PM10, PM2.5	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)

1. The peak particle velocity were monitored in Jan -Feb 2024 at these following locations (at 300 m distance or within the nearest habitation):

   a. CISF Campus
   b. Bolani Townhip Near Laxhmi Mandir
   c. Bolani Townhip Near Recreation center
   d. Hill Top Campus office near G area
   e. Bolani Village, f. Balagoda Village
   g. W-hutting (Rail Siding)
   h. LimTur Village

2. The report of Peak Particle Velocity is enclosed in **Annexure - IX**
3. The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e. PM10) and NOx in the ambient air are monitored within the impact zone, within the nearest habitation which falls inside lease area.
4. 04 AAQ monitoring station are online type
5. Beneficiation plant is not operational and hence there no effluent generation. However, quality of Monsoon Runoff water was monitored [all parameters including TDS, DO, PH and Total Suspended Solids (TSS)] quarterly.
6. Surface water of various Streams in and around ML area is being monitored quarterly.
7. The monitored data is submitted along with six monthly compliance reports being uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain.

The Environment parameter monitoring Reports are enclosed as **Annexure-VIII**.

30) **A final mine closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in Advance of final mine closure for approval.**

Compliance: Noted for compliance

The 5.10 sq. miles ML is valid up to 09.04.2030. Review of Mining Plan (RMP) 2024-25 to has been approved vide RMP-2331/2024-25-IBM_RO_BBS dated.06.02.2025. SAIL, being a Govt. company, is expecting to get renewal of BOM from State Govt. beyond 2030.

31) **No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests and No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.**

Compliance: Noted and being complied

Amendment of Environmental Clearance for Change in product mix by including excavation and dispatch of iron ore fines from existing Old Fines Dumps up to 3.0 MTPA (from present 0.5 MTPA) and Modification of Mining parameters including updating of reserves and waste generation keeping total production within approved EC capacity of 12 MTPA under Para 7(ii) of EIA Notification 2006, has been granted vide. No. J-11015/418/2008-IA.II (M) Dt.30.07.2020 and subsequent EC amendment orders.

Further, amendment of extension of validity of EC dated 30.07.2020 has been granted vide. No. J-11015/418/2008-IA.II (M) Dt.05.08.2021 for one year along with permitting dispatch of 8.5 MTPA ROM Iron Ore from mines, 1.5 MTPA from fines dump by SAIL's Bolani Rly. Siding and dispatch of 0.5 MTPA from Iron Ore from Mines and 1.5 MTPA from fines dump by Public Sidings Bolani/Barbil or by Road keeping total production within approved EC Capacity 12 MTPA under Para 7(ii) of the EIA Notification 2006 at village Bolani, Tehsil- Barbil, District Keonjhar, Odisha. The validity of the same has been extended vide Amendment dated. 19.09.2022 and 13.09.2023.

Review of Mining Plan for the period 2025 to 2030 has been approved to include new areas of excavation with change in calendar plan of excavation of Ore and Overburden keeping overall ROM production capacity within 12.0 MTPA . However, all activities associated with amendment of EC will be commence only after obtaining prior approval from Ministry of Environment, Forests and Climate Change, Govt. of India. Necessary application has been submitted to MoEF & CC GoI, on approval of Review of Mining Plan (MRMP) 2025 to 2030

32) **At least four ambient air quality- monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e. PM_{10}), and NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.**

Compliance: Complied

Four ambient air quality- monitoring stations have been established in the core zone as well as in the Buffer/Impact zone for RSPM (for particulate matter with size less than 10 micron i.e. PM10), and gaseous monitoring. The revised locations of Air quality monitoring stations have been decided in consultation with State Pollution Control Board vide our letter no CGM/B-967 dt. 24/07/2024. The details of AAQ monitoring locations are provided, as discussed earlier in this report under condition xxix, as follows:-

AMBIENT AIR QUALITY MONITORING STATIONS				
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**ZONE**	**REMARKS**
1	CISF Colony	PM10, PM2.5	CORE ZONE (5.10 ML)	CAAQMS (Online)
2	Campus Office	PM10, PM2.5,SOx, NOx	CORE ZONE (5.10 ML)	CAAQMS (Online)
3	JNRC	PM10, PM2.5	BUFFER/IMPACT ZONE (6.90 ML)	CAAQMS (Online)
4	Near Karo Bridge	PM10, PM2.5	BUFFER/IMPACT ZONE (6.90 ML)	CAAQMS (Online)
5	Bolani Village Community Center	PM10, PM2.5, SO2, NOx & CO	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)
6	DAV Public School	PM10, PM2.5, SO2, NOx & CO	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)
7	Main Gate	PM10, PM2.5	CORE ZONE (5.10 ML)	AAQMS (Manual)
8	Bolani Mines Office Complex	PM10, PM2.5	CORE ZONE (5.10 ML)	AAQMS (Manual)
9	Limtur Village (Near Quarry-5)	PM10, PM2.5	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)
10	Karo Guest House	PM10, PM2.5	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)

33) **Industrial waste water (workshop and waste water from mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.**

Compliance: complied

1. The beneficiation plant is not operational, hence Industrial waste water was not there during 2023-24 and there is no discharge of industrial effluents from the ML area.
2. The water quality report of tailing pond seepage water and workshop effluent after treatment is within permissible limits.
3. 2 nos. of ETPs (Oil and Grease catch traps) have been provided at mechanical workshops and equipment washing junctions, to collect and treat workshop effluent.

4. As on date of preparation of report, the job of installation of Mechanical ETP at Bottom Garage Work shop has been Completed and installation at Work Shop of Machine Mining is under progress is in progress.

34) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
Compliance: Complied

1. Personnel working in dusty areas have been provided protective respiratory devices.
2. They are provided with training and information on safety and health aspects.

35) Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

Compliance: Complied

1. Occupational health surveillance program of the workers is being undertaken periodically.
2. Records are being maintained.

36) A separate environmental management cell with suitable qualified personnel should be set - up under the control of a Senior Executive, who will report directly to the Head of the Organization.

Compliance: Complied

Environment Management Section (EMS) works as a separate section under the Head of Environment & Lease section under direct control of Chief General Manager (Mines). The details of constitution are as follows:

Composition of Env Management section	Qualification
General Manager (Environment & Lease), Grade- E7	(1) MSc Tech Applied Geology (2) M Tech Environmental Sc. & Engineering
Sr. Manager (Mining-E&L), Grade- E4	(1) B Tech Mining
Mining Foreman , Grade-S6	(1) Diploma (Mining)
Mining Mate , Grade-S2	(2) Graduate (Mining Mate) (3) PG Diploma in Environmental sustainable development

Necessary proposal is under process for recruitment of multidisciplinary qualified personnel's for induction into environmental management section.

37) **The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.**

Compliance: Complied

1. Funds under Revenue budget is kept for jobs under repair and maintenance for jobs related to environmental protection measures in different operational areas.
2. Funds under Capex Budget (capital nature) is allotted on case to case basis for new addition - modification after following due process of AMR – Capex approval
3. Funds are not diverted for other purposes.
4. Year wise expenditure is being reported to Regional Office, Bhubaneswar in annual compliance reports.

38) **The project proponent shall submit six monthly report on the status of the compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environmental and Forests, its Regional Office, Bhubaneswar, the respective Zonal office of Central Pollution Control Board and State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forest, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.**

Compliance: Complied

1. Six monthly compliance reports on the status of implementation of environmental safeguards are being submitted to MoEF&CC, New Delhi, Regional Office –MoEF & CC, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.
2. Copy of the compliance report inclusive of Environmental Parameters Monitoring data is being uploaded to the SAIL web site i.e. www.sail.co.in.

Now the compliance report is being uploaded to designated portal

39) **A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestion/ representation has been received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent, The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Center and Collector's office/ Tehsildar's office for 30 days.**

Compliance: Complied

Copies of clearance letter were distributed amongst local bodies, from whom valuable suggestions/ representation/feedback has been received while processing the proposal.

40) **The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue 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 Boards and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of the this Ministry located Bhubaneswar.**

Compliance: Complied

Advertisements regarding grant of environmental clearance was published in Odiya daily SAMBADA, Bhubaneswar & Sambalpur Edition on date 27-12-2012 and Business Standard on date 27-12-2012. A copy of the same has been deposited with the authorities at Regional Office of the MoEF, Bhubaneswar.

7. **The Ministry or any other competent authority may alter /modify the above conditions or stipulate any further condition in the interest of environment protection.**

Compliance: Duly Noted.

The conditions will be complied, as and when stipulated.

8. **Failure to comply with any of the condition mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.**

Compliance: Duly noted for compliance

9. **The above condition will be enforced inter-alia, under the provisions of the Water (prevention & Control of Pollution) Act, 1974, the Air (prevention and control of pollution) Act, 1981, the Environment (protection) Act, 1986 and public liability Insurance Act, 1991 along with their amendments and rules made thereunder.**

Compliance: Duly noted for compliance

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

Compliance: Duly noted for compliance.

24/06/25

Chief General Manager (Mines)
Bolani Ores Mines, RSP, M/s SAIL

ADDITIONAL SPECIFIC CONDITIONS STIPULATED IN AMENDMENT OF EC VIDE NO: J-11015/418/2008-IA.II(M) DT.30.07.2020

i. **This amendment is valid for a period of one year and the same may be extended after the site visit or compliance monitoring by Regional Office, whichever is earlier.**

Compliance: Complied

EC was extended after the site visit

ii. **Fines from the tailing dam shall not be excavated during the monsoon period.**

Compliance: Agreed to Comply

Excavation of Fines from the tailing dam is not done during the monsoon period.

iii. **Mitigative measures proposed for excavation and transportation of mineral shall be complied with including moist and covered.**

Compliance: Complied

Following mitigative measures for air and water were undertaken during 2023 and 2024.

(A) For control of fugitive dust emission at source :

a. Mobile water sprinklers are deployed at site and dump surface was made moist before excavation
b. Mobile water sprinklers are deployed at fines handling areas for keeping the ground wet
c. Truck Mounted Mist cannon of 50m Throw was deployed at the site. Photographs of the equipment are enclosed in **Annexure-I.**

(B) For control of fugitive dust emission during transportation :

a. Covering of materials carrying vehicle with tarpaulin: All the mineral carrying trucks were covered. Conditions in this regard have been incorporated in all selling orders issued for carrying out excavation, stacking and transportation of dump fines.
b. Mobile water sprinklers are deployed on the transportation roads for keeping the transportation route all through the day

(C) For control of TSS in runoff from fines handing areas :

a. A mega settling pond of dimension 80m x 60m x 6m with 2 chambers has been erected at the runoff exit point from the fines dump areas to contain all the flow in any heaviest rainfall day with sufficient settling time before discharge of clear water. Further, during 2024-25, a primary settling pond is added to this existing system to enhance the capacity as well as effectiveness of the system.

iv. **The PP shall monitor the fugitive emissions by installing at least two AAQ monitoring stations along the transportation route.**

Compliance: Complied

1. 03 Nos. of AAQ monitoring stations have been installed along the dump fines transportation route. The locations of the AAQ monitoring stations are as follows:

Sl No	Location	Co-ordinates	Mode
1	Near exit point of Selling Site	85°19'26.23"E, 22° 5'39.29"N	Offline (Manual)
2	Near Karo Guest House	85°20'32.53"E, 22° 5'36.49"N	Offline (Manual)
3	Near Karo Bridge	85°21'9.80"E, 22° 6'14.21"N	Online CAAQMS

v. **The stripping ratio and total excavation for each year shall remain same as approved in the previous EC. Any change in the same is with prior approval of the Ministry.**

Compliance: Complied

There is no change in stripping ratio and total excavation from the planned quantity remains with the approved limit of Mining Plan and EC during this mining plan period.

21/06/25

Chief General Manager (Mines)
Bolani Ores Mines, RSP, M/s SAIL

A. **ADDITIONAL SPECIFIC CONDITIONS STIPULATED IN AMENDMENT OF EXTENSION OF EC VIDE NO: J-11015/418/2008-IA-II(M) DT.05.08.2021**

i. **This amendment will be valid for a period of one year from the date of issue of this EC and the same may be extended after the site visit or compliance monitoring by IRO, whichever is earlier.**

Compliance: complied

EC was extended after the site visit

ii. **The Project Proponent needs to monitor the air quality at the siding in terms of dust emission during the dispatch of fresh fines of 0.5 MTPA through road and the data needs to be submitted to the Ministry.**

Compliance: Complied

1. Air quality Monitoring at the railway siding is done regularly.
2. The report is submitted in six monthly compliance reports.

iii. **The Project Proponent shall ensure that there is no change in air quality at the road. Particle size analysis of the emissions that are likely to emerge from the dumps and storage at the site and railway sliding to be carried out.**

Compliance: Complied

A scientific study for Particle size analysis of the emissions from the dumps and storage at the site and railway sliding was conducted by IIT Kharagpur. The Study report was submitted to the Ministry, after which grant of EC was considered.

iv. **The Project Proponent shall also ensure that the dispatch by road should be as per the standard practice.**

Compliance: Being Complied

There is no road transportation of Iron ore from Mines, as yet. Only dump fines are dispatched on public Bolani – Barbil road (which are State Highway and PWD roads), which is temporary. As such, Road transport of dump fines does not pass through any sensitive location such as schools, hospitals etc. In this regard, a condition in auction contract/selling contract is being stipulated to follow all the standard practices applicable in the region.

24/06/25

Chief General Manager (Mines)
Bolani Ores Mines, RSP, M/s SAIL

जयदेव चट्टोपाध्याय/Joydev Chattopadhyay
मुख्य महाप्रबंधक (खान)/Chief General Manager (Mines)
सेल-आर.एस.पी-बोलानी अयस्क खदान
SAIL-RSP-Bolani Ores Mines
बोलानी-758037, क्योंझर, ओडीसा
Bolani-758 037, Keonjhar, Odisha

B. ADDITIONAL SPECIFIC CONDITIONS STIPULATED IN AMENDMENT OF EXTENSION OF EC VIDE NO: J-11015/418/2008-IA-II(M) DT.19.09.2022

i. The project proponent should restore the Mine lease area by planting with native species only.

Compliance: Complied

Plantation has been being raised on the degraded land inside the ML area as per the technically approved plan in consultation with DFO Keonjhar. The areas include 7.5m wide green belt in the safety zone around the mining lease and areas viz OB dumps, reclaimed/backfilled area, mine benches, along the roads, degraded lands within ML.

ii. The project proponent shall take additional measures to prevent the washout of fines during monsoon season. Project proponent shall also ensure that the desilting should be carried out at regular intervals.

Compliance: Complied

There is retaining boundary wall around fines dumps on one side and in the other side , networks of drains connected to a mega settling pond has been provided to manage the runoff generated from Fines handling areas during monsoon period. Regular desilting of the drains and settling ponds are done as a part of monsoon preparedness plan each year.

iii. Project Proponent shall conduct Bio-assay test of Karo River and Jhinkaria Nallah on Half-yearly basis and submit the status of quality of river to Ministry's IRO with six monthly compliance report.

Compliance: Complied

1. Bio-assay test of Karo River and Jhinkaria Nallah are undertaken periodically and result submitted to Ministry's IRO.
2. The Environment Lab. that has prepared the monitored data report is M/s S.K. Mitra Pvt. Ltd. which is recognized by NABL and MOEFCC.
3. The copy of the recent report is annexed in the six-monthly compliance report **(Annexure VIII)**.

iv. Project Proponent shall restrict seepage of water from tailing pond and plan of action shall be submitted to the Ministry's IRO and measure concentration of heavy metals regularly.

Compliance: Being Complied

1. Wet beneficiation is not operational due to which there is no discharge of tailings to tailing pond.
2. There was no seepage from Tailing Pond during 2024-25.
3. Wet beneficiation is proposed to be resumed shortly and one more earthen dam (dam no-1) is proposed to be constructed for settling of solids to prevent direct flow of tailings to outside. The

seepage if any through the dam will be collected and analyzed for presence of heavy metals and report will be submitted to Ministry's IRO.

v. **Hon'ble Supreme Court in an Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India & Ors vide its judgment dated 8th January, 2020 has directed the Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent".**

Compliance : Agreed to Comply

1. BOM agrees to undertake re-grassing the mining area and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Eco-restoration works are in progress in simultaneous to mining operation.
2. BOM has submitted a Supplementary Lease Deed to this effect to the Collector, Keonjhar for execution of above. The same is expected to be completed soon.

vi. **PP shall deploy only 40-50 tones covered trucks/dumper to reduce fleet size till railway siding.**

Compliance: Being Complied

There is no road transportation of Iron ore from Mines, as yet. Only dump fines are dispatched on road, which is temporary. Condition in auction contract/selling contract is being stipulated for use of 40-50 tonner covered trucks/wagons/ to reduce fleet size till railway siding.

vii. **PP shall deploy of at least 10 no's of fog cannon with adequate throw length for mitigation of fugitive dust on the haul road, storage yard, crushers, during handling at fines loading unit and transportation route in addition of already proposed Fugitive Dust Mitigation Measures implemented at BOM.**

Compliance:

The deployment of Fog/Mist canons at the mining and allied activities of Bolani Ores Mines is as follows:

Sl	Location	Status	No 's	Throw length	Year of commissioning
1	Rotating Fog canon at Fines stockpile of Lump Loading Plant (departmental)6.90 ML)	Installed	2	50m , 100m	2024
2	Rotating Fog canon at Fines Loading Plant (departmental)6.90 ML)	Installed	2	50m , 100m	2024
3	Rotating Fog canon at Secondary Stockpile (departmental)	Installed	2	50m	2023

4	Truck mounted mist Cannon vehicle of 50m throw for Mitigation of forest fire and fugitive dusts on approach road	Installed	1	50 m	2022
5	Truck / Trolley mounted Rotating Fog canon one each in-pit F-Area, G-area near shovel-dumper operation (departmental) and New Fines stacking Loading/Reclaimer	Proposed , procure ment in process	3	50m	Proposed to be completed in 2025-26
6	Rotating Fog canon Near Fines handling area during loading to dumpers and stacking	Will be ensured through condition in raising contract of D area and Panposh till procurement by BOM			
7	Rotating Fog canon at Panposh & D area (contractual) and in-pit crushing and screening units	Will be ensured through condition in auction/fines selling contract, till procurement by BOM			

For haul roads inside mines fixed and mobile sprinkling equipment's are deployed and for ore processing plant viz. hill top crushing plant dry fog dust suppression arrangements are deployed

viii. **No village road shall be used for transportation of mineral and no road transport route shall be adopted, which is passing through any sensitive location such as schools, hospitals etc.**

Compliance: Agreed to Comply

There is no road transportation of Iron ore from Mines, as yet. Only dump fines are dispatched on public Bolani-Barbil road (which are State Highway and PWD roads), which is temporary. As such, Road transport of dump fines does not pass through any sensitive location such as schools, hospitals etc. In this regard, **a** condition in auction contract/selling contract is being stipulated.

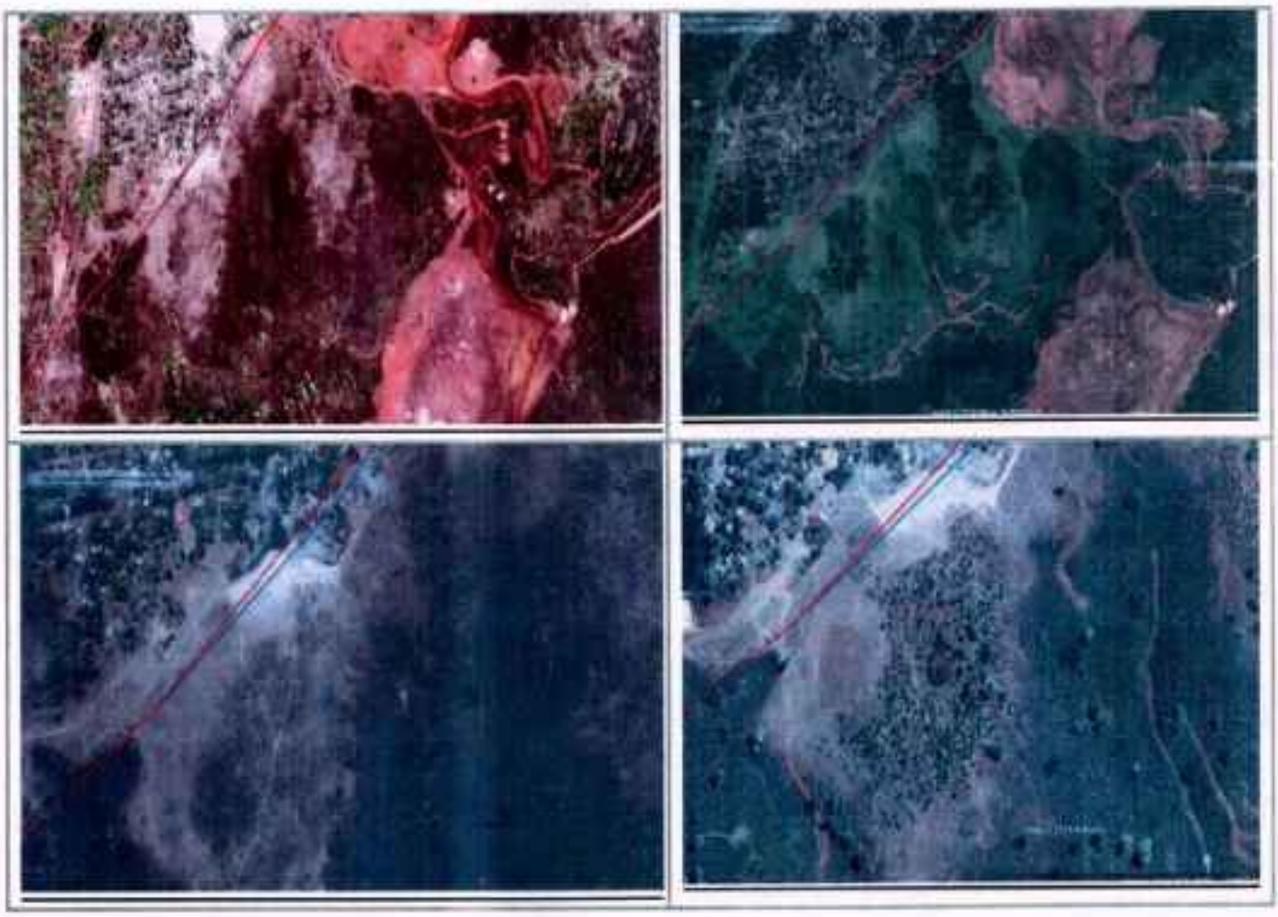
ix. **Yearly plantation scheme and three tire green belt development scheme to be done by PP and a record of which must be submitted to IRO with satellite imagery showing the progressive change in land use with six monthly compliance report.**

Compliance: Complied

Green belt has been the developed on empty degraded land inside the Mining Lease area.

1. Yearly plantation scheme and three tier green belt development scheme is being implemented by Project.
2. Record of yearly plantation with photographs and goggle imageries showing the progressive change in land use are submitted to IRO in six monthly compliance reports.

Some Google imageries are enclosed below, as follows:



The Google imageries shows the change in land use from degraded forest land to rehabilitated forest land (inside ML)

x. **All other terms and Conditions mentioned in earlier EC dated 21.12.2012, 17.02.2014, 30.07.2020 and 05.08.2021 shall remain unchanged.**

Compliance: Agreed to comply

29/06/25

Chief General Manager (Mines)
Bolani Ores Mines, RSP, M/s SAIL

जयदेव चट्टोपाध्याय/Joydev Chattopadhyay
मुख्य महाप्रबंधक (खान) / Chief General Manager (Mines)
बोल-आर.एस.पी-बोलानी अयस्क खदान
SAIL-RSP-Bolani Ores Mines
बोलानी-758037, क्योंझर, ओडिशा
Bolani-758 037, Keonjhar, Odisha

C. ADDITIONAL SPECIFIC CONDITIONS STIPULATED IN AMENDMENT OF EXTENSION OF EC VIDE NO: J-11015/418/2008-IA-II(M) DT.13.09.2023

1.1 **All other terms and conditions mentioned in the earlier EC dated 21.12.2012, 17.02.2014, 30.07.2020, 05.08.2021 and 19.08.2022 shall remain unchanged.**

Compliance: Duly noted.

2.1 **The Project Proponent shall monitor the air quality, noise level, soil quality, water quality, water level and ground vibration at the edge of the mine, near the village and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.**

Compliance:

Bolani Ores Mines monitors the air quality, soil quality, water quality, water level at the in and around of the mine (inside ML and outside ML), near the village and at other sensitive receptors through NABL accredited third party i.e., M/s Ecomen Mining Pvt. Ltd. The collected data are submitted in six monthly reports and quarterly to the Ministry's Regional Office.

3.1 **The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF & CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance reports.**

Compliance:

Roadshows and Badi-palla along with miking have been conducted in all villages and township during February-2025 for creating awareness on the ban of Single Use Plastic (SUP) among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP). The villagers and inhabitants who participated in the above program were informed that use of plastic and throwing away after single use is incredibly harmful to all living things, environment , humans and wildlife life as well as their habitats because plastic sticks around in the environment for ages, threatening wildlife and spreading toxins. The photographs are enclosed as **Annexure-VII.**

4.1 **The Project Proponent shall monitor the environmental quality of the land use before and after continuation of excavation and dispatch of dump fines.**

The total area occupied by dump fines is not vacated. A study by consultant will be taken up to monitor the environmental quality of the land use before and after excavation and dispatch of dump fines, once the total quantity is disposed and total area vacated .

Further, the environmental quality of the land use of the already vacated area before and after continuation of excavation and dispatch of dump fines is as follows:

(1) 0.5 ha of the area vacated due to disposal of dump fines is taken for plantation and 1500 saplings have been planted after fencing
(2) The run off from the area is routed to mega settling pond
(3) Natural regeneration of local grass species are coming up on the vacated areas

5.1 The Project Proponent shall ensure that the vehicles should not be overloaded. All the trucks should be properly covered during transportation of fines.

a. Overloading of the vehicles is prevented by deployment of excavators near weighbridges for adjustment of the load, before leaving the premises.
b. All the vehicles carrying ore are covered with tarpaulin, before leaving the premises, to prevent spillage and mitigate fugitive dust generation during transport.
c. Further, condition in auction / transportation contract is being stipulated for tarpaulin covering and to avoid overloading.

5.1 The Project Proponent shall regularly maintain the transport route for improvement of road capacity and to control the fugitive emissions during transportation and shall ensure that the transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and density.

There is no road transportation of Iron ore from Mines, as yet. Only dump fines are dispatched on road, which is temporary. Condition in auction contract/selling contract is being stipulated for use of 40-50 tonner covered trucks/wagons/ to reduce fleet size thereby causing less impact to the transport route and traffic congestion as per IRC Guidelines with respect to complying with traffic congestion and density. A condition in the dump fines selling/auction contract is included for maintenance of the transportation route, required if any and control of fugitive dust.

21/06/25

Chief General Manager (Mines)
Bolani Ores Mines, RSP, M/s SAIL

जयदेव चट्टोपाध्याय/Joydev Chattopadhyay
मुख्य महाप्रबंधक (खान)/Chief General Manager (Mines)
सेल-आर एस पी-बोलानी अयस्क खदान
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ANNEXURE-I

PHOTOGRAPHS SHOWING DIFFERENT AIR POLLUTION CONTROL MEASURES IMPLEMENTED

Drill Machine with Wet Drilling Facility Deployed at F and G-Area

Drill Machine with Wet Drilling Facility Deployed at D and Panposh Area

28 KL Mobile Water Sprinkler Deployed at F and G Area Haul Road

Fixed Sprinkler Installed at Permanent Haul Road of FandG Area

Fixed Sprinkler Installed at Permanent Haul Road of D and Panposh Area

DFDS Installed at Feed Hopper of 1600 TPH Plant

Rotating Fog Canon Installed at SSP

Fixed Sprinkler Installed at Roads Around Loading Plant

Covering of Mineral Transporting Truck by Tarpaulin

Rotating Fog Canon Installed at Lump Loading Plant

Truck Mounted Mist Canon Deployed at Near Fines Stacker

Covered conveyors from Mines till dispatch point

Wheel Washing System Installed at Exit Gate of Fines Selling Area

Road Sweeper Machine Deployed at Bolani Township Area

9 KL Mobile Water Tanker Deployed at Office Area

ANNEXURE-II

PHOTOGRAPHS SHOWING DIFFERENT ENVIRONMENTAL MONITORING ACTIVITIES

Electronic Display Board Installed at Mines Entry Gate

AAQ Monitoring at Mines Main Gate

AAQ Monitoring at Township nursery near Residential Area

Fugitive Monitoring at F-Quarry near Feed Hopper

Fugitive Monitoring at Haul Road of D and Panposh Area near Environment Laboratory

Fugitive Monitoring at Lump loading plant

Fugitive Monitoring at Fines handling site

CAAQMS at CISF Colony(Core Zone of 5.10ML

CAAQMS Near Karo Bridge(BUFFER/IMPACT Zone of 5.10 ML

Collection of Water Sample from River Karo

Collection of Water Sample from Panposh Nalla Near Exit Point 5.10ML

Collection of Sample for Half-Yearly Bio-Assay Test

Measurement Flow Rate of Karo River During Monsoon

Measurement of Ground Water level at Bolani Village

Weather Station installed at DAV Public School

Continuous Online Noise Station installed at DAV Public School

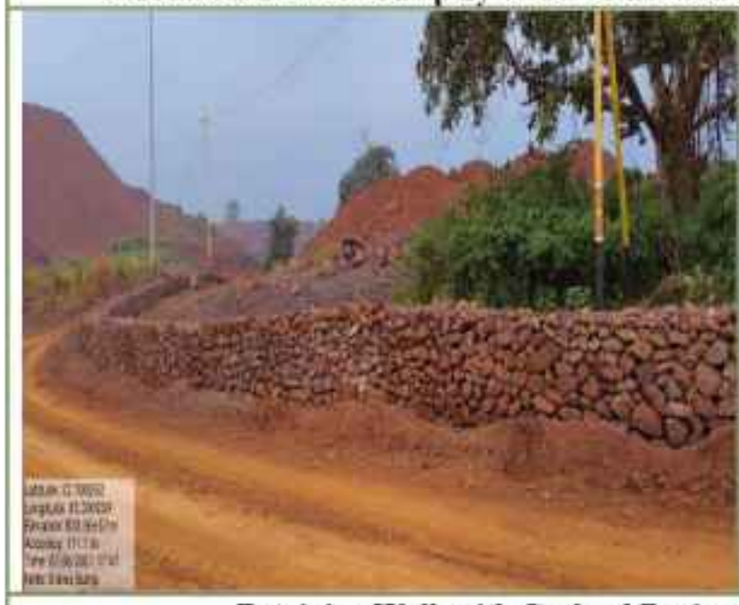
Ground Vibration Monitoring at F-Area

Field visit for Comprehensive Runoff Management Study by IIT-ISM Dhanbad

ANNEXURE-III

PHOTOGRAPHS SHOWING DIFFERENT OB DUMP/STOCK PILES MANAGEMENT MEASURES IMPLEMENTED

Stabilization of OB Dump by Geo-Textile Coir-Matting , Grassing and Plantation at G-Area



Retaining Wall with Garland Drain around Active OB Dump of G- Area

Stabilization of OB Dump by Plantation at F-Quarry

Stabilization of OB Dump by Grassing at Panposh Area with Provision of Retaining Wall and Garland Drain

Retaining Wall around Active OB Dump of Panposh Area

Retaining Wall with Garland Drain around Active OB Dump of D- Area

Retaining wall - garland drain system around stabilized fines dumps of valley plant area

Plantation of Vetiver Grass on Vertical Slope of Fines Dump

ANNEXURE-IV

PHOTOGRAPHS SHOWING DIFFERENT WATER POLLUTION CONTROL MEASURES IMPLEMENTED

Check Dam Along Strom Drain Near Feed Hopper

Series Check Dam on Road to Mines

North of Panposh Quarry Primary Settling Pond with spillway arrangement

Catchment of South of Panposh Quarry Primary Settling Pond with spillway arrangement

Catchment of North of Panposh Quarry Primary Settling Pond

Series Check Dam along Balagoda Nalla

Contour bundh along Rehabilitated B and C Area

Contour bundh along Hill Slopes Near Valley Plant

ETP for treatment of workshop effluent treatment

CHECKDAMS OBSTRUCTING SILT ALONG SEASONAL GULLIES

Settling Pits along with diverting drains to Handle surface Runoff from Lump Loading Plant

ANNEXURE-V

PHOTOGRAPHS SHOWING PLANTATION CARRIEDOUT WITHIN ML AREA

Creating awareness programmes among students for plantation

Development of Saplings in-house Mines Nursery

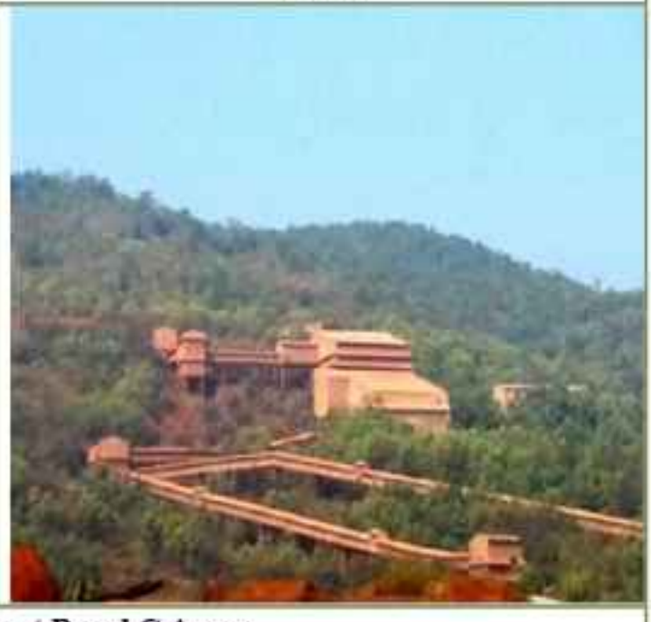
Sapling Distribution to Local Inhabitants Through In-House Nursery

Plantation on Backfilled portion of F-area

Drought Hardy plantation on Rehabilitated D-Area OB dump

Plantation on Degraded Lands inside Lease by OFDC

15 year old plantation along approach road to Mines



Rehabilitation of Old Mined out B and C Areas

Plantation Over F-Area OB Dump

Plantation Over Degraded Forest Land

Plantation in Safety Zone Area

Plantation Over Degraded Forest Land to the South of G Area

ANNEXURE-VI

PHOTOGRAPHS SHOWING SETTLING PITS/CHECKDAMS CREATED TO CONTAIN SURFACE RUNOFF

Mega settling cum Rainwater harvesting pond near Bolani Police Station at exit point of runoff

Mega settling cum Rainwater harvesting pond created at Panposh East

Mega settling cum Rainwater harvesting pond at North of Panposh Quarry at exit point of runoff

Mega settling cum Rainwater harvesting pond at the bottom of hill slope/quarry areas , at exit point of runoff

Mega settling cum Rainwater harvesting pond created at fines complex area at the exit point of runoff

Catchment of South of Panposh Quarry Primary Settling Pond with spillway arrangement

Catchment of North of Panposh Quarry Primary Settling Pond

Mega settling cum Rainwater harvesting pond at South of Panposh Quarry at exit point of runoff

Check dams along Balagoda Seasonal Nalla

Seasonal storage Pond with Check dam at valley plant area to control suspended solid in runoff

Check dams along Chapua Nalla

Seasonal storage Pond with Check dam at Jhinkaria-Chapua Junction to control suspended solid in runoff and let clear water over flow	**Seasonal storage Pond with Check dam at Jhinkaria to control suspended solid in runoff and let clear water over flow**

ANNEXURE-VII

ROADSHOWS AND BADI-PALLA ALONG WITH MIKING CONDUCTED DURING JAN-MAR 2025 FOR CREATING AWARENESS ON THE BAN OF SINGLE USE PLASTIC (SUP) and FOREST FIRE

Creating Awareness through Miking and Distribution of Leaflet for Forest Fire

Creating Awareness through Badipala in OMC Harting for Forest Fire

Creating Awareness through Badipala in Tatiba Area for Forest Fire

Creating Awareness Program through Miking and Distribution of Leaflet for Single Use Plastic

ANNEXURE-VIII

ANALYSIS OF AIR QUALITY MONITORING DATA , BIO-ASSAY REPORT DURING THE PERIOD OF OCT'24 TO MAR'25

SAIL BOLANI ORES MINES(RSP)

ENVIRONMENTAL MONITORING

REPORT

OCTOBER 2024

Presented By

Ecomen Mining Pvt.Ltd

1.0 PREAMBLE

Steel Authority of India Limited (***hereinafter termed as SAIL***), is a central public sector undertaking under the ownership of Ministry of Steel, Govt. of India has engaged M/s Ecomen Mining Pvt. Ltd., Lucknow, U.P. for carrying out various **Environmental Monitoring and Analysis Work** in its Bolani Ores Mines –RSP located in the district of Keonjhar.

M/s Ecomen Mining Pvt. Ltd. has obtained MoEF & CC Recognition, NABL Accreditation and SPCB, Odisha empanelment for its laboratory division and also a NABET Accredited consultant to carry out EIA/EMP Report for various sectors like Mining, Mineral Beneficiation, Coal Washery, Thermal Power Plant, Metallurgical Industry and Infrastructure & Building Projects etc.

Work Order issued by Bolani Ores Mines-RSP-SAIL vide No-CC/REV/284/2023-24 dated.11.01.2024 for Environmental Monitoring & Analysis Work includes monitoring & analysis of Air Environment, Water Environment, Land Environment such as Ambient Air Quality, Work Zone Air Quality, Water Quality, Waste Water Quality, Vehicular Emission and Soil Quality. This report presents the Environmental monitoring data collected from the core and buffer zone of Bolani Ores Mines in respect of following Environmental attributes during '**October-2024**' in the given frequency. Further, in compliance of condition no 6 (vi) of the EC Grant order vide J/11015/418/2008-IA.II(M) dated. 21.12.2012 and condition no 7 A(iii) of EC Grant order vide J/11015/396/2008-IA.II(M) dated. 21.12.2012the analysis of air quality monitoring data is done in this report with the objective to see the effectiveness of the mitigative measures already implemented.

Scope of the Work

The scope of work as per the work order for FY-2024-25 is as follows:

Table No. 1.1: Scope of Work

Sl. No.	Particulates	Frequency of monitoring	No. of Stations
1.	Sampling & Analyses for Ambient Air Quality(AAQ) for 5 Parameters i.e. PM 10, PM 2.5, SO_2,NO_x & CO	Daily	04
2.	Sampling & Analyses for Ambient Air Quality (AAQ) for 2 Parameters i.e. PM 10, PM 2.5	Daily	02
3.	Sampling & Analyses of Fugitive dust/Emission (SPM & RSPM)	Daily	10
4.	Sampling & Analyses of Surface/ effluent/ drinking water Quality for 21 parameter	Monthly	08
5.	Sampling and Analyses of ground water quality for 21 parameters	Quarterly	03
6.	Sampling and Analyses of Soil Samples for specified 9 parameters	Yearly	06
7.	Monitoring of weather/meteorological Parameters and continuous generation of data daily round the year by	Daily	01

	establishing online station round the clock throughout the Year		
8.	Smoke Density Monitoring of Vehicular Exhaust	Annually	09
9.	Ground water level Monitoring	Quarterly	03
10.	Nallah/River Flow rate Monitoring	Monthly	03

2.0 DETAILS OF MONITORING/SAMPLING STATIONS:

To carry out the Environmental Data Generation program, ECOMEN in due consultation with SAIL has identified different locations to collect the samples for Air & Water Environment in and around the mining lease area. The details of stations identified are as follows. The details of locations identified for monitoring different environmental parameters are given in the subsequent sections.

2.1 Ambient Air Quality (A)

The prime objective of the ambient air quality study is to establish the existing ambient air quality in and around the mining lease area. The existing ambient air quality was monitored at six (6) locations. Out of six (06) locations, monitoring was carried out for Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$), Sulphur Dioxide (SO_2), Oxides of Nitrogen (NO_x) as (NO_2) and Carbon Monoxide (CO) at (4) Location and monitoring of Particulate Matter (PM_{10}) and Particulate Matter ($PM_{2.5}$) was carried out at the rest two (2) Locations as per the guidelines stipulated by Central Pollution Control Board. The locations are as given below.

Table No. 2.1: Details of AAQ Monitoring Stations

Sl. No.	Station Details	ML	Frequency	Station Code	GPS Coordinates	
					Latitude	Longitude
Ambient Air Quality (AAQ) for 5 Parameters i.e. PM_{10}, $PM_{2.5}$, SO_2, NOx & CO						
1	Bolani Village Community Center	6.90	Daily	A1	22°5'34.13"N	85°19'33.43"E
2	DAV Public School	6.90		A2	22°7'7.37"N	85°20'16.61"E
3	Main Gate	5.10		A3	22°6'18.18"N	85°19'47.27"E
4	Bolani Mines Office complex	5.10		A4	22°6'23.84"N	85°19'45.40"E
Ambient Air Quality (AAQ) for 2 Parameters i.e. PM_{10}, $PM_{2.5}$						
5	Limtur Village	6.90		A5	22°7'35.14"N	85°21'10.46"E
6	Karo Guest House	6.90		A6	22°05'36.38"N	85°20'32.38"E

2.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring (F)

To assess the level of fugitive dust due to mining and allied activities, ten (10) monitoring stations were selected within the lease considering the activity area. Fugitive emissions monitoring was carried out on Daily Basis. The locations are as given below.

Table No. 2.2: Details of Fugitive Emission Monitoring Stations

Sl. No.	Station Details	ML	Frequency	Station Code	GPS Coordinates	
					Latitude	Longitude
1	Panposh	5.10	Daily	F1	22°6'41.46"N	85°19'41.60"E
2	D Area	5.10		F2	22°07'19.78"N	85°20'5.70"E
3	F Area	5.10		F3	22°05'45.19"N	85°18'21.95"E
4	G Area	5.10		F4	22°06'3.88"N	85°18'8.22"E
5	Lump Loading Point (near 600TPH)	6.90		F5	22°06'18.79"N	85°19'54.78"E
6	Fines Loading Plant	6.90		F6	22°05'51.12"N	85°19'45.79"E
7	Dump Fines handling route	6.90		F7	22°5'39.31"N	85°19'26.29"E
8	SSP	5.10		F8	22°06'13.80"N	85°19'12.52"E
9	Dump Fines Handling Site	5.10		F9	22°06'09.94"N	85°19'30.61"E
10	Mn Quarry	6.90		F10	22°07'23.56"N	85°21'8.86"E

2.3 Surface/Effluent/Drinking Water Quality:

In order to assess the quality of surface/effluent/drinking water, Eight (8) locations were identified in and around the ML area. Out of eight (8) locations, surface water was taken from four (4) locations, drinking water was taken from two (2) locations and effluent water was taken from two (2) locations. One grab sample was collected from each location in the month and was analyzed for 21 parameters as stipulated in the scope of work. The details of the locations are as follows:

Table No. 2.3: Details of Surface/Effluent/Drinking Water Quality Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
Surface Water Quality				
Panposh Nallah	Monthly Once	SWQ-1	22°6'31.68"N	85°19'34.41"E
Karo Near Lease Boundary		SWQ-2	22°7'26.27" N	85°21'52.95"E

Karo River Intake		SWQ-3	22°5.13.02' N	85°19'57.88"E
Jhikaria nallah before joining Karo		SWQ-4	22°5'22.50" N	85°19'10.05"E
Drinking Water Quality				
Mount Club Tap Water	Monthly Once	DW-1	22°6'56.24" N	85°19'58.21"E
Karo Guest House Tap Water		DW-2	22°5'36.68" N	85°20'32.09"E
Effluent Waste Water				
Oil Catch Pit Water Bottom Garage	Monthly Once	EWW-1	22°6'27.11" N	85°19'37.62"E
Oil Catch pit water G-Area		EWW-2	22°6'1.83"N	85°18'24.16"E

2.4 Ground Water Quality (GWQ)

In order to assess the quality of ground water, three (3) locations were identified in and around the mining lease area. One grab sample is collected from each location quarterly and analyzed for 21 parameters as stipulated in the scope of work. The details of the locations are as follows:

Table No. 2.4: Details of Ground Water Quality Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
Ground Water Quality				
Bolani Village-Well water	Quarterly	GWQ-1	22° 05' 27.20"N	85° 19'27.13"E
Bolani Gouda Basti-Well water		GWQ-2	22° 05'40.97"N	85° 20'2.45"E
Balagoda Village-Well water		GWQ-3	22° 05'57.02"N	85° 20'27.41"E

2.5 Weather/Meteorology

An Automatic Weather Monitoring Station (AWS) is installed at DAV Public School (22°7'7.85"N; 85°20'16.83"E) to collect the meteorological data on daily basis continuously. The parameters monitored at the meteorological station were Temperature, Relative Humidity, Wind Speed, Wind Direction and Rainfall. These parameters were recorded at weather monitoring station using the respective sensors.

Table No. 2.5: Details of Meteorological Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
DAV Public School	Daily Basis	M	22°7'7.85"N	85°20'16.83"E

Figure No.1: Location of Monitoring Station with ML Boundary

3.0 RESULTS AND DISCUSSION

3.1 Ambient Air Quality Monitoring

The Summarized results of AAQ for the month of OCTOBER-2024 are given in the **Table below**

Table No. 3.1 (a): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	PM_{10}			$PM_{2.5}$		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Bolani Village Community center	A1	74.53	55.42	64.36	34.95	25.59	30.89
2.	Dav Public School	A2	68.00	51.01	59.25	27.24	18.65	22.81
3.	Main Gate	A3	78.90	60.55	68.35	37.70	28.77	33.14
4.	Bolani Mines Office Complex	A4	72.62	54.03	63.85	31.76	22.19	28.03
5.	Limtur Village	A5	62.97	45.62	54.55	24.88	15.04	19.82
6.	Karo Guest House	A6	58.72	40.25	49.80	21.96	12.03	16.98
CPCB Std.			100 µg/m³			60 µg/m³		

Table No. 3.1(b): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	SO_2			NO_x		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Bolani Village Community Center	A1	24.92	15.09	18.91	22.32	13.17	18.02
2.	Dav Public School	A2	22.70	13.63	17.96	19.53	10.28	15.15
3.	Main Gate	A3	25.88	16.31	20.62	24.00	14.07	18.53
4.	Bolani Mines Office Complex	A4	23.80	14.35	20.09	21.84	12.01	16.90
CPCB Std.			80 µg/m³			80 µg/m³		

BDL of $SO_2 \leq 4$ µg/m³, BDL of $NOx \leq 9$ µg/m³(No_x as No_2)

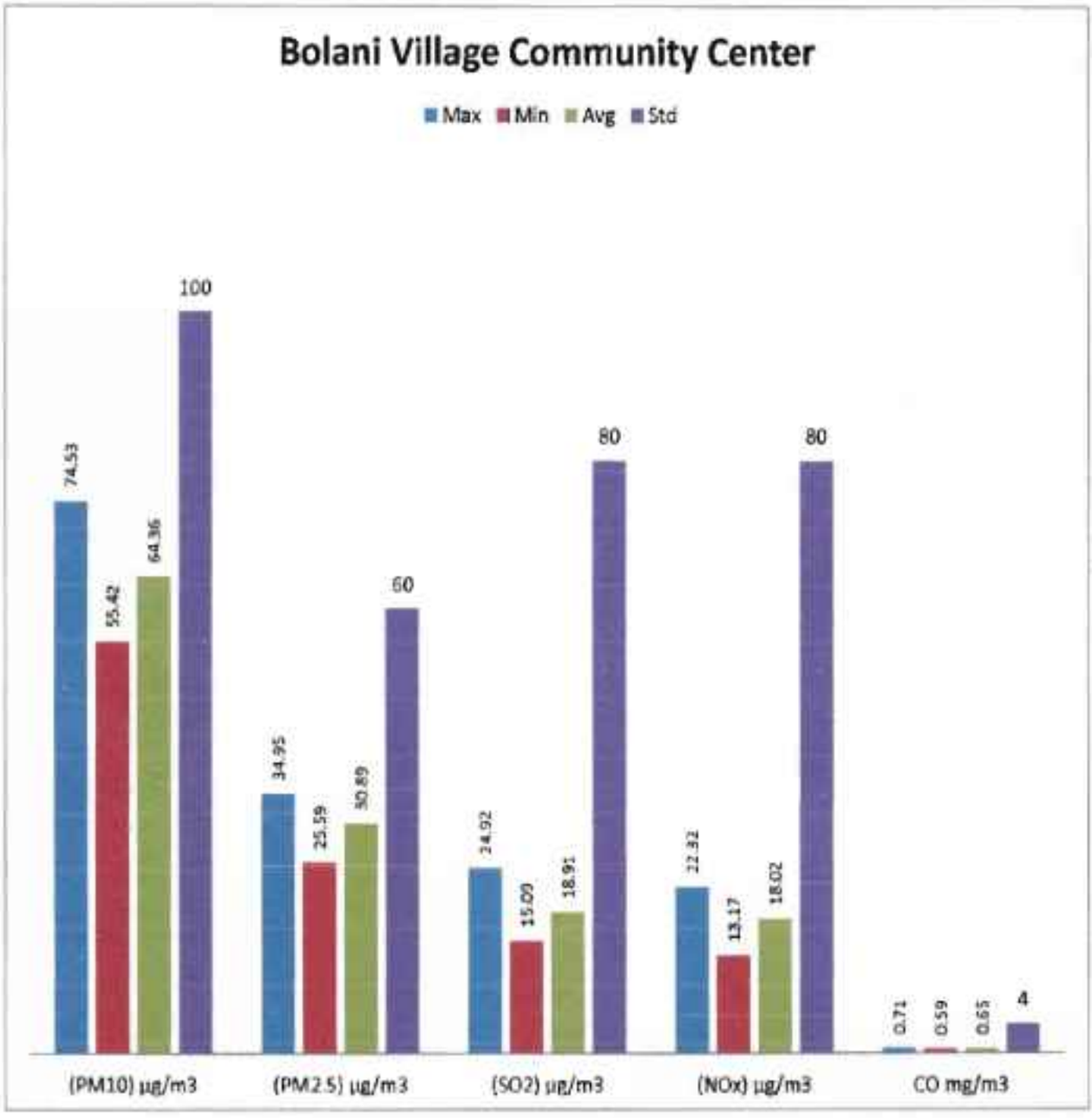
Table No. 3.1(c): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	CO		
			Max.	Min.	Avg.
1.	Bolani Village Community Center	A1	0.71	0.59	0.65
2.	Dav Public School	A2	0.64	0.54	0.59
3.	Main Gate	A3	0.75	0.63	0.68
4.	Bolani Mines Office Complex	A4	0.64	0.52	0.59
CPCB Std.			4 mg/m3		

Note: BDL value for CO-0.11 mg/m³

3.1.1 Bolani village Community Center (A1):

The pollution level in Bolani village Community Center for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **74.53** µg/m³ whereas minimum concentration was observed **55.42** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **22.59** µg/m³ to **34.95** µg/m³, SO_2 concentration ranges between **15.09** µg/m³ to **24.92** µg/m³, NO_x as (NO_2) concentration ranges between **13.17** µg/m³ to **22.32** µg/m³ and CO concentration ranges between **0.59** mg/m³ to **0.71** mg/m³ was observed during the month



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ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/43
Test Report Issue date: 05.11.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-1: Bolani village Community Center**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1.	01.10.2024	68.31	33.48	15.32	17.44	0.64
2.	02.10.2024	63.63	33.45	21.68	19.05	0.65
3.	03.10.2024	58.78	33.92	17.07	19.59	0.60
4.	04.10.2024	55.56	28.26	24.62	21.47	0.71
5.	05.10.2024	70.01	27.25	17.54	16.78	0.60
6.	06.10.2024	56.84	34.95	15.17	20.89	0.68
7.	07.10.2024	62.38	25.59	20.34	15.71	0.70
8.	08.10.2024	64.97	32.17	18.20	14.91	0.59
9.	09.10.2024	74.53	27.97	17.21	15.12	0.62
10.	10.10.2024	72.98	33.51	19.98	13.53	0.61
11.	11.10.2024	71.60	30.05	18.37	20.48	0.63
12.	12.10.2024	68.87	26.08	20.70	21.83	0.70
13.	13.10.2024	59.10	29.61	21.71	18.19	0.66
14.	14.10.2024	68.86	25.95	21.02	18.23	0.62
15.	15.10.2024	55.42	31.80	15.76	15.68	0.66
16.	16.10.2024	64.10	34.33	24.92	13.17	0.64
17.	17.10.2024	55.84	26.22	16.15	18.88	0.65
18.	18.10.2024	63.62	30.44	17.24	21.39	0.64
19.	19.10.2024	57.74	33.78	20.36	21.89	0.69
20.	20.10.2024	67.94	29.34	15.75	15.66	0.66
21.	21.10.2024	70.25	28.54	19.19	19.91	0.71
22.	22.10.2024	62.53	33.25	15.77	16.08	0.64
23.	23.10.2024	72.85	29.58	15.09	18.82	0.61
24.	24.10.2024	72.18	30.46	15.24	16.58	0.68
25.	25.10.2024	65.33	33.58	18.02	21.99	0.65
26.	26.10.2024	65.83	34.89	22.24	18.64	0.61
27.	27.10.2024	61.78	27.84	22.42	17.66	0.65
28.	28.10.2024	57.90	34.61	23.24	22.32	0.70
29.	29.10.2024	58.36	31.18	17.63	17.01	0.61
30.	30.10.2024	62.44	30.91	18.69	16.27	0.66
31.	31.10.2024	64.57	34.49	19.66	13.56	0.62
Average		**64.36**	**30.89**	**18.91**	**18.02**	**0.65**

Note- No, is Given as No_2

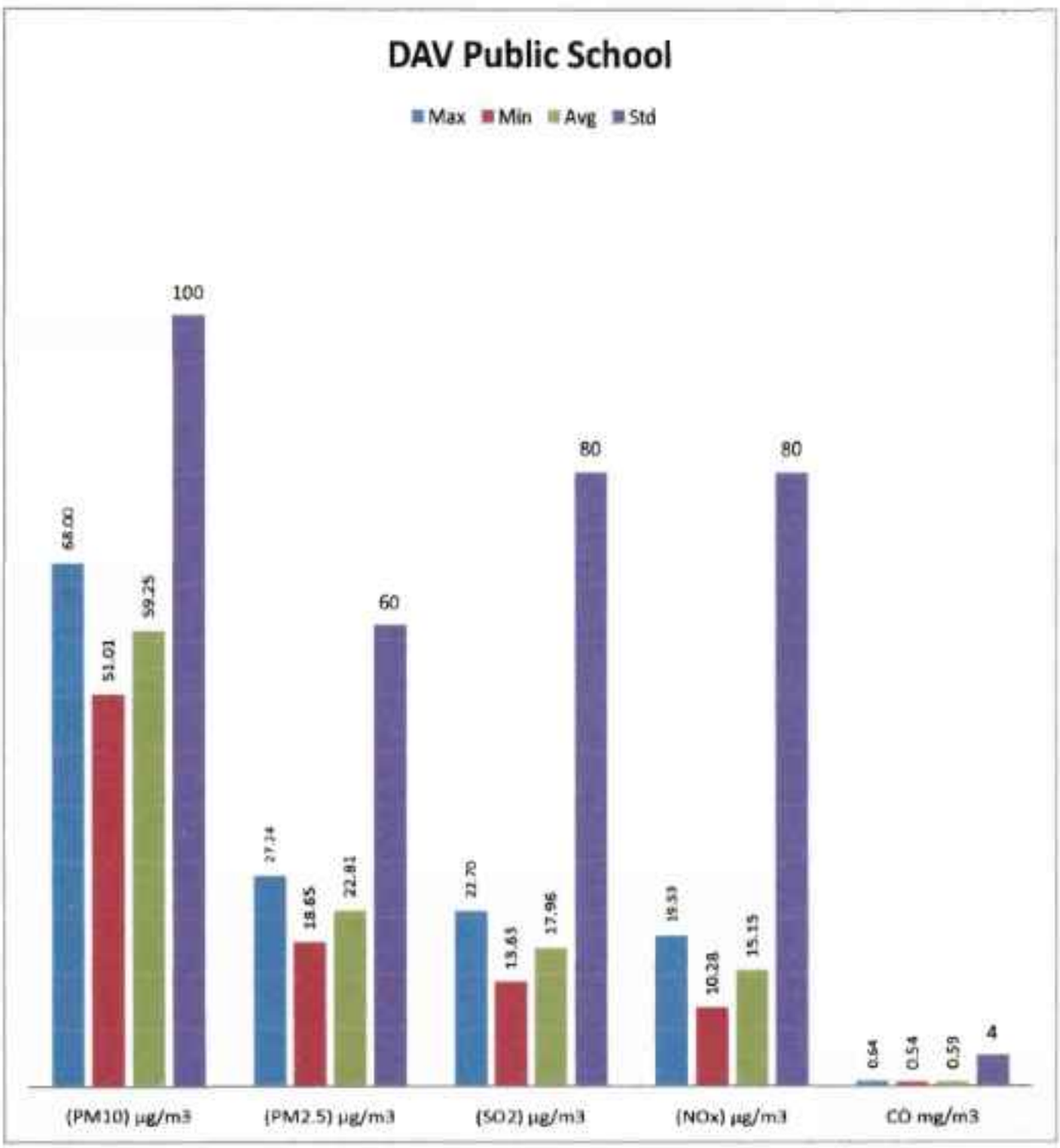
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.1.2 DAV Public School (A2):

The pollution level in DAV Public School for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **68.00** $\mu g/m^3$ whereas minimum concentration was observed **51.01** $\mu g/m^3$ during the month. $PM_{2.5}$ concentration ranges between **18.65** $\mu g/m^3$ to **27.24** $\mu g/m^3$, SO_2 concentration ranges between **13.63** $\mu g/m^3$ to **22.70** $\mu g/m^3$, NO_x as (NO_2) concentration ranges between **10.28** $\mu g/m^3$ to **19.53** $\mu g/m^3$ and CO concentration ranges between **0.54** mg/m^3 to **0.64** mg/m^3 was observed during the month



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ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

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Test Report No: ECO/BOM/AAQ/44
Test Report Issue date: 05.11.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQM5-2: DAV Public School**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1.	01.10.2024	65.77	19.55	18.39	17.69	0.59
2.	02.10.2024	67.89	21.49	16.81	15.10	0.58
3.	03.10.2024	51.62	27.24	16.14	14.29	0.60
4.	04.10.2024	52.34	19.47	18.57	12.22	0.58
5.	05.10.2024	66.31	27.19	18.02	13.25	0.62
6.	06.10.2024	54.20	25.39	15.68	17.83	0.55
7.	07.10.2024	60.52	20.94	22.70	10.28	0.59
8.	08.10.2024	54.49	19.80	14.92	17.84	0.58
9.	09.10.2024	51.01	27.18	22.64	14.89	0.64
10.	10.10.2024	61.40	24.26	16.43	12.98	0.57
11.	11.10.2024	68.00	22.05	14.04	17.54	0.54
12.	12.10.2024	57.31	25.30	16.54	11.41	0.62
13.	13.10.2024	66.71	26.61	20.00	18.08	0.61
14.	14.10.2024	55.56	20.64	22.13	17.38	0.58
15.	15.10.2024	54.09	25.04	16.67	18.69	0.63
16.	16.10.2024	54.63	19.99	19.60	14.59	0.56
17.	17.10.2024	62.21	21.32	16.08	15.30	0.61
18.	18.10.2024	59.17	23.26	16.64	14.03	0.63
19.	19.10.2024	60.40	20.69	22.34	19.03	0.58
20.	20.10.2024	59.20	25.25	22.47	15.52	0.56
21.	21.10.2024	57.97	22.35	13.63	16.24	0.58
22.	22.10.2024	67.25	22.62	14.49	15.77	0.64
23.	23.10.2024	51.13	22.80	19.54	19.29	0.60
24.	24.10.2024	63.48	18.65	15.91	19.53	0.58
25.	25.10.2024	52.30	22.48	18.59	13.33	0.63
26.	26.10.2024	64.60	22.58	15.09	10.56	0.64
27.	27.10.2024	59.82	23.05	22.37	13.20	0.64
28.	28.10.2024	52.80	22.30	14.20	12.42	0.59
29.	29.10.2024	63.34	22.44	19.88	13.93	0.55
30.	30.10.2024	66.75	24.89	20.98	11.37	0.56
31.	31.10.2024	54.37	20.32	15.17	16.14	0.59
Average		**59.25**	**22.81**	**17.96**	**15.15**	**0.59**

Note- No, is Given as No;

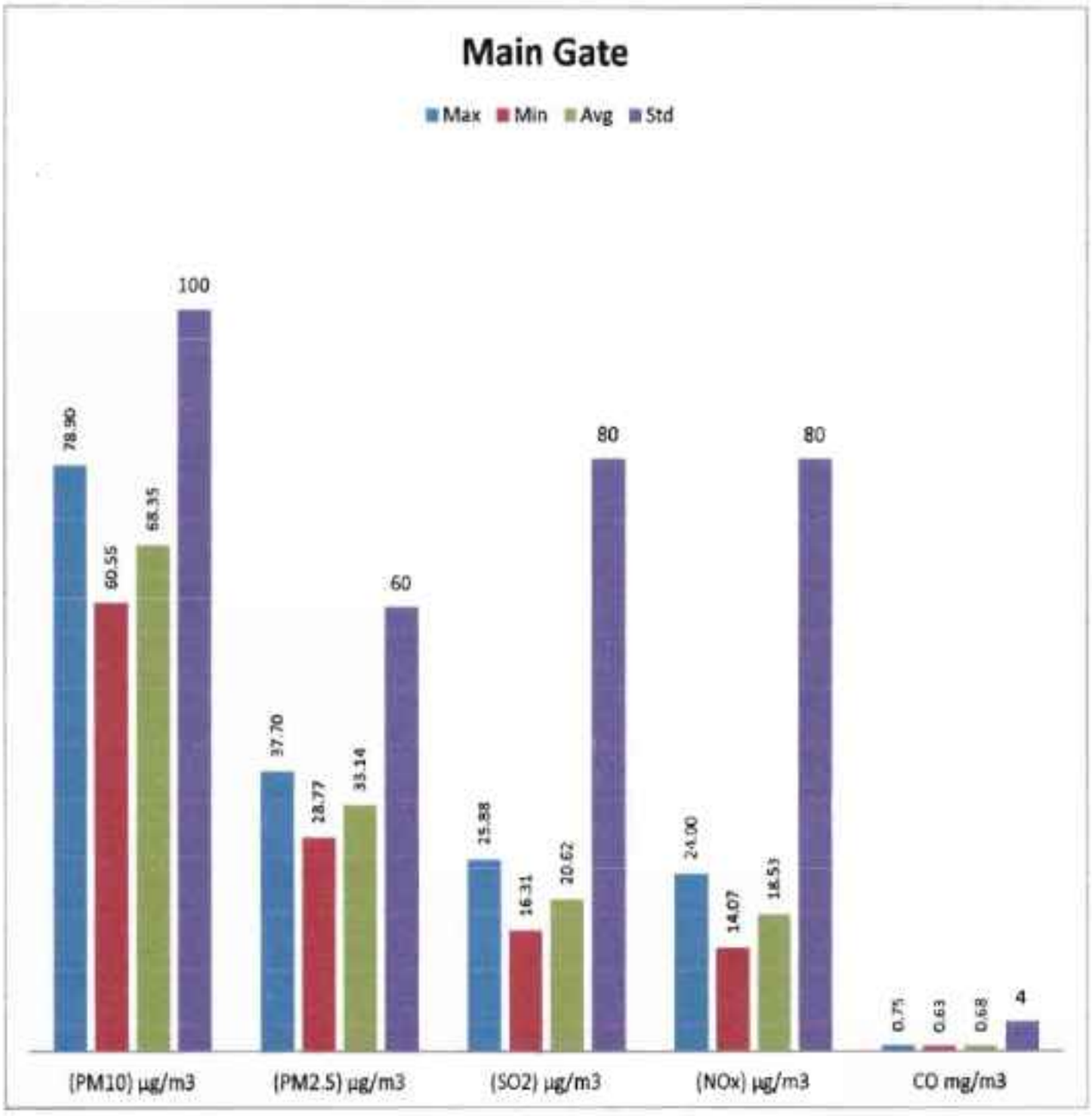
—End of Report—

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.1.3 Main Gate (A3):

The pollution level in Main Gate for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **78.90** µg/m³ whereas minimum concentration was observed **60.55** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **28.77** µg/m³ to **37.70** µg/m³, SO_2 concentration ranges between **16.31** µg/m³to **25.88** µg/m³, NO_x as (NO_2) concentration ranges between **14.07** µg/m³ to **24.00** µg/m³ and CO concentration ranges between **0.63** mg/m³ to **0.75** mg/m³ was observed during the month



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

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Test Report Issue date: 05.11.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-3: Main Gate**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1.	01.10.2024	62.40	35.90	20.62	20.47	0.64
2.	02.10.2024	68.65	31.19	17.02	14.07	0.64
3.	03.10.2024	64.89	33.23	20.16	19.52	0.67
4.	04.10.2024	66.82	35.11	18.24	22.28	0.72
5.	05.10.2024	68.35	37.70	19.03	15.00	0.71
6.	06.10.2024	74.06	36.10	21.03	15.90	0.67
7.	07.10.2024	66.61	35.64	23.95	19.50	0.63
8.	08.10.2024	63.21	35.03	22.86	20.76	0.69
9.	09.10.2024	70.95	32.81	24.23	22.25	0.70
10.	10.10.2024	66.22	36.64	21.84	21.11	0.64
11.	11.10.2024	76.01	36.76	17.65	17.23	0.65
12.	12.10.2024	66.47	36.58	16.31	19.39	0.65
13.	13.10.2024	63.66	31.07	16.38	20.63	0.65
14.	14.10.2024	64.53	34.96	21.50	23.91	0.74
15.	15.10.2024	64.47	29.43	17.83	16.41	0.70
16.	16.10.2024	60.55	31.74	22.11	24.00	0.66
17.	17.10.2024	71.10	30.19	21.27	15.15	0.66
18.	18.10.2024	70.52	28.77	21.79	19.01	0.65
19.	19.10.2024	66.02	32.59	16.81	19.08	0.71
20.	20.10.2024	66.63	32.27	25.88	15.63	0.65
21.	21.10.2024	72.72	31.36	18.47	14.80	0.66
22.	22.10.2024	63.81	33.54	22.20	17.23	0.69
23.	23.10.2024	78.90	36.04	24.78	14.43	0.70
24.	24.10.2024	77.37	32.00	18.38	21.71	0.73
25.	25.10.2024	60.85	29.48	17.63	14.99	0.75
26.	26.10.2024	77.68	31.59	23.54	14.13	0.75
27.	27.10.2024	72.34	33.08	22.37	17.86	0.63
28.	28.10.2024	67.70	34.51	17.51	19.72	0.67
29.	29.10.2024	78.02	33.12	22.06	21.33	0.70
30.	30.10.2024	63.42	29.99	25.71	20.03	0.69
31.	31.10.2024	63.83	28.99	20.19	16.77	0.69
Average		**68.35**	**33.14**	**20.62**	**18.53**	**0.68**

Note- No_x is Given as No_2

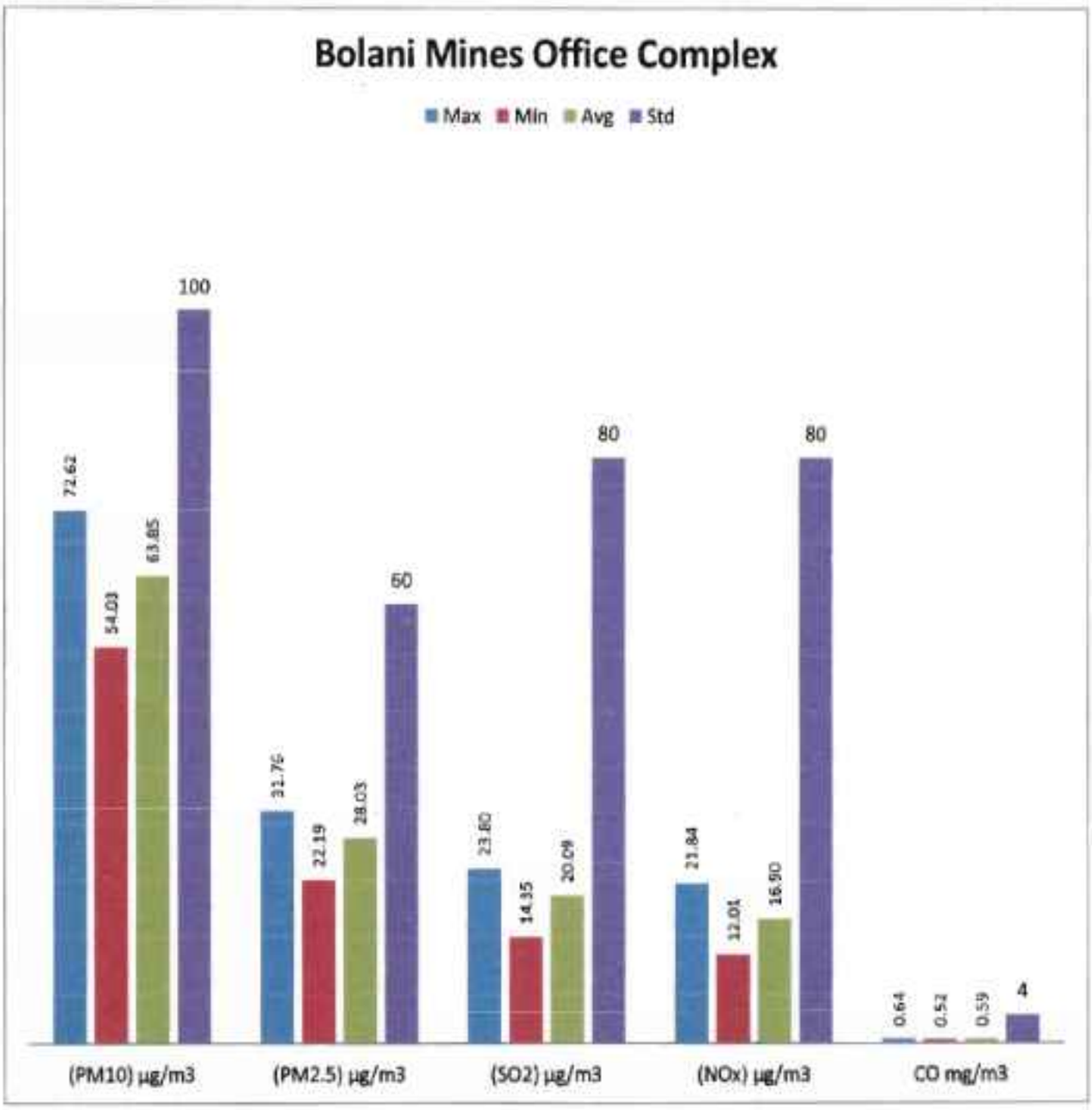
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.1.4 Bolani Mines Office Complex (A4):

The pollution level in Bolani Mines Office Complex for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **72.62** $\mu g/m^3$ whereas minimum concentration was observed **54.03** $\mu g/m^3$ during the month. $PM_{2.5}$ concentration ranges between **22.19** $\mu g/m^3$ to **31.76** $\mu g/m^3$, SO_2 concentration ranges between **14.35** $\mu g/m^3$ to **23.80** $\mu g/m^3$, NO_x as (NO_2) concentration ranges between **12.01** $\mu g/m^3$ to **21.84** $\mu g/m^3$ and CO concentration ranges between **0.52** mg/m^3 to **0.64** mg/m^3 was observed during the month



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/46
Test Report Issue date: 05.11.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-4: Bolani Mines Office Complex**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1.	01.10.2024	70.12	28.76	21.93	13.05	0.57
2.	02.10.2024	59.30	29.48	17.53	21.84	0.53
3.	03.10.2024	65.71	22.75	22.46	16.83	0.60
4.	04.10.2024	60.63	28.12	23.61	13.69	0.59
5.	05.10.2024	56.97	26.45	18.02	12.08	0.60
6.	06.10.2024	63.96	29.17	21.15	20.27	0.57
7.	07.10.2024	68.76	30.49	19.64	15.07	0.60
8.	08.10.2024	67.69	27.95	19.04	16.36	0.64
9.	09.10.2024	66.93	22.34	14.35	16.25	0.63
10.	10.10.2024	65.54	27.23	18.73	20.68	0.62
11.	11.10.2024	65.19	31.22	23.21	17.66	0.64
12.	12.10.2024	67.92	27.55	15.55	21.04	0.63
13.	13.10.2024	56.59	28.21	20.13	12.78	0.63
14.	14.10.2024	58.96	24.69	22.68	20.75	0.58
15.	15.10.2024	63.54	29.19	20.92	17.89	0.57
16.	16.10.2024	72.62	27.94	23.80	20.28	0.57
17.	17.10.2024	71.52	25.26	23.01	12.04	0.62
18.	18.10.2024	67.43	22.19	23.44	17.90	0.62
19.	19.10.2024	58.43	30.42	20.04	15.85	0.56
20.	20.10.2024	56.43	22.72	21.72	16.29	0.62
21.	21.10.2024	61.77	31.25	16.66	21.05	0.64
22.	22.10.2024	54.03	24.82	18.87	15.03	0.57
23.	23.10.2024	62.48	31.19	21.00	15.52	0.61
24.	24.10.2024	71.53	28.76	22.64	16.65	0.59
25.	25.10.2024	60.05	30.22	19.17	19.75	0.56
26.	26.10.2024	54.09	31.76	19.09	17.64	0.60
27.	27.10.2024	64.69	26.77	17.88	12.46	0.58
28.	28.10.2024	70.47	30.52	19.77	21.17	0.54
29.	29.10.2024	70.83	29.34	14.92	17.90	0.53
30.	30.10.2024	70.90	31.29	23.79	16.19	0.57
31.	31.10.2024	54.20	30.74	17.92	12.01	0.52
Average		**63.85**	**28.03**	**20.09**	**16.90**	**0.59**

Note- No_x is Given as No_2

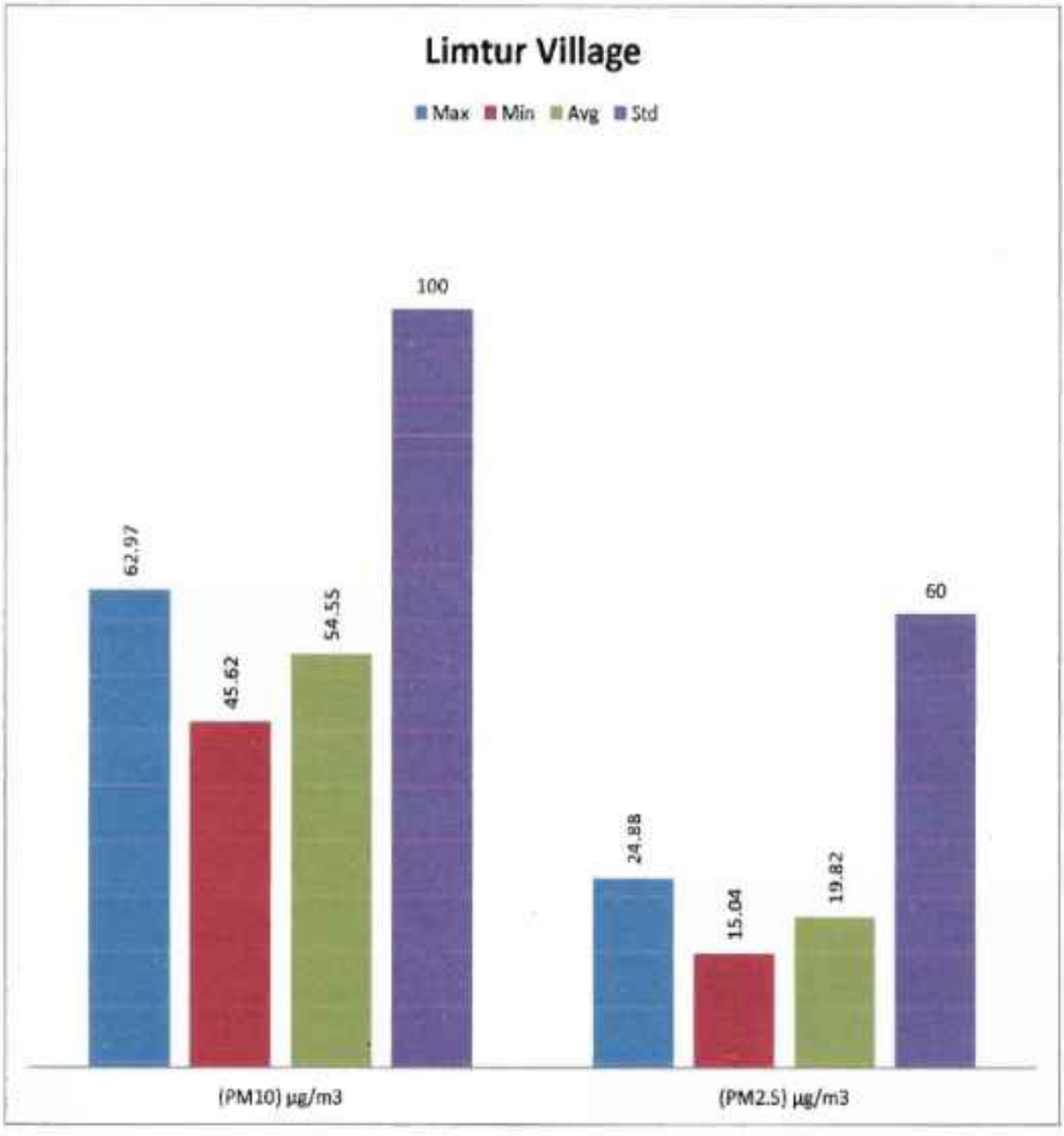
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.1.5 Limtur Village (A5):

The pollution level in Limtur Village for the parameters PM_{10} and $PM_{2.5}$ is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **62.97** $\mu g/m^3$ whereas minimum concentration was observed **45.62** $\mu g/m^3$ and $PM_{2.5}$ concentration ranges between **15.04** $\mu g/m^3$ to **24.88** $\mu g/m^3$ during the month.



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

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Test Report No: ECO/BOM/AAQ/47
Test Report Issue date: 05.11.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-5: Limtur Village**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)
Limits of Detection		10-1000	10-1000
Limit as per National Ambient Air Quality Standards		100	60
S. No.	Sampling Date	Result	
1.	01.10.2024	58.10	22.97
2.	02.10.2024	54.58	16.16
3.	03.10.2024	47.44	24.88
4.	04.10.2024	47.83	17.04
5.	05.10.2024	60.73	18.64
6.	06.10.2024	60.28	24.23
7.	07.10.2024	46.46	24.10
8.	08.10.2024	56.88	17.28
9.	09.10.2024	62.97	17.19
10.	10.10.2024	49.74	20.76
11.	11.10.2024	50.21	18.29
12.	12.10.2024	47.26	20.30
13.	13.10.2024	54.17	22.85
14.	14.10.2024	54.05	16.53
15.	15.10.2024	54.87	24.20
16.	16.10.2024	53.36	20.07
17.	17.10.2024	52.65	15.85
18.	18.10.2024	49.05	21.54
19.	19.10.2024	54.73	16.83
20.	20.10.2024	62.00	19.98
21.	21.10.2024	62.69	22.06
22.	22.10.2024	62.82	15.94
23.	23.10.2024	51.75	18.30
24.	24.10.2024	57.46	23.24
25.	25.10.2024	47.82	21.04
26.	26.10.2024	60.70	16.13
27.	27.10.2024	45.62	23.58
28.	28.10.2024	50.44	15.04
29.	29.10.2024	52.76	24.28
30.	30.10.2024	59.96	19.54
31.	31.10.2024	61.52	15.60
Average		**54.54**	**19.82**

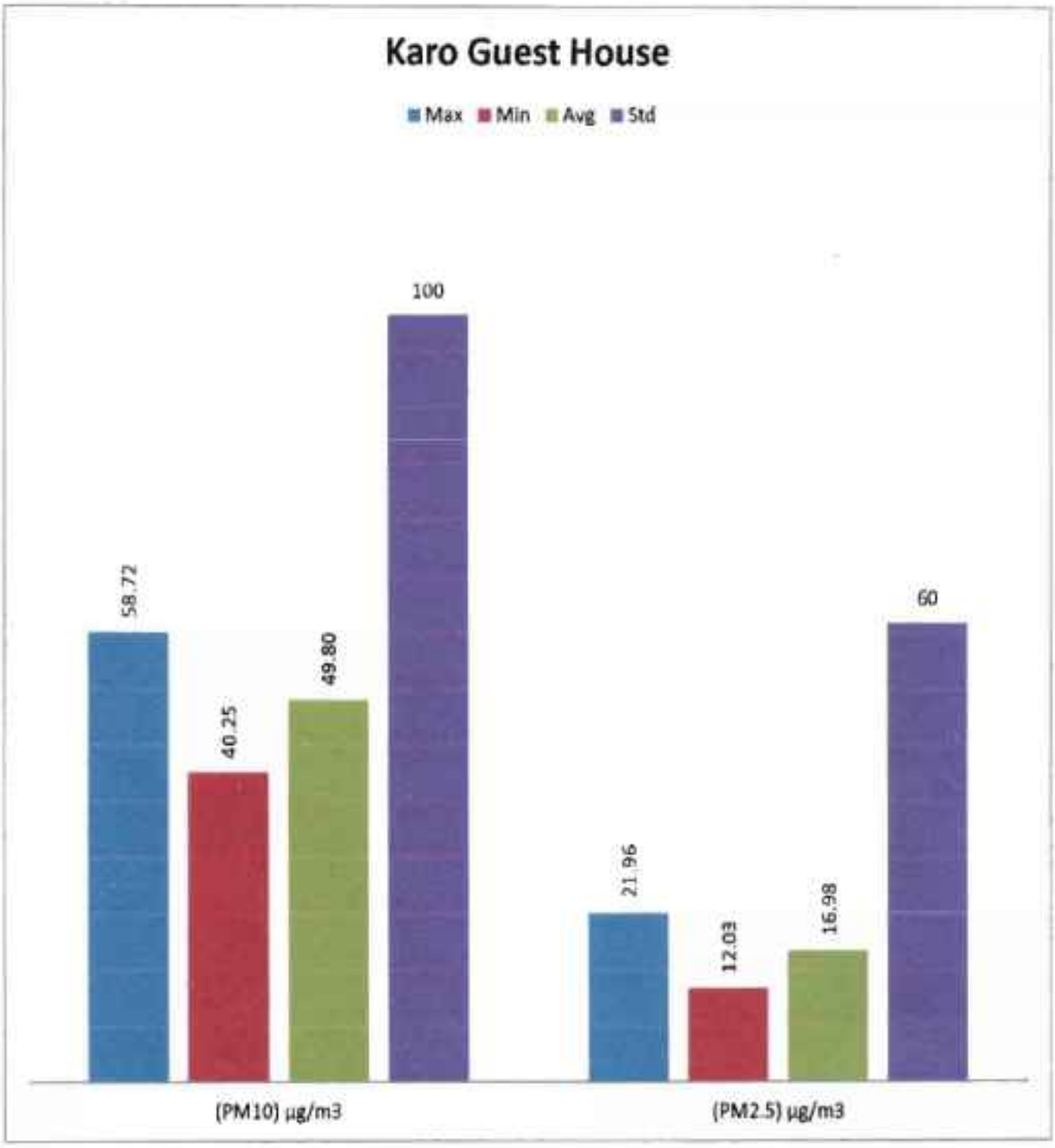
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.1.6 Karo Guest House (A6):

The pollution level in Karo Guest House for the parameters PM_{10} and $PM_{2.5}$ is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **58.72** µg/m³ whereas minimum concentration was observed **40.25** µg/m³ and $PM_{2.5}$ concentration ranges between **12.03** µg/m³ to **21.96** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/48
Test Report Issue date: 05.11.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-6: Karo Guest House**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)
Limits of Detection		10-1000	10-1000
Limit as per National Ambient Air Quality Standards		100	60
S. No.	Sampling Date	Result	
1.	01.10.2024	57.10	14.81
2.	02.10.2024	47.57	20.01
3.	03.10.2024	54.24	12.18
4.	04.10.2024	43.89	17.59
5.	05.10.2024	47.41	12.17
6.	06.10.2024	50.12	14.19
7.	07.10.2024	44.24	12.03
8.	08.10.2024	47.68	12.41
9.	09.10.2024	50.15	12.52
10.	10.10.2024	40.25	16.22
11.	11.10.2024	58.72	17.22
12.	12.10.2024	47.98	20.85
13.	13.10.2024	46.67	17.67
14.	14.10.2024	45.93	20.80
15.	15.10.2024	58.40	15.56
16.	16.10.2024	46.67	20.18
17.	17.10.2024	52.45	18.24
18.	18.10.2024	57.05	15.17
19.	19.10.2024	57.98	21.30
20.	20.10.2024	48.33	21.96
21.	21.10.2024	41.60	12.18
22.	22.10.2024	45.55	17.99
23.	23.10.2024	54.70	18.39
24.	24.10.2024	56.76	21.62
25.	25.10.2024	56.03	18.57
26.	26.10.2024	48.08	15.09
27.	27.10.2024	49.58	20.16
28.	28.10.2024	44.77	19.19
29.	29.10.2024	54.76	15.53
30.	30.10.2024	45.26	14.95
31.	31.10.2024	43.97	19.77
Average		**49.80**	**16.98**

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring:

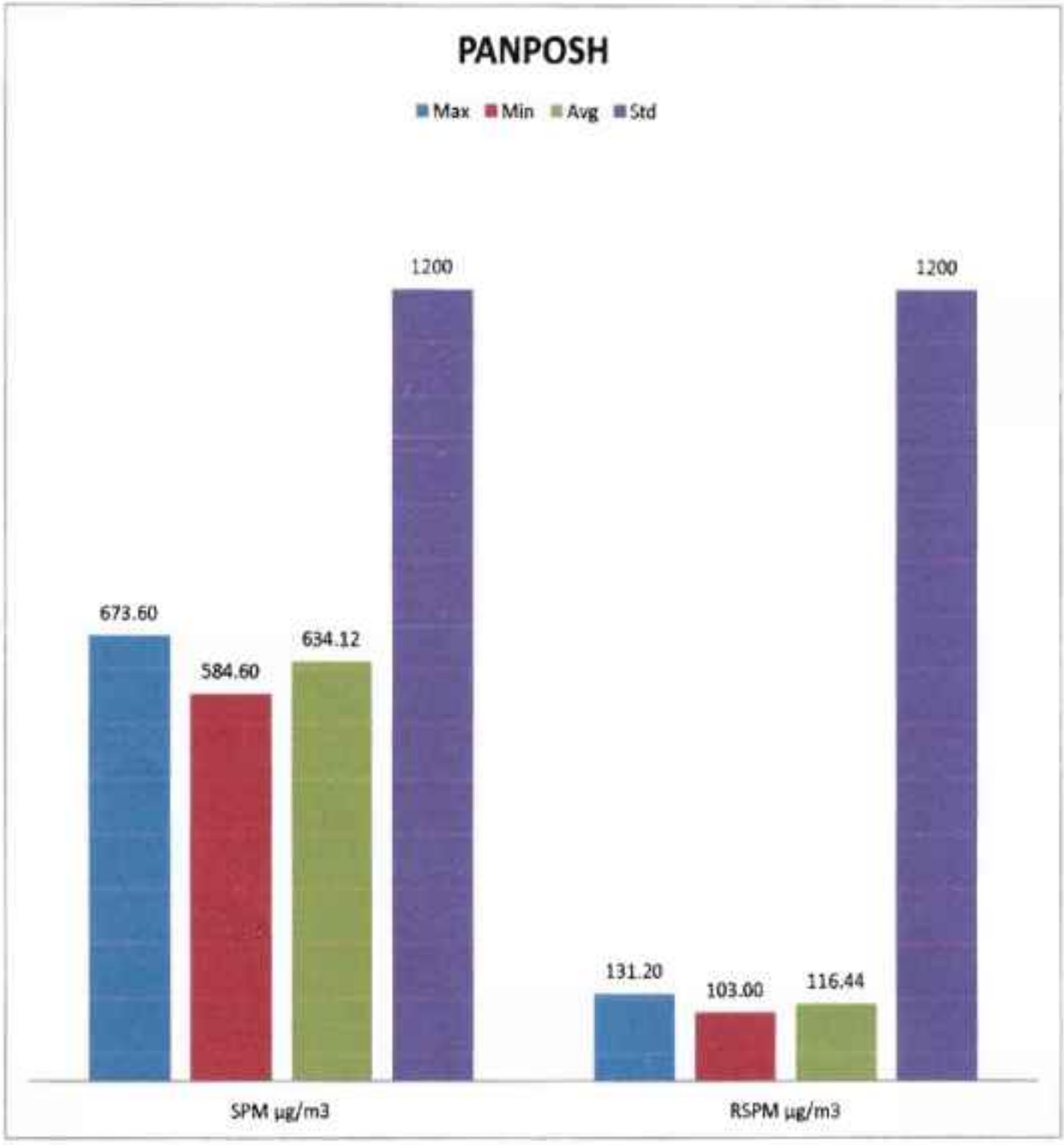
The Summarized results of Work Zone Air Quality/Fugitive Dust Emission for the month of OCTOBER-2024 are given in the **Table below**

Table No. 3.2: Summarized Results of Work Zone Air Quality/Fugitive Dust Emission

Sl. No.	Location Name	Station Code	SPM µg/m3			RSPM µg/m3		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Panposh	F1	673.60	584.60	634.12	131.20	103.00	116.44
2.	D Area	F2	672.89	589.34	635.03	131.60	103.03	117.83
3.	F Area	F3	669.92	590.19	628.32	132.56	101.25	117.29
4.	G Area	F4	672.95	584.97	619.11	130.82	103.15	115.49
5.	Lump Loading Point (near 600TPH)	F5	672.57	588.52	626.26	130.71	103.65	116.19
6.	Fines Loading Plant	F6	672.86	592.09	633.34	132.70	104.39	117.21
7.	Dump Fines handling route	F7	671.04	585.64	623.85	127.17	103.61	115.44
8.	SSP	F8	663.40	585.56	621.34	130.36	101.59	115.35
9.	Dump Fines Handling Site	F9	670.55	584.30	624.20	128.93	102.11	114.40
10.	Mn Quarry	F10	668.48	584.71	624.50	131.23	104.00	116.28
As Per CTO Std.			**1200 µg/m³**					

3.2.1 Panposh (F1):

The pollution level in Panposh Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **673.60** µg/m³ whereas minimum concentration was observed **584.60** µg/m³ and RSPM concentration ranges between **103.00** µg/m³ to **131.20** µg/m³ during the month.



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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/71
Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Panposh**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	Panposh	659.5	125.1
2.	02-10-2024	Panposh	595.9	111.0
3.	03-10-2024	Panposh	640.6	122.5
4.	04-10-2024	Panposh	654.0	118.2
5.	05-10-2024	Panposh	623.4	109.2
6.	06-10-2024	Panposh	629.0	120.6
7.	07-10-2024	Panposh	618.7	116.0
8.	08-10-2024	Panposh	662.1	121.3
9.	09-10-2024	Panposh	643.9	115.2
10.	10-10-2024	Panposh	616.9	112.3
11.	11-10-2024	Panposh	638.2	114.4
12.	12-10-2024	Panposh	666.6	123.2
13.	13-10-2024	Panposh	612.6	118.1
14.	14-10-2024	Panposh	659.9	117.5
15.	15-10-2024	Panposh	589.7	106.3
16.	16-10-2024	Panposh	626.6	119.1
17.	17-10-2024	Panposh	633.0	119.9
18.	18-10-2024	Panposh	584.6	103.6
19.	19-10-2024	Panposh	618.2	105.2
20.	20-10-2024	Panposh	638.7	123.9
21.	21-10-2024	Panposh	671.4	117.8
22.	22-10-2024	Panposh	659.5	116.3
23.	23-10-2024	Panposh	658.9	131.2
24.	24-10-2024	Panposh	593.4	109.4
25.	25-10-2024	Panposh	673.6	120.9
26.	26-10-2024	Panposh	669.5	116.6
27.	27-10-2024	Panposh	610.5	112.5
28.	28-10-2024	Panposh	657.9	113.3
29.	29-10-2024	Panposh	586.0	103.0
30.	30-10-2024	Panposh	640.1	122.1
31.	31-10-2024	Panposh	624.7	124.0
Average			**634.12**	**116.44**

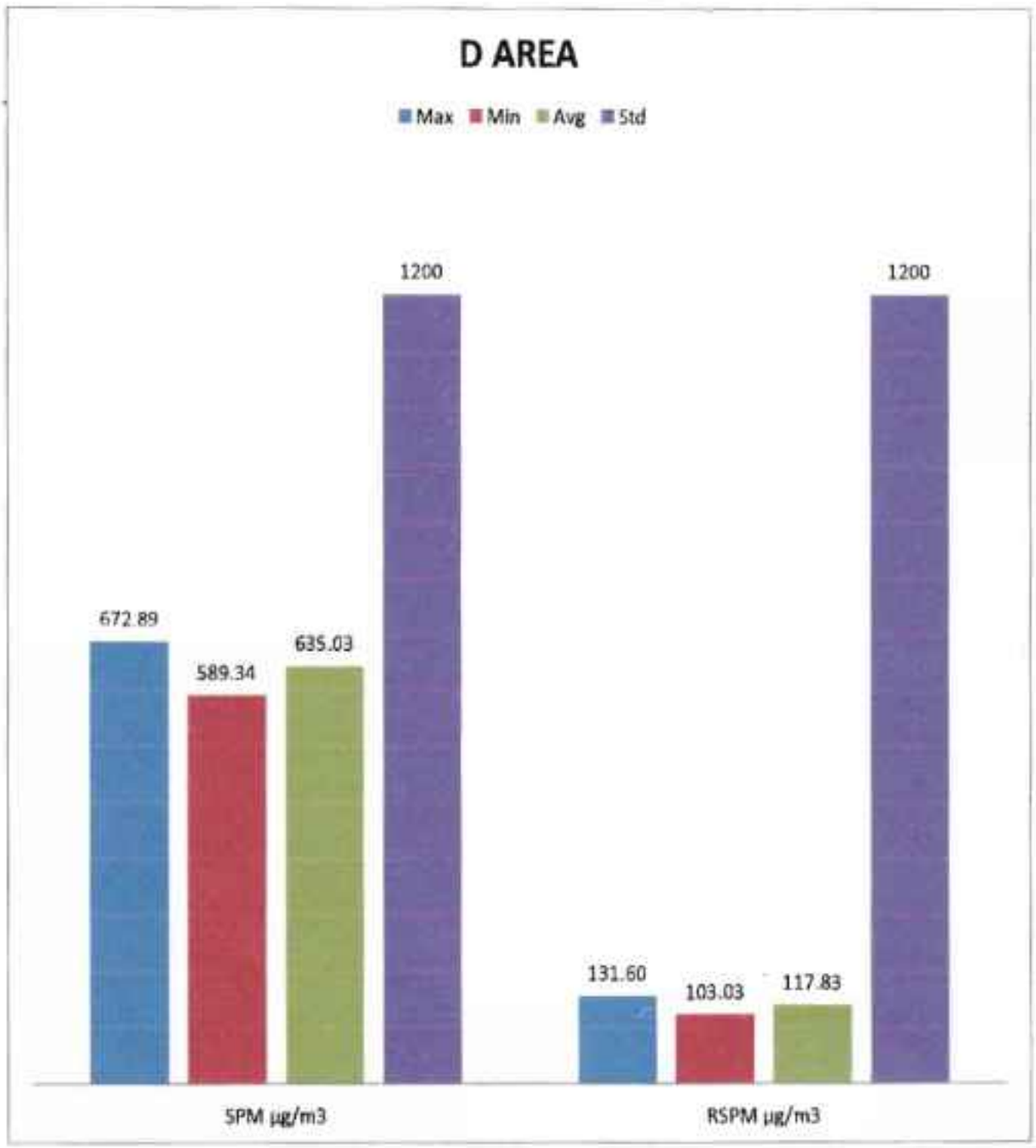
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2.2 D Area(F2)

The pollution level in D Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **672.89** µg/m³ whereas minimum concentration was observed **589.34** µg/m³ and RSPM concentration ranges between **103.03** µg/m³ to **131.60** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE5076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/72
Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **D Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	D Area	617.70	118.22
2.	02-10-2024	D Area	667.10	119.52
3.	03-10-2024	D Area	594.16	108.78
4.	04-10-2024	D Area	589.34	115.84
5.	05-10-2024	D Area	625.69	118.55
6.	06-10-2024	D Area	645.26	111.76
7.	07-10-2024	D Area	662.77	118.84
8.	08-10-2024	D Area	609.40	115.70
9.	09-10-2024	D Area	659.16	113.97
10.	10-10-2024	D Area	610.17	119.13
11.	11-10-2024	D Area	615.02	117.92
12.	12-10-2024	D Area	657.01	115.55
13.	13-10-2024	D Area	626.10	118.04
14.	14-10-2024	D Area	672.89	131.60
15.	15-10-2024	D Area	629.39	109.67
16.	16-10-2024	D Area	638.25	125.76
17.	17-10-2024	D Area	593.61	111.77
18.	18-10-2024	D Area	604.17	118.74
19.	19-10-2024	D Area	664.81	116.96
20.	20-10-2024	D Area	593.65	103.03
21.	21-10-2024	D Area	625.64	111.31
22.	22-10-2024	D Area	626.25	120.10
23.	23-10-2024	D Area	646.32	118.47
24.	24-10-2024	D Area	661.16	127.70
25.	25-10-2024	D Area	669.35	128.17
26.	26-10-2024	D Area	664.54	130.61
27.	27-10-2024	D Area	650.12	119.40
28.	28-10-2024	D Area	608.39	113.30
29.	29-10-2024	D Area	662.26	121.04
30.	30-10-2024	D Area	644.16	110.90
31.	31-10-2024	D Area	652.00	122.23
Average			**635.9**	**124.9**

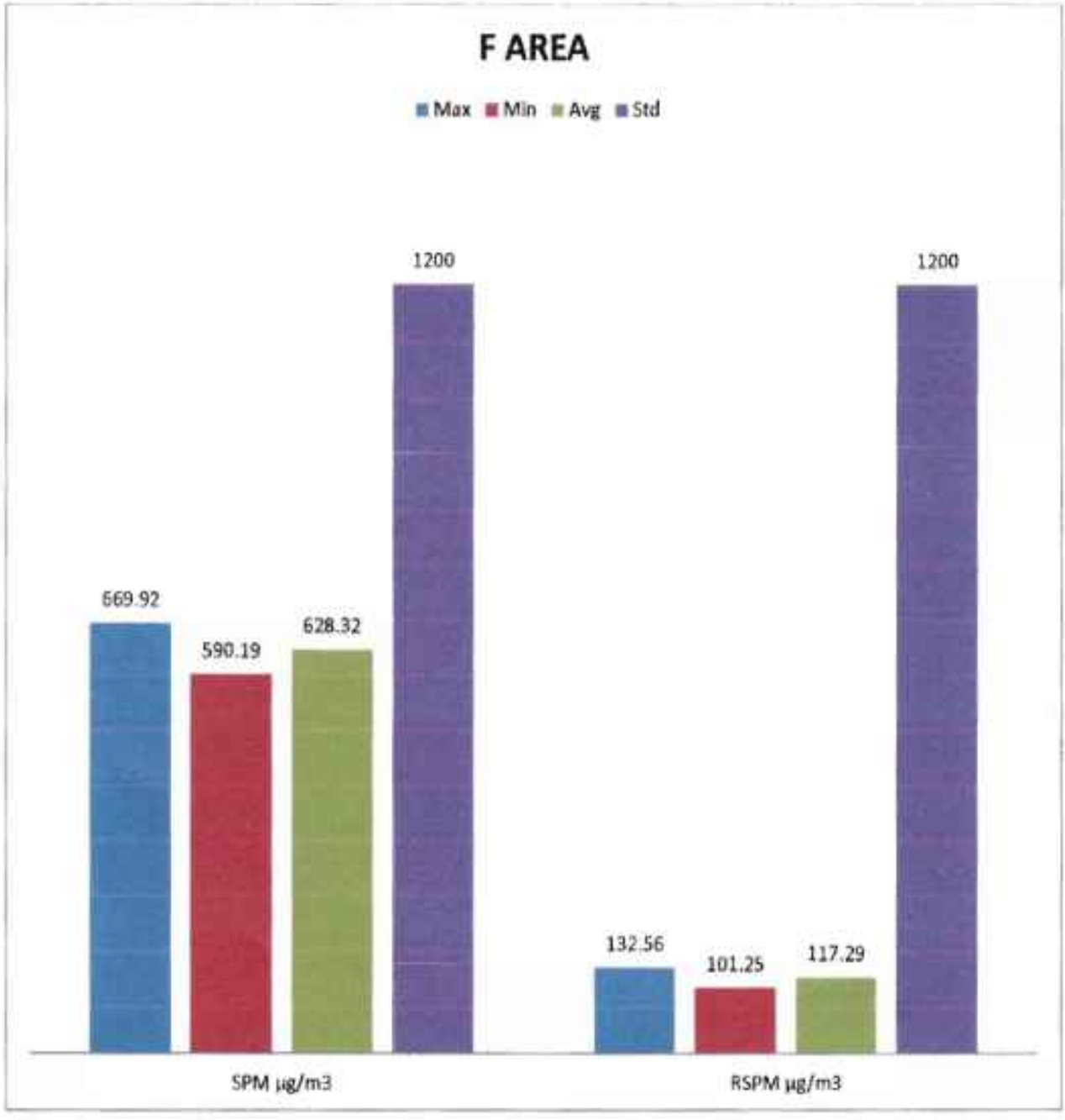
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2.3 F Area(F3)

The pollution level in F Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **669.92** µg/m³ whereas minimum concentration was observed **590.19** µg/m³ and RSPM concentration ranges between **101.25** µg/m³ to **132.56** µg/m³ during the month



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/73
Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **F Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	F Area	597.52	103.3,
2.	02-10-2024	F Area	620.26	120.81
3.	03-10-2024	F Area	621.66	112.68
4.	04-10-2024	F Area	669.92	123.27
5.	05-10-2024	F Area	629.31	123.78
6.	06-10-2024	F Area	647.72	123.01
7.	07-10-2024	F Area	618.88	117.71
8.	08-10-2024	F Area	636.10	125.34
9.	09-10-2024	F Area	592.57	101.25
10.	10-10-2024	F Area	668.92	132.56
11.	11-10-2024	F Area	660.88	116.23
12.	12-10-2024	F Area	592.84	109.74
13.	13-10-2024	F Area	623.87	117.54
14.	14-10-2024	F Area	653.70	115.75
15.	15-10-2024	F Area	637.34	109.26
16.	16-10-2024	F Area	602.32	117.53
17.	17-10-2024	F Area	641.21	113.95
18.	18-10-2024	F Area	615.15	105.5'
19.	19-10-2024	F Area	592.75	111.42
20.	20-10-2024	F Area	650.93	129.94
21.	21-10-2024	F Area	634.88	119.69
22.	22-10-2024	F Area	619.16	120.38
23.	23-10-2024	F Area	615.81	115.26
24.	24-10-2024	F Area	665.95	125.39
25.	25-10-2024	F Area	625.61	124.26
26.	26-10-2024	F Area	618.21	122.88
27.	27-10-2024	F Area	647.55	125.17
28.	28-10-2024	F Area	612.28	104.30
29.	29-10-2024	F Area	669.61	123.88
30.	30-10-2024	F Area	604.86	116.85
31.	31-10-2024	F Area	590.19	107.30
Average			**628.32**	**117.29**

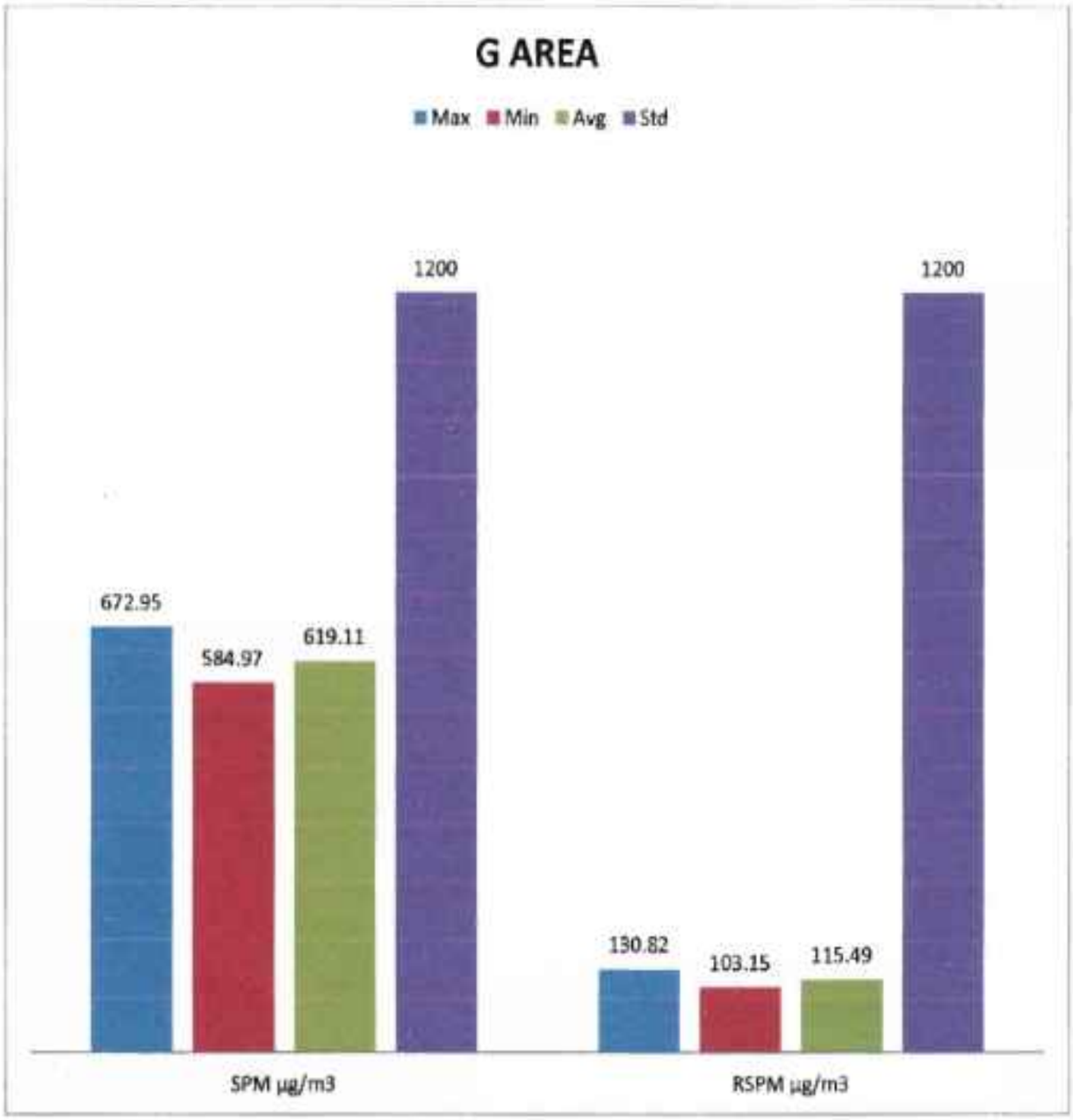
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2.4 G Area(F4)

The pollution level in G Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **672.95** µg/m³ whereas minimum concentration was observed **584.97** µg/m³ and RSPM concentration ranges between **103.15** µg/m³ to **130.82** µg/m³ during the month



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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/74
Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited,**
   Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **G Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	G Area	644.17	111.97
2.	02-10-2024	G Area	622.53	117.66
3.	03-10-2024	G Area	630.50	124.53
4.	04-10-2024	G Area	586.87	110.09
5.	05-10-2024	G Area	619.78	119.43
6.	06-10-2024	G Area	628.19	115.34
7.	07-10-2024	G Area	627.72	119.17
8.	08-10-2024	G Area	588.36	105.05
9.	09-10-2024	G Area	610.12	108.48
10.	10-10-2024	G Area	586.59	112.25
11.	11-10-2024	G Area	599.23	108.06
12.	12-10-2024	G Area	650.96	126.34
13.	13-10-2024	G Area	610.43	117.23
14.	14-10-2024	G Area	633.09	124.15
15.	15-10-2024	G Area	601.59	103.15
16.	16-10-2024	G Area	588.87	106.33
17.	17-10-2024	G Area	597.39	106.98
18.	18-10-2024	G Area	617.48	121.06
19.	19-10-2024	G Area	672.95	117.79
20.	20-10-2024	G Area	606.57	121.22
21.	21-10-2024	G Area	596.30	108.68
22.	22-10-2024	G Area	670.98	129.32
23.	23-10-2024	G Area	629.97	125.93
24.	24-10-2024	G Area	608.80	104.17
25.	25-10-2024	G Area	632.47	116.01
26.	26-10-2024	G Area	620.29	108.16
27.	27-10-2024	G Area	584.97	115.52
28.	28-10-2024	G Area	627.21	114.11
29.	29-10-2024	G Area	622.63	118.84
30.	30-10-2024	G Area	657.77	130.82
31.	31-10-2024	G Area	617.54	112.39
Average			**619.11**	**115.49**

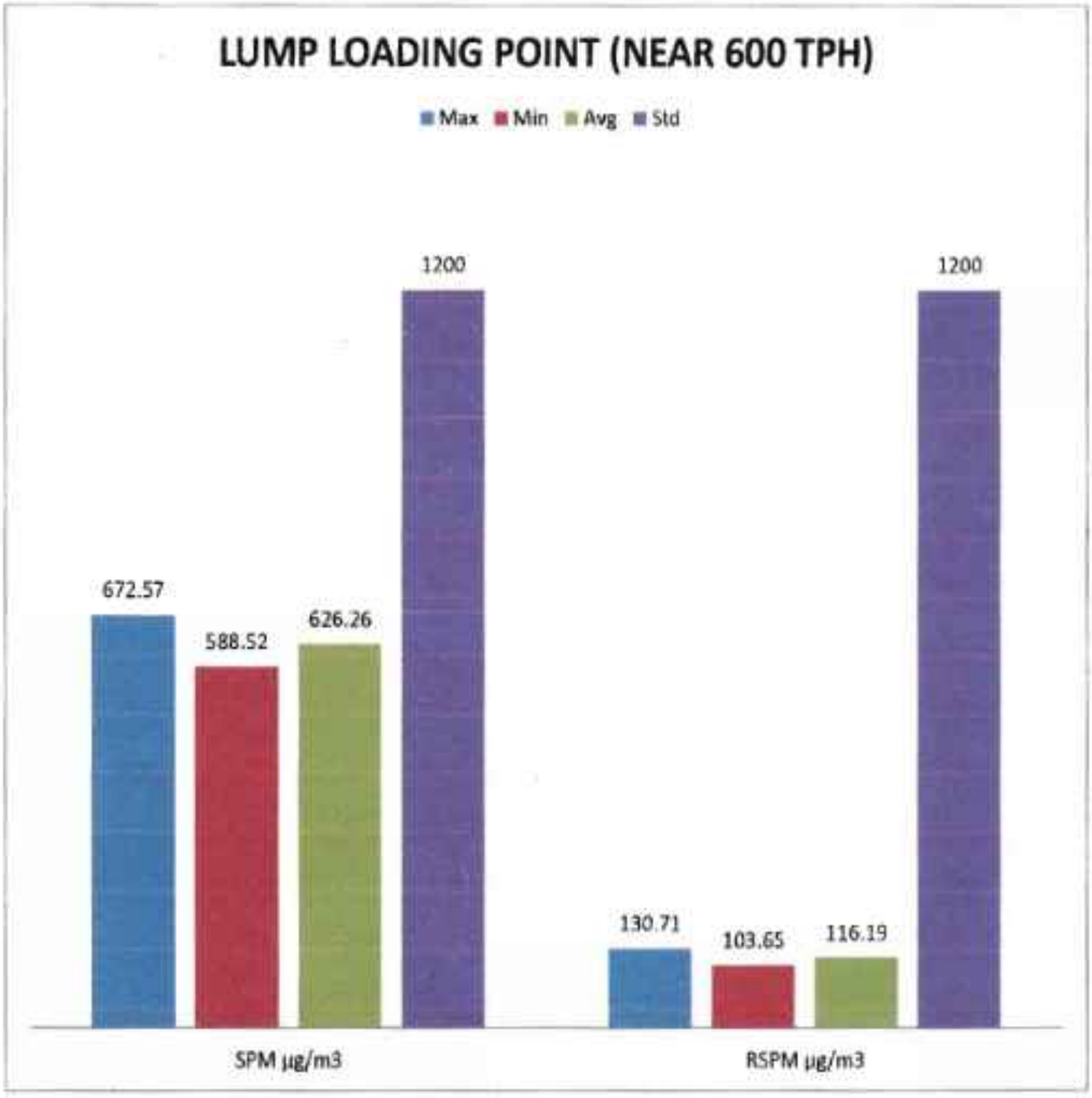
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2.5 Lump Loading Point (Near 600 TPH) (F5)

The pollution level in Lump Loading Point (Near 600 TPH) for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **672.57** µg/m³ whereas minimum concentration was observed **588.52** µg/m³ and RSPM concentration ranges between **103.65** µg/m³ to **130.71** µg/m³ during the month.



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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/75
Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Lump Loading Point (Near 600 TPH)**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	Lump Loading Point (Near 600 TPH)	588.52	110.67
2.	02-10-2024	Lump Loading Point (Near 600 TPH)	637.65	116.83
3.	03-10-2024	Lump Loading Point (Near 600 TPH)	591.11	103.65
4.	04-10-2024	Lump Loading Point (Near 600 TPH)	631.17	121.23
5.	05-10-2024	Lump Loading Point (Near 600 TPH)	594.01	113.88
6.	06-10-2024	Lump Loading Point (Near 600 TPH)	651.98	112.44
7.	07-10-2024	Lump Loading Point (Near 600 TPH)	621.75	110.92
8.	08-10-2024	Lump Loading Point (Near 600 TPH)	672.57	122.72
9.	09-10-2024	Lump Loading Point (Near 600 TPH)	663.54	113.22
10.	10-10-2024	Lump Loading Point (Near 600 TPH)	590.39	111.53
11.	11-10-2024	Lump Loading Point (Near 600 TPH)	604.78	112.06
12.	12-10-2024	Lump Loading Point (Near 600 TPH)	665.57	124.70
13.	13-10-2024	Lump Loading Point (Near 600 TPH)	641.62	125.80
14.	14-10-2024	Lump Loading Point (Near 600 TPH)	608.66	115.90
15.	15-10-2024	Lump Loading Point (Near 600 TPH)	611.71	120.03
16.	16-10-2024	Lump Loading Point (Near 600 TPH)	588.96	107.27
17.	17-10-2024	Lump Loading Point (Near 600 TPH)	598.96	115.04
18.	18-10-2024	Lump Loading Point (Near 600 TPH)	603.68	108.24
19.	19-10-2024	Lump Loading Point (Near 600 TPH)	662.70	130.71
20.	20-10-2024	Lump Loading Point (Near 600 TPH)	604.92	110.94
21.	21-10-2024	Lump Loading Point (Near 600 TPH)	607.97	105.33
22.	22-10-2024	Lump Loading Point (Near 600 TPH)	661.07	128.46
23.	23-10-2024	Lump Loading Point (Near 600 TPH)	618.69	116.10
24.	24-10-2024	Lump Loading Point (Near 600 TPH)	625.63	122.08
25.	25-10-2024	Lump Loading Point (Near 600 TPH)	614.94	112.54
26.	26-10-2024	Lump Loading Point (Near 600 TPH)	618.20	117.01
27.	27-10-2024	Lump Loading Point (Near 600 TPH)	647.44	120.11
28.	28-10-2024	Lump Loading Point (Near 600 TPH)	610.63	112.51
29.	29-10-2024	Lump Loading Point (Near 600 TPH)	654.36	126.42
30.	30-10-2024	Lump Loading Point (Near 600 TPH)	656.42	112.82
31.	31-10-2024	Lump Loading Point (Near 600 TPH)	664.32	120.88
Average			**626.26**	**116.20**

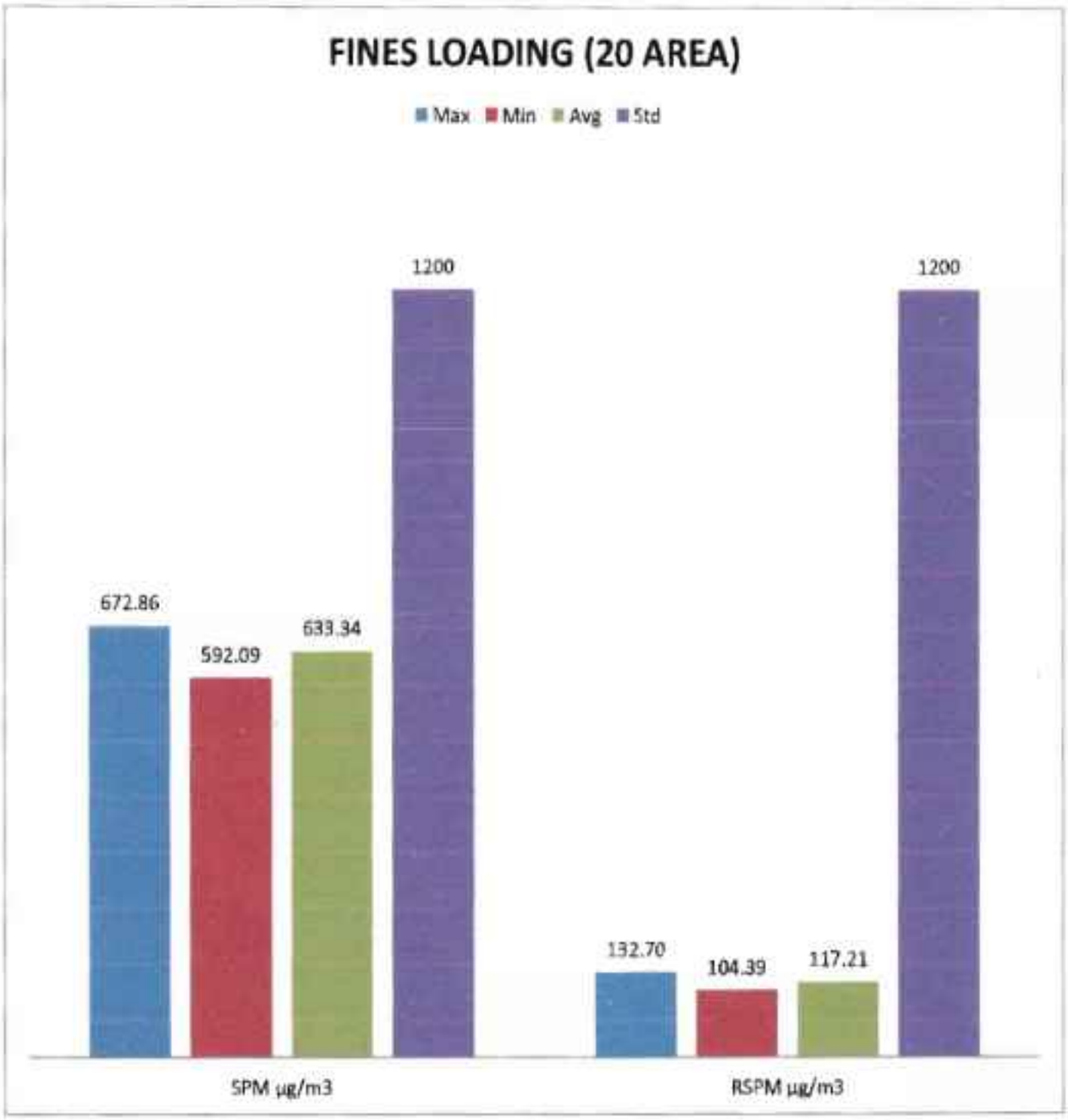
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2.6 Fines Loading (20 area) (F6)

The pollution level in Fines Loading (20 area) for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **672.86** µg/m³ whereas minimum concentration was observed **592.09** µg/m³ and RSPM concentration ranges between **104.39** µg/m³ to **132.70** µg/m³ during the month.



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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/76
Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Fines Loading (20 area)**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	Fines Loading (20 area)	637.20	118.46
2.	02-10-2024	Fines Loading (20 area)	661.61	130.05
3.	03-10-2024	Fines Loading (20 area)	613.29	107.31
4.	04-10-2024	Fines Loading (20 area)	668.54	132.70
5.	05-10-2024	Fines Loading (20 area)	616.08	112.37
6.	06-10-2024	Fines Loading (20 area)	643.29	109.98
7.	07-10-2024	Fines Loading (20 area)	672.86	120.88
8.	08-10-2024	Fines Loading (20 area)	601.31	107.73
9.	09-10-2024	Fines Loading (20 area)	660.11	124.52
10.	10-10-2024	Fines Loading (20 area)	602.03	105.33
11.	11-10-2024	Fines Loading (20 area)	605.77	120.16
12.	12-10-2024	Fines Loading (20 area)	666.18	127.63
13.	13-10-2024	Fines Loading (20 area)	638.28	113.60
14.	14-10-2024	Fines Loading (20 area)	672.67	129.17
15.	15-10-2024	Fines Loading (20 area)	648.74	116.76
16.	16-10-2024	Fines Loading (20 area)	654.06	125.27
17.	17-10-2024	Fines Loading (20 area)	604.84	114.56
18.	18-10-2024	Fines Loading (20 area)	626.89	114.92
19.	19-10-2024	Fines Loading (20 area)	653.90	119.83
20.	20-10-2024	Fines Loading (20 area)	641.67	114.60
21.	21-10-2024	Fines Loading (20 area)	605.44	107.26
22.	22-10-2024	Fines Loading (20 area)	628.87	113.86
23.	23-10-2024	Fines Loading (20 area)	671.31	125.26
24.	24-10-2024	Fines Loading (20 area)	601.32	115.89
25.	25-10-2024	Fines Loading (20 area)	592.09	115.99
26.	26-10-2024	Fines Loading (20 area)	653.34	122.76
27.	27-10-2024	Fines Loading (20 area)	624.22	119.73
28.	28-10-2024	Fines Loading (20 area)	597.75	116.75
29.	29-10-2024	Fines Loading (20 area)	599.99	104.39
30.	30-10-2024	Fines Loading (20 area)	665.29	114.95
31.	31-10-2024	Fines Loading (20 area)	604.64	110.70
Average			**633.34**	**117.21**

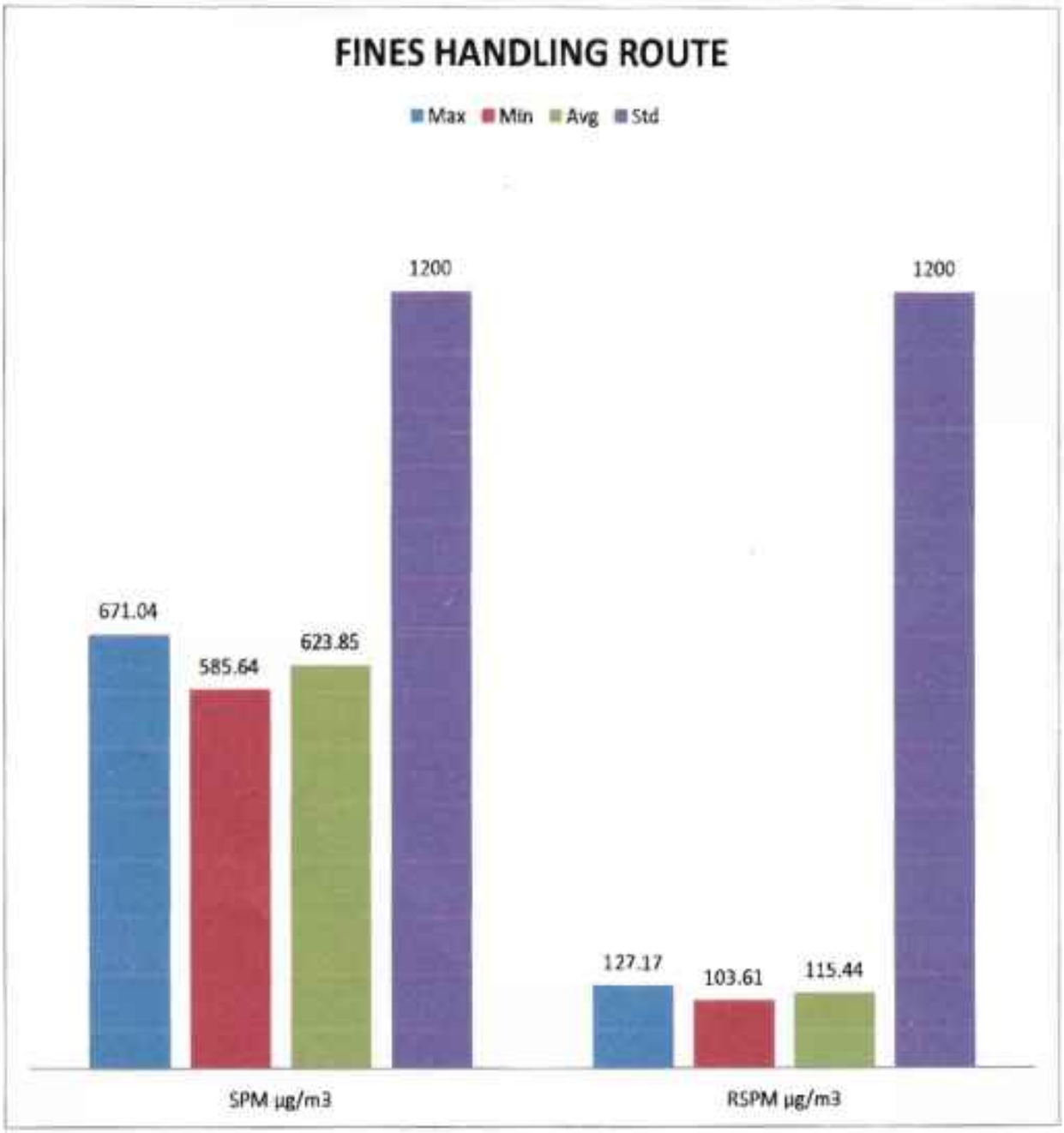
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2.7 Fines Handling Route (F7)

The pollution level in Fines Handling Route for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **671.04** µg/m³ whereas minimum concentration was observed **585.64** µg/m³ and RSPM concentration ranges between **103.61** µg/m³ to **127.17** µg/m³ during the month.



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Test Report No: ECO/BOM/FUG/77
Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Fines Handling Route**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	Fines Handling Route	592.96	106.03
2.	02-10-2024	Fines Handling Route	612.51	106.64
3.	03-10-2024	Fines Handling Route	670.03	125.09
4.	04-10-2024	Fines Handling Route	643.78	116.48
5.	05-10-2024	Fines Handling Route	600.90	118.66
6.	06-10-2024	Fines Handling Route	671.04	125.00
7.	07-10-2024	Fines Handling Route	598.20	118.15
8.	08-10-2024	Fines Handling Route	648.54	117.15
9.	09-10-2024	Fines Handling Route	643.38	115.30
10.	10-10-2024	Fines Handling Route	654.10	122.48
11.	11-10-2024	Fines Handling Route	637.74	114.41
12.	12-10-2024	Fines Handling Route	668.87	127.17
13.	13-10-2024	Fines Handling Route	595.47	106.11
14.	14-10-2024	Fines Handling Route	594.19	114.16
15.	15-10-2024	Fines Handling Route	632.48	124.97
16.	16-10-2024	Fines Handling Route	664.92	123.57
17.	17-10-2024	Fines Handling Route	620.26	114.19
18.	18-10-2024	Fines Handling Route	604.21	106.22
19.	19-10-2024	Fines Handling Route	617.69	113.96
20.	20-10-2024	Fines Handling Route	608.20	114.93
21.	21-10-2024	Fines Handling Route	630.51	107.64
22.	22-10-2024	Fines Handling Route	608.41	107.11
23.	23-10-2024	Fines Handling Route	611.12	116.45
24.	24-10-2024	Fines Handling Route	639.85	116.18
25.	25-10-2024	Fines Handling Route	591.95	103.61
26.	26-10-2024	Fines Handling Route	585.64	110.29
27.	27-10-2024	Fines Handling Route	599.30	106.21
28.	28-10-2024	Fines Handling Route	615.29	119.09
29.	29-10-2024	Fines Handling Route	645.55	126.54
30.	30-10-2024	Fines Handling Route	594.03	112.38
31.	31-10-2024	Fines Handling Route	638.27	122.34
Average			**623.85**	**115.44**

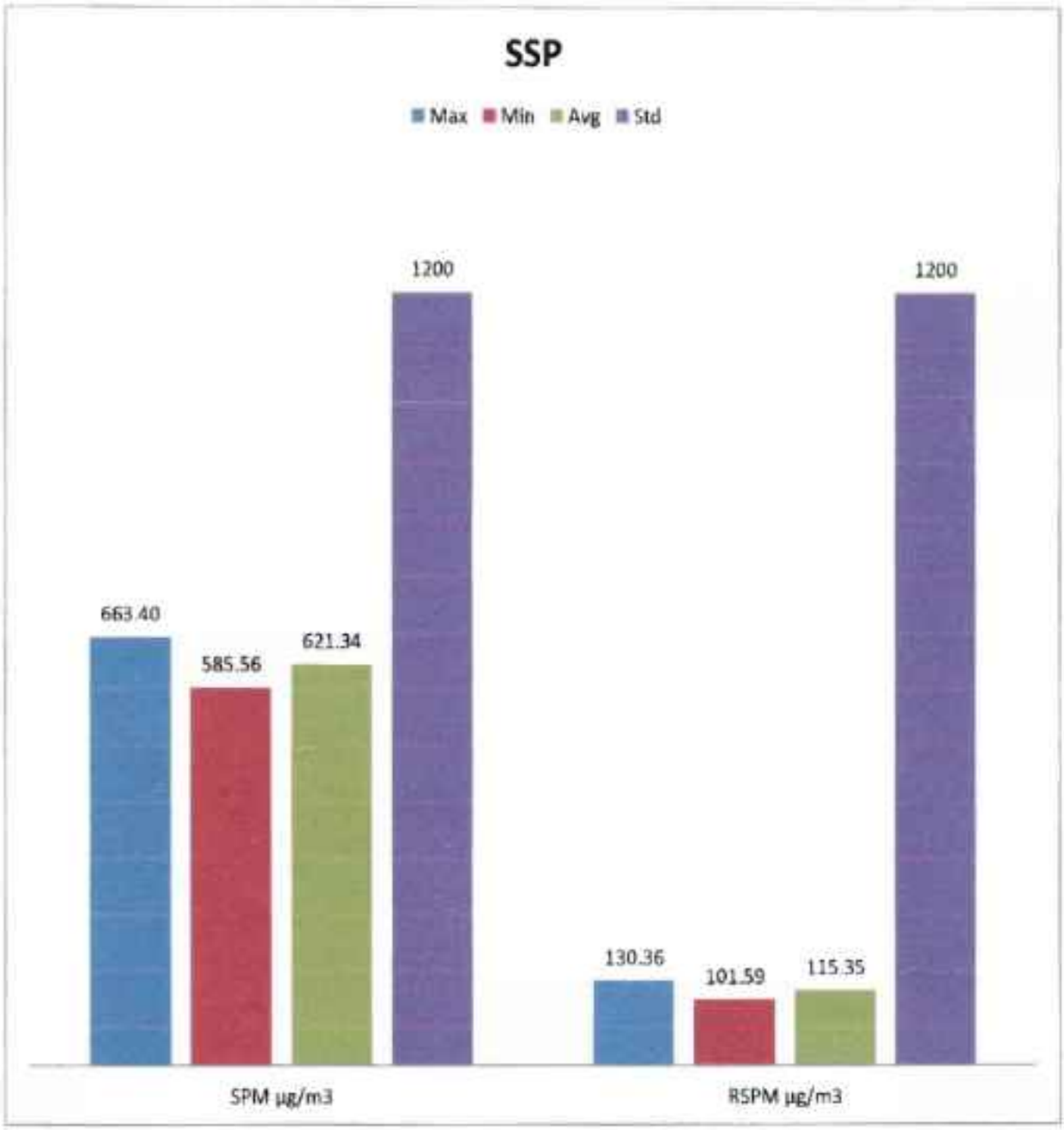
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2.8 SSP (F8)

The pollution level in SSP Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **663.40** µg/m³ whereas minimum concentration was observed **585.56** µg/m³ and RSPM concentration ranges between **101.59** µg/m³ to **130.36** µg/m³ during the month.



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/78
Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **SSP**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	SSP	663.40	129.70
2.	02-10-2024	SSP	597.88	111.31
3.	03-10-2024	SSP	648.88	115.78
4.	04-10-2024	SSP	628.27	109.01
5.	05-10-2024	SSP	641.89	122.65
6.	06-10-2024	SSP	610.13	108.56
7.	07-10-2024	SSP	587.22	116.82
8.	08-10-2024	SSP	620.81	109.41
9.	09-10-2024	SSP	650.84	122.98
10.	10-10-2024	SSP	602.42	118.12
11.	11-10-2024	SSP	615.48	117.74
12.	12-10-2024	SSP	651.31	127.57
13.	13-10-2024	SSP	656.45	130.36
14.	14-10-2024	SSP	619.94	121.60
15.	15-10-2024	SSP	603.54	116.25
16.	16-10-2024	SSP	618.18	111.11
17.	17-10-2024	SSP	640.64	112.79
18.	18-10-2024	SSP	601.18	112.20
19.	19-10-2024	SSP	596.06	101.59
20.	20-10-2024	SSP	600.95	107.17
21.	21-10-2024	SSP	648.06	117.65
22.	22-10-2024	SSP	624.35	120.34
23.	23-10-2024	SSP	647.30	111.17
24.	24-10-2024	SSP	620.67	108.46
25.	25-10-2024	SSP	591.46	103.06
26.	26-10-2024	SSP	585.56	112.26
27.	27-10-2024	SSP	609.02	115.78
28.	28-10-2024	SSP	629.83	121.92
29.	29-10-2024	SSP	653.21	123.19
30.	30-10-2024	SSP	606.93	117.24
31	31-10-2024	SSP	589.80	102.02
Average			**621.34**	**115.35**

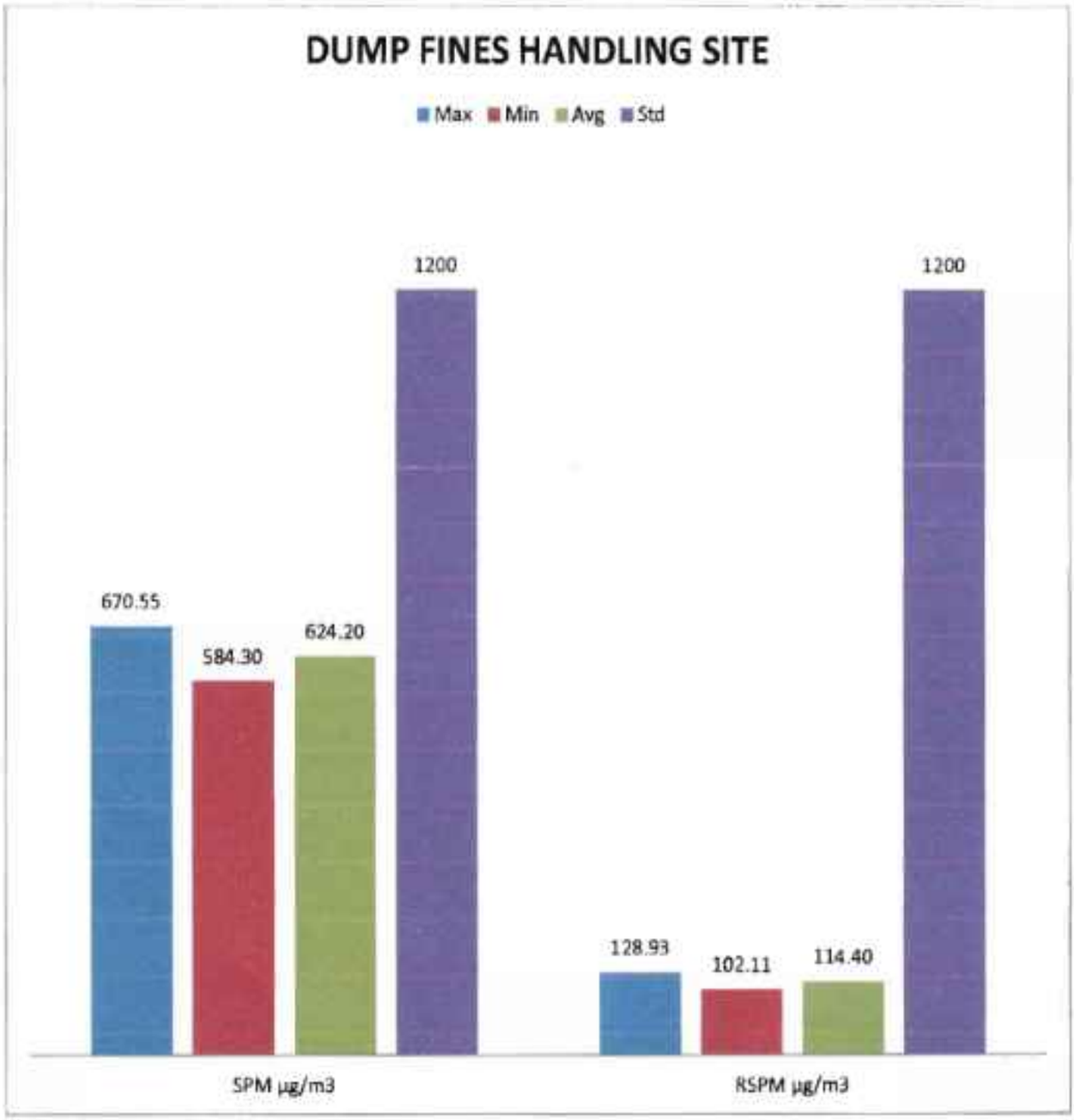
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2.9 Dump Fines Handling Site (F9)

The pollution level in Dump Fines Handling Site for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **670.55** µg/m³ whereas minimum concentration was observed **584.30**µg/m³ and RSPM concentration ranges between **102.11** µg/m³ to **128.93** µg/m³ during the month.



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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Dump Fines Handling Site**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	Dump Fines Handling Site	637.56	111.24
2.	02-10-2024	Dump Fines Handling Site	644.08	113.27
3.	03-10-2024	Dump Fines Handling Site	629.00	118.57
4.	04-10-2024	Dump Fines Handling Site	599.32	109.53
5.	05-10-2024	Dump Fines Handling Site	615.77	107.60
6.	06-10-2024	Dump Fines Handling Site	608.66	113.94
7.	07-10-2024	Dump Fines Handling Site	643.57	112.81
8.	08-10-2024	Dump Fines Handling Site	611.92	116.24
9.	09-10-2024	Dump Fines Handling Site	601.03	103.61
10.	10-10-2024	Dump Fines Handling Site	653.98	117.99
11.	11-10-2024	Dump Fines Handling Site	602.56	118.28
12.	12-10-2024	Dump Fines Handling Site	592.36	108.74
13.	13-10-2024	Dump Fines Handling Site	642.70	121.66
14.	14-10-2024	Dump Fines Handling Site	657.30	118.52
15.	15-10-2024	Dump Fines Handling Site	597.10	106.01
16.	16-10-2024	Dump Fines Handling Site	587.53	102.49
17.	17-10-2024	Dump Fines Handling Site	599.22	108.60
18.	18-10-2024	Dump Fines Handling Site	584.30	105.16
19.	19-10-2024	Dump Fines Handling Site	638.53	111.72
20.	20-10-2024	Dump Fines Handling Site	597.37	102.11
21.	21-10-2024	Dump Fines Handling Site	615.48	118.96
22.	22-10-2024	Dump Fines Handling Site	608.87	118.87
23.	23-10-2024	Dump Fines Handling Site	645.15	124.73
24.	24-10-2024	Dump Fines Handling Site	640.63	109.98
25.	25-10-2024	Dump Fines Handling Site	629.13	120.74
26.	26-10-2024	Dump Fines Handling Site	661.39	116.11
27.	27-10-2024	Dump Fines Handling Site	654.01	126.59
28.	28-10-2024	Dump Fines Handling Site	664.16	128.93
29.	29-10-2024	Dump Fines Handling Site	631.40	120.17
30.	30-10-2024	Dump Fines Handling Site	670.55	128.28
31.	31-10-2024	Dump Fines Handling Site	585.47	104.91
Average			**624.20**	**114.40**

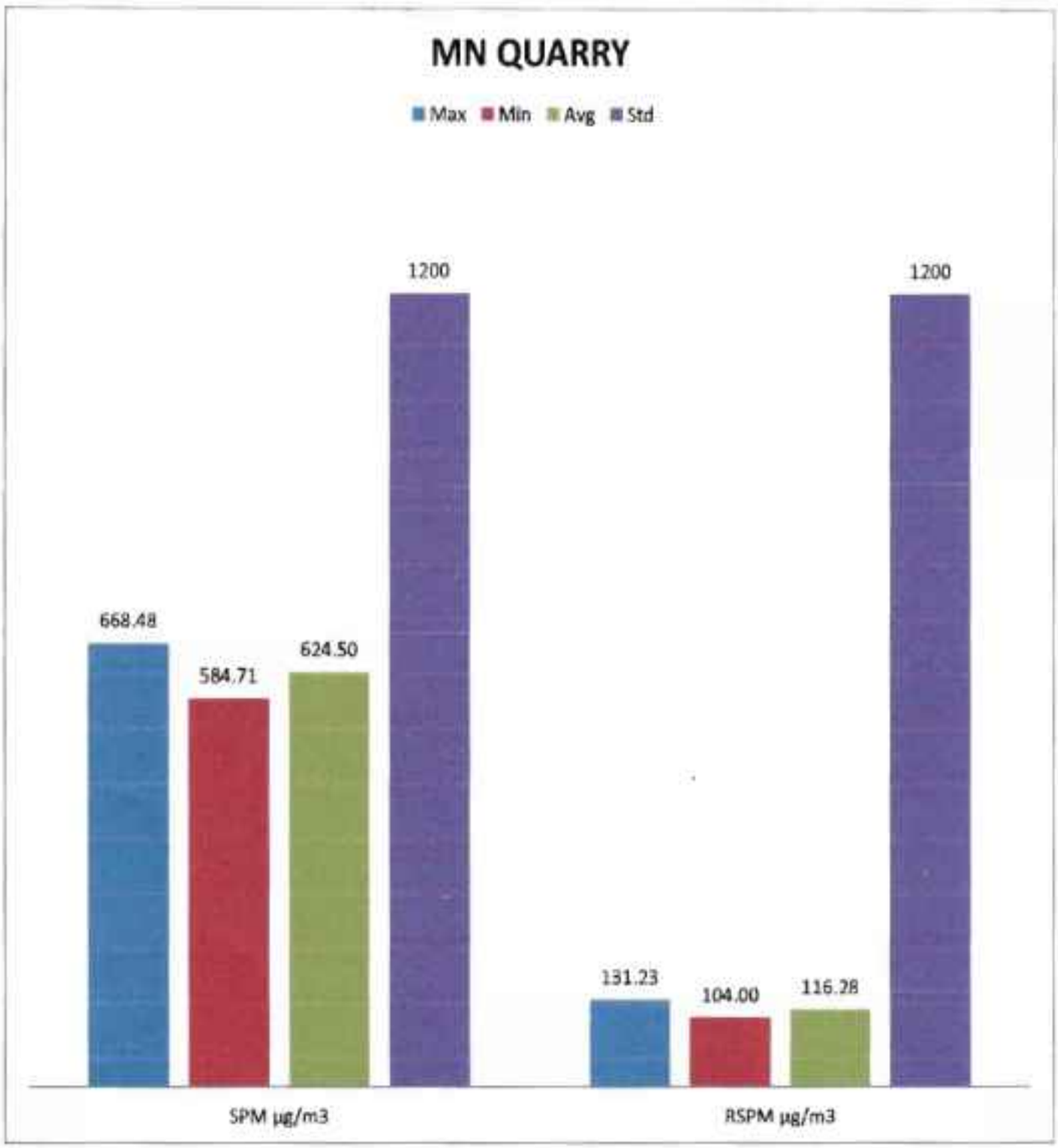
----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.2.10 Mn Quarry (F5)

The pollution level in Mn Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **668.48** µg/m³ whereas minimum concentration was observed **584.71** µg/m³ and RSPM concentration ranges between **104.00** µg/m³ to **139.23** µg/m³ during the month.



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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Test Report Issue date: 05.11.2024

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Mn Quarry**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2024	Mn Quarry	630.45	115.89
2.	02-10-2024	Mn Quarry	662.85	127.21
3.	03-10-2024	Mn Quarry	595.05	109.01
4.	04-10-2024	Mn Quarry	635.49	121.79
5.	05-10-2024	Mn Quarry	668.48	126.97
6.	06-10-2024	Mn Quarry	602.73	104.00
7.	07-10-2024	Mn Quarry	590.32	116.73
8.	08-10-2024	Mn Quarry	664.28	119.20
9.	09-10-2024	Mn Quarry	591.93	106.05
10.	10-10-2024	Mn Quarry	666.41	122.40
11.	11-10-2024	Mn Quarry	666.42	131.23
12.	12-10-2024	Mn Quarry	630.93	123.07
13.	13-10-2024	Mn Quarry	597.57	109.00
14.	14-10-2024	Mn Quarry	584.71	113.71
15.	15-10-2024	Mn Quarry	632.99	110.98
16.	16-10-2024	Mn Quarry	604.19	116.63
17.	17-10-2024	Mn Quarry	619.81	115.46
18.	18-10-2024	Mn Quarry	596.73	107.78
19.	19-10-2024	Mn Quarry	590.42	115.18
20.	20-10-2024	Mn Quarry	657.77	122.27
21.	21-10-2024	Mn Quarry	619.20	110.67
22.	22-10-2024	Mn Quarry	665.09	123.12
23.	23-10-2024	Mn Quarry	634.99	121.77
24.	24-10-2024	Mn Quarry	595.80	112.95
25.	25-10-2024	Mn Quarry	623.24	119.31
26.	26-10-2024	Mn Quarry	658.21	122.33
27.	27-10-2024	Mn Quarry	633.37	113.85
28.	28-10-2024	Mn Quarry	616.19	113.26
29.	29-10-2024	Mn Quarry	591.38	106.98
30.	30-10-2024	Mn Quarry	627.79	118.69
31.	31-10-2024	Mn Quarry	604.57	107.31
Average			**624.50**	**116.28**

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

3.3 Surface/Effluent/Drinking Water Quality:

As per the guideline of CPCB, the following criteria shall be taken into consideration for use of the surface water bodies. Reports below shows the surface water quality analysis results at identified locations near the ML area.

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	• Total Coliforms Organism MPN/100ml shall be 50 or less • pH between 6.5 and8.5 • Dissolved Oxygen 6mg/l or more • Biochemical Oxygen Demand 5 days 20C 2mg/l or less
Outdoor bathing (Organized)	B	• Total Coliforms Organism MPN/100ml shall be 500 or less • pH between 6.5 and8.5 • Dissolved Oxygen 5mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Drinking water source after conventional treatment and disinfection	C	• Total Coliforms Organism MPN/100ml shall be 5000 or less • pH between 6 to9 • Dissolved Oxygen 4mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Propagation of Wild life and Fisheries	D	• pH between 6.5 to8.5 • Dissolved Oxygen 4mg/l or more • Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	• pH between 6.0 to8.5 • Electrical Conductivity at 25C micro mhos/cmMax.2250 • Sodium absorption Ratio Max.26 • Boron Max.2mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.3.1 Surface Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400000367F
		Test Report No.	ECO/LAB/SW/0086/0367/09/2024
		Issue Date of Test Report	08.10.2024
Type of Sample	Surface Water		
Sample Registration No.	0086	Name of Location	Karo Near Lease Boundary at Limture Village
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	25.10.2024	Time of Sample Collection	-
Date of Sample Receipt	30.10.2024	Time of Sample Receipt	05:40 PM
Start Date of Analysis	30.10.2024	End Date of Analysis	08.10.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 53%	Sample ID Code	ECO/LAB/0367/09/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	46.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	20.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	2.7	3.0
4.	Chloride as Cl	mg/l	APHA, 23rd Ed. :2023,4500 Cl A+B	5-1000	18.4	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO3-E	5-100	<5	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.13	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

Idma Laboratories Limited

TEST REPORT

Lab No.	211024N-E-009		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	ECO/IDMA/10/2024	Dated	19/10/2024
Type of Sample#	Surface Water (ECO/LAB/0707/10/2024)		
Customer's Description of Sample#	Surface Water (ECO/LAB/0707/10/2024)		
Mode of Collection of Sample	By the Party. (D.O.S.18.10.2024)		
Date of Sampling	21/10/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Karo Near Lease Boundryat Limlur Village)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	21/10/2024		
Period of Analysis	21/10/2024 To 26/10/2024		
Date of Reporting	26/10/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.28	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5500 B 24th Edition, 2023
4	Total Iron	mg/L	0.003	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by

Authorised signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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- Samples not drawn by us unless otherwise stated.
- Total liability of Idma Laboratories Limited is limited to the invoiced amount.
- If sample(s) not consumed, they will be stored & retained as per Company Policy / quality System Procedure.
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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Bolani Ore Mines (SAIL)	ULR No.	TC127512400000368F
		Test Report No.	ECO/LAB/SW/0086/0368/09/2024
		Issue Date of Test Report	08.10.2024
Type of Sample	Surface Water		
Sample Registration No.	0086	Name of Location	Jhikaria Nalla before Joining Karo River
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	25.10.2024	Time of Sample Collection	-
Date of Sample Receipt	30.10.2024	Time of Sample Receipt	05:40 PM
Start Date of Analysis	30.10.2024	End Date of Analysis	08.10.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 53%	Sample ID Code	ECO/LAB/0368/09/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	28.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	26.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	2.4	3.0
4.	Chloride as Cl	mg/l	APHA, 23rd Ed. :2023,4500 Cl A+B	5-1000	14.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO_3-E	5-100	6.52	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.09	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit.

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

Idma Laboratories Limited

TEST REPORT

Lab No.	211024N-E-010		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	ECO/IDMA/09/2024	Dated	19/10/2024
Type of Sample#	Surface Water(ECO/LAB/0708/10/2024)		
Customer's Description of Sample#	Surface Water(ECO/LAB/0708/10/2024)		
Mode of Collection of Sample	By the Party. (D.O.S.18.10.2024)		
Date of Sampling	21/10/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc. Jhinkaria Nallah Before Joining Karo)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	21/10/2024		
Period of Analysis	21/10/2024 To 26/10/2024		
Date of Reporting	26/10/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.33	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	2.7	APHA 5500 B 24th Edition, 2023
4	Total Iron	mg/L	0.005	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by

Authorised signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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- In case of any feedback/complaints, please send email at feedback@idmagroup.co.in or call at 0172 - 5064827 / 5064830

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ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400000369F
		Test Report No.	ECO/LAB/SW/0086/0369/09/2024
		Issue Date of Test Report	08.10.2024
Type of Sample	Surface Water		
Sample Registration No.	0086	Name of Location	Panpash Nallah
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	25.10.2024	Time of Sample Collection	-
Date of Sample Receipt	30.10.2024	Time of Sample Receipt	05:40 PM
Start Date of Analysis	30.10.2024	End Date of Analysis	08.10.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 53%	Sample ID Code	ECO/LAB/0369/09/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	30.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	30.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	2.5	3.0
4.	Chloride as Cl	mg/l	APHA, 23rd Ed. :2023,4500 Cl A+B	5-1000	20.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.12	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO3-E	5-100	5.88	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.14	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL - Below Detection Limit

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

Idma Laboratories Limited

TEST REPORT

Lab No.	211024N-E-011		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	ECO/IDMA/10/2024	Dated	19/10/2024
Type of Sample#	Surface Water (ECO/LAB/0705/10/2024)		
Customer's Description of Sample#	Surface Water (ECO/LAB/0706/10/2024)		
Mode of Collection of Sample	By the Party. (D.O.S.18.10.2024)		
Date of Sampling	21/10/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Panposh Nalla)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	21/10/2024		
Period of Analysis	21/10/2024 To 26/10/2024		
Date of Reporting	26/10/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.30	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5500 B 24th Edition, 2023
4	Total Iron	mg/L	<0.0005	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by

Idma Laboratories Ltd. Digvijay Jain Asst. Tech. Manager Panchkula

Authorised signatory

Idma Laboratories Ltd. Tech. Manager Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Bolani Ore Mines (SAIL)	ULR No.	TC127512400000370F
		Test Report No.	ECO/LAB/SW/0086/0370/09/2024
		Issue Date of Test Report	08.10.2024
Type of Sample	Surface Water		
Sample Registration No.	0086	Name of Location	Karo River Intake
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	25.10.2024	Time of Sample Collection	-
Date of Sample Receipt	30.10.2024	Time of Sample Receipt	05:40 PM
Start Date of Analysis	30.10.2024	End Date of Analysis	08.10.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 53%	Sample ID Code	ECO/LAB/0370/09/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	20.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	29.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	2.7	3.0
4.	Chloride as Cl	mg/l	APHA, 23rd Ed. :2023,4500 Cl A+B	5-1000	18.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.14	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO_3-E	5-100	5.23	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.06	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

Idma Laboratories Limited

TEST REPORT

Lab No.	211024N-E-012		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	ECO/IDMA/10/2024	Dated	18/10/2024
Type of Sample#	Surface Water (ECO/LAB/0710/10/2024)		
Customer's Description of Sample#	Surface Water (ECO/LAB/0710/10/2024)		
Mode of Collection of Sample	By the Party.(D.O.S.18.10.2024)		
Date of Sampling	21/10/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle, (Loc.Karo River Intake)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	21/10/2024		
Period of Analysis	21/10/2024 To 26/10/2024		
Date of Reporting	26/10/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.11	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5520 B 24th Edition, 2023
4	Total Iron	mg/L	0.0006	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by. 26/10/24

Idma Laboratories Ltd. Dipa Sain Asst. Tech. Manager Panchkula

Authorised signatory 26/10/24.

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

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2.3.2 Effluent Waste Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No	TC127512400000373F
		Test Report No.	ECO/LAB/WW/0086/0373/09/2024
		Issue Date of Test Report	08.10.2024
Type of Sample	Waste Water		
Sample Registration No.	0086	Name of Location	Oil Catch Pit Water Bottom Garbage
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	25.10.2024	Time of Sample Collection	-
Date of Sample Receipt	30.10.2024	Time of Sample Receipt	05:40 PM
Start Date of Analysis	30.10.2024	End Date of Analysis	08.10.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 53%	Sample ID Code	ECO/LAB/0373/09/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.65	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	44.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. : 2017,5220 A+C	1 -1000	22.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. : 2017,5210 A+B	1 -1000	3.6	30.0
5.	Oil & Grease as O&G	mg/l	APHA, 23rd Ed. : 2017,5520 A+D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.20	2.0
7.	Nitrate nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3-E	5-100	6.5	-
8.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017,3114 A+B	0.01-2	0.17	-
9.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3500 A+B	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017,3500 Fe-B	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S^{2-} F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.002	2.0

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

Idma Laboratories Limited

TEST REPORT

Lab No.	211024N-E-013		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Type of Sample#	Waste Water (ECO/LAB/0711/10/2024)		
Work Order No.#	ECO/IDMA/10/2024	Dated	19/10/2024
Customer's Description of Sample#	Waste Water (ECO/LAB/0711/10/2024)		
Subject#	N/A		
Quantity#	01 Ltr.		
Packing, Markings, Seal#	Plastic Bottle. (Loc. Oil Catchpit Water Bottom Garage)		
Mode of Receipt of Sample	By Hand		
Date of Receipt of Sample	21/10/2024		
Period of Analysis	21/10/2024 To 26/10/2024		
Date of Reporting	26/10/2024		
Remarks	Sample supplied by the Party. (D.O.S.18.10.2024)		
Testing Protocol	CPCB		

RESULTS

S.No.	Test Parameter	Units	Results	Specifications	Test Method
	CHEMICAL TESTING (Waste Water)	-	-	-	-
1	Total Chlorine (Residual)	mg/L	0.16	Max 1.0	APHA4500Cl B24th Edition, 2023
2	Cyanide as CN-	mg/L	<0.05	Max 0.2	APHA4500CN-C&E 24th Edition, 2023
3	Total Iron	mg/L	0.65	Max 3.0	CPCB Guide Manual:Water & waste water Analysis

Represents details provided by the customer.

End of Report

Reviewed by:

Authorised signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064527,- 5064530

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ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No	TC127512400000374F
		Test Report No.	ECO/LAB/WW/0086/0374/09/2024
		Issue Date of Test Report	08.10.2024
Type of Sample	Waste Water		
Sample Registration No.	0086	Name of Location	Oil Catch pit water G-Area
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	25.10.2024	Time of Sample Collection	-
Date of Sample Receipt	30.10.2024	Time of Sample Receipt	05:40 PM
Start Date of Analysis	30.10.2024	End Date of Analysis	08.10.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 53%	Sample ID Code	ECO/LAB/0374/09/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.68	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	34.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. : 2017,5220 A+C	1 -1000	28.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. : 2017,5210 A+B	1 -1000	3.2	30.0
5.	Oil & Grease as O&G	mg/l	APHA, 23rd Ed. : 2017,5520 A+D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.18	2.0
7.	Nitrate nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3-E	5-100	5.22	-
8.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017,3114 A+B	0.01-2	0.18	-
9.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3500 A+B	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017,3500 Fe-B	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S^{2-} F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.002	2.0

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL - Below Detection Limit

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

Idma Laboratories Limited

TEST REPORT

Lab No.	211024N-E-014		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Type of Sample#	Waste Water (ECO/LAB/0712/10/2024)		
Work Order No.#	ECO/IDMA/10/2024	Dated	19/10/2024
Customer's Description of Sample#	Waste Water (ECO/LAB/0712/10/2024)		
Subject#	N/A		
Quantity#	01 Ltr.		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Oil Catchpit Water G-Area)		
Mode of Receipt of Sample	By Hand		
Date of Receipt of Sample	21/10/2024		
Period of Analysis	21/10/2024 To 26/10/2024		
Date of Reporting	26/10/2024		
Remarks	Sample supplied by the Party. (D.O.S.18.10.2024)		
Testing Protocol	CPCB		

RESULTS

S.No.	Test Parameter	Units	Results	Specifications	Test Method
	CHEMICAL TESTING (Waste Water)	-	-	-	-
1	Total Chlorine (Residual)	mg/L	0.12	Max 1.0	APHA4500Cl B24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	Max 0.2	APHA4500CN-C&E 24th Edition, 2023
3	Total Iron	mg/L	0.72	Max 3.0	CPCB Guide Manual:Water & waste water Analysis

Represents details provided by the customer.

End of Report

Reviewed by

Authorised signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5054527,- 5064530

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI
An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.3.3 Drinking Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400000372F
		Test Report No.	ECO/LAB/DW/0086/0371/09/2024
		Issue Date of Test Report	08.10.2024
Type of Sample	Drinking Water		
Sample Registration No.	0086	Name of Location	Mount Club Tap Water
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	25.10.2024	Time of Sample Collection	-
Date of Sample Receipt	30.10.2024	Time of Sample Receipt	05:40 PM
Start Date of Analysis	30.10.2024	End Date of Analysis	08.10.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 53%	Sample ID Code	ECO/LAB/0371/09/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.91	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.11	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO_3 E	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.06	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	0.07	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per **IS 10500:2012(Reaff:2018).**

Note-

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit.

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

Idma Laboratories Limited

TEST REPORT

Lab No.	211024N-E-007		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Type of Sample#	Drinking Water (ECO/LAB/0705/10/2024)		
Customer's Description of Sample#	Drinking Water (ECO/LAB/0705/10/2024)		
Quantity#	01 Ltr.		
Packing, Markings, Seal & Quantity#	Plastic Bottle. (Loc.Mount Club Tap Water)		
Mode of Collection of Sample	By the Party.(D.O.S. 18.10.2024)		
Work Order No.#	ECO/IDMA/10/2024	Dated	19/10/2024
Date of Receipt of Sample	21/10/2024		
Period of Analysis	21/10/2024 To 25/10/2024		
Visual Observation	N/A		
Date of Reporting	25/10/2024		
Testing Protocol	IS: 10500:2012		

RESULTS

S.No.	Test Parameter	Units	Results	Limit of IS: 10500-2012		Test Method
				Requirement (Acceptable Limit)	Permissible Limit in absence of alternate	
	Chemical Testing (Water)	-	-	-	-	-
1	Cyanide as CN	mg/L	<0.05	Max. 0.05	No Relaxation	APHA 4500CN-C&F 24th Edition, 2023
2	Oil & Grease	mg/L	<2.5	-	-	APHA 5520 B 24th Edition, 2023
3	Total Chlorine (Residual)	mg/L	0.24	-	-	APHA 4500Cl B 24th Edition, 2023
4	Total Iron	mg/L	<0.0005	Max. 1.0	No Relaxation	APHA 3120 B 24th Edition, 2023
5	Lead as Pb	mg/L	<0.0005	Max. 0.01	No Relaxation	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by

Authorised signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Bolani Ore Mines (SAIL)	ULR No.	TC127512400000372F
		Test Report No.	ECO/LAB/DW/0086/0372/09/2024
		Issue Date of Test Report	08.10.2024
Type of Sample	Drinking Water		
Sample Registration No.	0086	Name of Location	Karo Guest House Tap Water
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	25.10.2024	Time of Sample Collection	-
Date of Sample Receipt	30.10.2024	Time of Sample Receipt	05:40 PM
Start Date of Analysis	30.10.2024	End Date of Analysis	08.10.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 53%	Sample ID Code	ECO/LAB/0372/09/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.80	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.08	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3 E	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.11	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per **IS 10500:2012(Reaff:2018).**

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

Idma Laboratories Limited

TEST REPORT

Lab No.	211024N-E-008		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Type of Sample#	Drinking Water(ECO/LAB/0706/10/2024)		
Customer's Description of Sample#	Drinking Water(ECO/LAB/0706/10/2024)		
Quantity#	01 Ltr.		
Packing, Markings, Seal & Quantity#	Plastic Bottle. (Loc. Karo Guest House Tap Water)		
Mode of Collection of Sample	By the Party. (D.O.S. 18.10.2024)		
Work Order No.#	ECO/IDMA/10/2024	Dated	19/10/2024
Date of Receipt of Sample	21/10/2024		
Period of Analysis	21/10/2024 To 26/10/2024		
Visual Observation	N/A		
Date of Reporting	26/10/2024		
Testing Protocol	IS: 10500:2012		

RESULTS

S.No.	Test Parameter	Units	Results	Limit of IS: 10500-2012		Test Method
				Requirement (Acceptable Limit)	Permissible Limit in absence of alternate	
	Chemical Testing (Water)	-	-	-	-	-
1	Cyanide as CN	mg/L	<0.05	Max. 0.05	No Relaxation	APHA 4500CN-C&F 24th Edition, 2023
2	Oil & Grease	mg/L	<2.5	-	-	APHA 5500 B 24th Edition, 2023
3	Total Chlorine (Residual)	mg/L	0.23	-	-	APHA 4500Cl B 24th Edition, 2023
4	Total Iron	mg/L	0.002	Max. 1.0	No Relaxation	APHA 3120 B 24th Edition, 2023
5	Lead as Pb	mg/L	<0.0005	Max. 0.01	No Relaxation	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Idma Laboratories Ltd. Dipti Jain Chief Tech. Manager Panchkula

Reviewed by

Idma Laboratories Ltd. Senior Signatory 26/10/24

Authorised signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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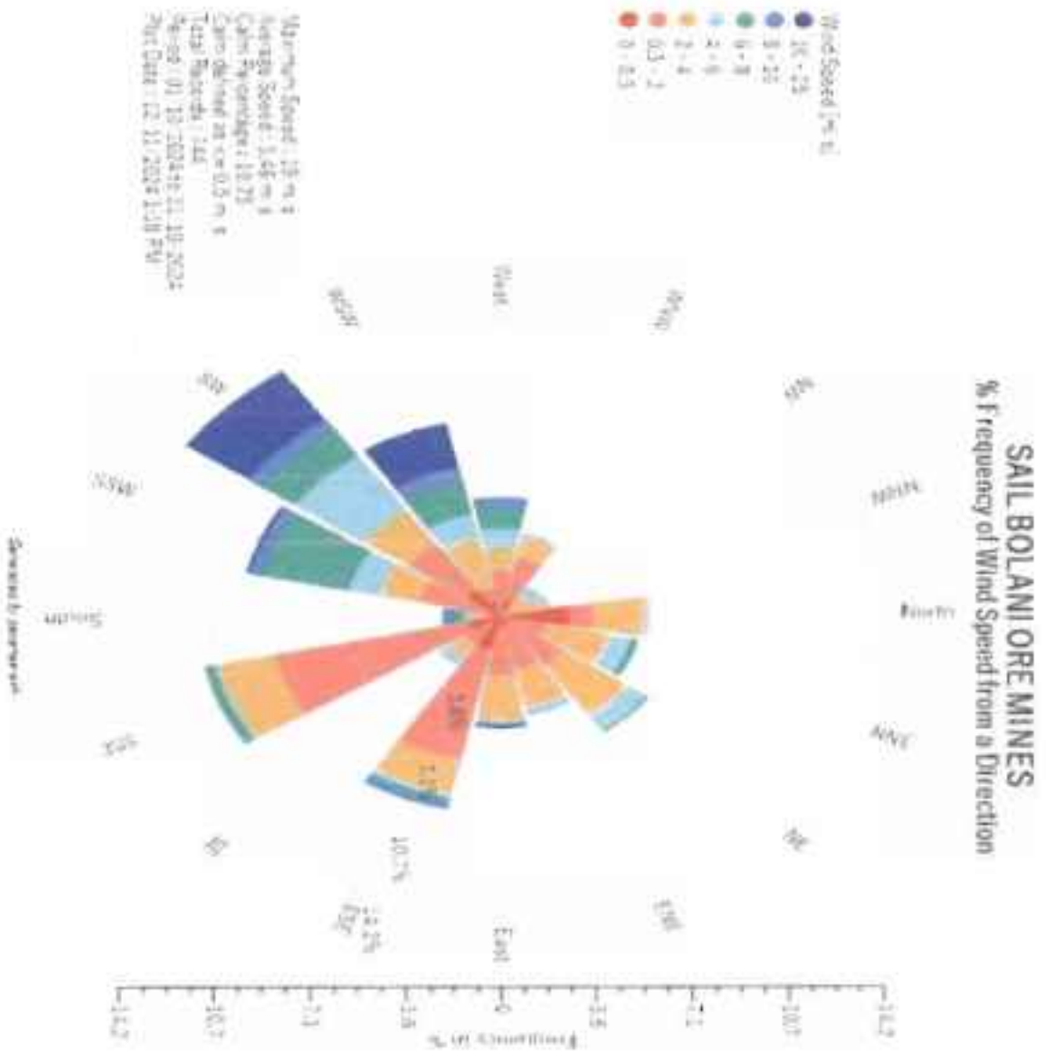
2.4.1 Meteorology

Summarized meteorological data such as temperature, relative humidity, rainfall, and wind speed and wind direction are given in **Table No. 2.5.2.** During the month of 'OCTOBER 2024' the temperature varied from 20.0ºC to 36.6ºC & Relative Humidity varied from 44.2% to 98.8%. The maximum wind speed recorded during the month was 19 m/s and the overall average wind speed is calculated to be 3.46 m/s, 10.75% of the time the wind remained calm (<0.5 m/s). The predominant wind direction as observed to be from South West (SW) direction during the month. The total rainfall observed during the month was 144 & 07 out of 31 were rainy days. Max. And Min. Value of temperature, relative humidity, rainfall, wind speed and wind direction on each day basis for OCTOBER 2024 are given below.

Table No. 2.4.2: Results of Site Specific Meteorological Data

Parameters		OCTOBER, 2024
Temperature (ºC)	Maximum	36.6
	Minimum	20.0
	Average	27.21
Relative Humidity (%)	Maximum	98.8
	Minimum	44.2
	Average	82.54
Wind Speed(m/s)	Maximum	19.0
	Average	3.46
Wind Direction (%)	N	5.5
	NNE	5.25
	NE	6.72
	ENE	4.84
	E	5.36
	ESE	9.41
	SE	2.82
	SSE	11.28
	S	2.14
	SSW	9.67
	SW	14.25
	WSW	9.4
	W	5.65
	WNW	4.04
	NW	1.75
	NNW	1.88
	CALM	10.75
Rainfall(mm)	Monthly Total	144
	No. of rainy days	07

Figure No.2: Wind Rose (24 hrly) During the Month of OCTOBER' 2024



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AWS/06
Test Report Issue date: 05.10.2024

METEROLOGICAL MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist- Keonjhar , Odisha**
2. Monitoring Instruments : Automatic Weather Station (AWS)
3. Sampling Location : **DAV Public School**

Date	Temperature (°C)		Relative Humidity (%)		Wind Speed (m/s)		Rainfall (mm)
	Max.	Min.	Max.	Min.	Max.	Min.	
01.10.2024	36.10	23.70	86.90	46.70	5.00	0	0
02.10.2024	33.30	24.90	84.20	57.10	5.50	0	0
03.10.2024	35.50	24.30	85.00	51.00	13.75	0	0
04.10.2024	35.70	25.70	87.40	51.80	12.25	0	0
05.10.2024	36.60	23.50	98.00	44.90	8.50	0	0
06.10.2024	34.60	24.50	98.10	57.80	6.00	0	0
07.10.2024	36.20	23.60	98.80	48.10	4.50	0	0
08.10.2024	34.70	23.70	98.70	51.70	7.50	0	0
09.10.2024	36.20	23.60	98.70	48.10	7.75	0	0
10.10.2024	34.70	23.30	98.70	53.30	11.75	0	0
11.10.2024	34.70	23.40	98.70	57.20	8.75	0	33.0
12.10.2024	34.80	23.70	98.70	55.60	7.75	0	0
13.10.2024	35.00	23.90	98.70	52.00	6.75	0	2.8
14.10.2024	35.00	23.60	98.70	49.20	3.25	0	0
15.10.2024	35.40	23.70	98.80	53.20	10.75	0	3.6
16.10.2024	34.00	23.30	98.80	57.20	9.25	0	0.2
17.10.2024	35.60	23.10	98.70	49.50	8.00	0	0
18.10.2024	34.90	23.40	98.70	54.80	8.75	0	0
19.10.2024	34.90	24.50	98.80	48.90	7.00	0	0.6
20.10.2024	34.50	23.30	98.80	49.90	3.75	0	0
21.10.2024	33.50	22.20	98.70	44.20	7.00	0	0
22.10.2024	33.50	20.00	98.60	48.70	7.00	0	0
23.10.2024	32.30	20.60	98.60	53.80	7.00	0	0
24.10.2024	25.00	22.90	98.70	81.50	13.75	0	4.4
25.10.2024	24.40	22.90	98.70	87.20	19.00	0	29.4
26.10.2024	24.40	22.90	98.70	96.40	16.00	0	15.0
27.10.2024	32.10	23.70	98.80	59.90	7.00	0	0.2
28.10.2024	32.70	24.20	98.80	56.10	5.50	0	0
29.10.2024	33.60	23.50	98.80	57.80	4.50	0	0
30.10.2024	35.40	22.70	98.80	52.20	8.25	0	54.8
31.10.2024	33.00	22.80	98.80	60.30	9.50	0	0

---End of Report---

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

2.5 Surface Flow Rate (Nallah/Stream):

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/SWF/07
Test Report Issue date: 05.11.2024

SURFACE FLOW RATE MONITORING REPORT FOR OCTOBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : Flow Meter
3. Sampling Location : **Karo River Limtur Villg, Jhikaria Nallah , Panposh Nallah**
4. Sample collected by : EMPL representative in presence of Client's representative.

Location Name	Station Code	Result in (m/sec)
Karo River Limtur Village	SWFM1	0.52
Jhikaria nallah	SWFM2	0.28
Panposh Nallah	SWFM3	0.34

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Abhishek Kumar Singh)

Monthly Photo Report

PHOTO REPORT OF BOLANI ORES MINES

OF SAIL, BOLANI, ODISHA

ABSTRACT

FEW SNAPSHOTS OF MONITORING ACTIVITIES THAT WERE DONE IN THE MINES DURING THE MONTH OF OCTOBER 2024 SAIL

PHOTO REPORT OF BOLANI ORES MINES, SAIL, BOLANI,ODISHA

1. AMBIEMT AIR QUALITY

DAV PUBLIC SCHOOL

KARO GUEST HOUSE

2. FUGITIVE EMISSION

F AREA

G AREA

FINE HANDLING ROUTE

FINE LOADING 20 AREA

3. DRINKING WATER

MOUNT CLUB TAP WATER

4. SURFACE WATER QUALITY

KARO RIVER INTAKE

NEAR LEASE BOUNDARY LIMTUR VILLAGE

JHINKARIA NALLAH BEFORE JOINING KARO

PANPOSH NALLAH

5. ETP

ETP G AREA

SAIL BOLANI
ORE MINES

ENVIRONMENTAL MONITORING

REPORT

NOVEMBER 2024

Presented By

Ecomen Mining Pvt.Ltd

1.0 PREAMBLE

Steel Authority of India Limited (***hereinafter termed as SAIL***), is a central public sector undertaking under the ownership of Ministry of Steel, Govt. of India has engaged M/s Ecomen Mining Pvt. Ltd., Lucknow, U.P. for carrying out various **Environmental Monitoring and Analysis Work** in its Bolani Ores Mines –RSP located in the district of Keonjhar.

M/s Ecomen Mining Pvt. Ltd. has obtained MoEF & CC Recognition, NABL Accreditation and SPCB, Odisha empanelment for its laboratory division and also a NABET Accredited consultant to carry out EIA/EMP Report for various sectors like Mining, Mineral Beneficiation, Coal Washery, Thermal Power Plant, Metallurgical Industry and Infrastructure & Building Projects etc.

Work Order issued by Bolani Ores Mines-RSP-SAIL vide No-CC/REV/284/2023-24 dated.11.01.2024 for Environmental Monitoring & Analysis Work includes monitoring & analysis of Air Environment, Water Environment, Land Environment such as Ambient Air Quality, Work Zone Air Quality, Water Quality, Waste Water Quality, Vehicular Emission and Soil Quality. This report presents the Environmental monitoring data collected from the core and buffer zone of Bolani Ores Mines in respect of following Environmental attributes during '**November-2024**' in the given frequency. Further, in compliance of condition no 6 (vi) of the EC Grant order vide J/11015/418/2008-IA.II(M) dated. 21.12.2012 and condition no 7 A(III) of EC Grant order vide J/11015/396/2008-IA.II(M) dated. 21.12.2012the analysis of air quality monitoring data is done in this report with the objective to see the effectiveness of the mitigative measures already implemented.

Scope of the Work

The scope of work as per the work order for FY-2024-25 is as follows:

Table No. 1.1: Scope of Work

Sl. No.	Particulates	Frequency of monitoring	No. of Stations
1.	Sampling & Analyses for Ambient Air Quality(AAQ) for 5 Parameters i.e. PM 10, PM 2.5, SO_2,NO_x & CO	Daily	04
2.	Sampling & Analyses for Ambient Air Quality (AAQ) for 2 Parameters i.e. PM 10, PM 2.5	Daily	02
3.	Sampling & Analyses of Fugitive dust/Emission (SPM & RSPM)	Daily	10
4.	Sampling & Analyses of Surface/ effluent/ drinking water Quality for 21 parameter	Monthly	08
5.	Sampling and Analyses of ground water quality for 21 parameters	Quarterly	03
6.	Sampling and Analyses of Soil Samples for specified 9 parameters	Yearly	06
7.	Monitoring of weather/meteorological Parameters and continuous generation of data daily round the year by	Daily	01

	establishing online station round the clock throughout the Year		
8.	Smoke Density Monitoring of Vehicular Exhaust	Annually	09
9.	Ground water level Monitoring	Quarterly	03
10.	Nallah/River Flow rate Monitoring	Monthly	03

2.0 DETAILS OF MONITORING/SAMPLING STATIONS:

To carry out the Environmental Data Generation program, ECOMEN in due consultation with SAIL has identified different locations to collect the samples for Air & Water Environment in and around the mining lease area. The details of stations identified are as follows. The details of locations identified for monitoring different environmental parameters are given in the subsequent sections.

2.1 Ambient Air Quality (A)

The prime objective of the ambient air quality study is to establish the existing ambient air quality in and around the mining lease area. The existing ambient air quality was monitored at six (6) locations. Out of six (06) locations, monitoring was carried out for Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$), Sulphur Dioxide (SO_2), Oxides of Nitrogen (NOx) and Carbon Monoxide (CO) at (4) Location and monitoring of Particulate Matter (PM_{10}) and Particulate Matter ($PM_{2.5}$) was carried out at the rest two (2) Locations as per the guidelines stipulated by Central Pollution Control Board. The locations are as given below.

Table No. 2.1: Details of AAQ Monitoring Stations

Sl. No.	Station Details	ML	Frequency	Station Code	GPS Coordinates	
					Latitude	Longitude
Ambient Air Quality (AAQ) for 5 Parameters i.e. PM_{10}, $PM_{2.5}$, SO_2,NOx & CO						
1	Bolani Village Community Center	6.90	Daily	A1	22°5'34.13"N	85°19'33.43"E
2	DAV Public School	6.90		A2	22°7'7.37"N	85°20'16.61"E
3	Main Gate	5.10		A3	22°6'18.18"N	85°19'47.27"E
4	Bolani Mines Office complex	5.10		A4	22°6'23.84"N	85°19'45.40"E
Ambient Air Quality (AAQ) for 2 Parameters i.e. PM_{10}, $PM_{2.5}$						
5	Limtur Village	6.90		A5	22°7'35.14"N	85°21'10.46"E
6	Karo Guest House	6.90		A6	22°05'36.38"N	85°20'32.38"E

2.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring (F)

To assess the level of fugitive dust due to mining and allied activities, ten (10) monitoring stations were selected within the lease considering the activity area. Fugitive emissions monitoring was carried out on Daily Basis. The locations are as given below.

Table No. 2.2: Details of Fugitive Emission Monitoring Stations

Sl. No.	Station Details	ML	Frequency	Station Code	GPS Coordinates	
					Latitude	Longitude
1	Panposh	5.10	Daily	F1	22°6'41.46"N	85°19'41.60"E
2	D Area	5.10		F2	22°07'19.78"N	85°20'5.70"E
3	F Area	5.10		F3	22°05'45.19"N	85°18'21.95"E
4	G Area	5.10		F4	22°06'3.88"N	85°18'8.22"E
5	Lump Loading Point (near 600TPH)	6.90		F5	22°06'18.79"N	85°19'54.78"E
6	Fines Loading Plant	6.90		F6	22°05'51.12"N	85°19'45.79"E
7	Dump Fines handling route	6.90		F7	22°5'39.31"N	85°19'26.29"E
8	SSP	5.10		F8	22°06'13.80"N	85°19'12.52"E
9	Dump Fines Handling Site	5.10		F9	22°06'09.94"N	85°19'30.61"E
10	Mn Quarry	6.90		F10	22°07'23.56"N	85°21'8.86"E

2.3 Surface/Effluent/Drinking Water Quality:

In order to assess the quality of surface/effluent/drinking water, Eight (8) locations were identified in and around the ML area. Out of eight (8) locations, surface water was taken from four (4) locations, drinking water was taken from two (2) locations and effluent water was taken from two (2) locations. One grab sample was collected from each location in the month and was analyzed for 21 parameters as stipulated in the scope of work. The details of the locations are as follows:

Table No. 2.3: Details of Surface/Effluent/Drinking Water Quality Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
Surface Water Quality				
Panposh Nallah	Monthly Once	SWQ-1	22°6'31.68"N	85°19'34.41"E
Karo Near Lease Boundary		SWQ-2	22°7'26.27" N	85°21'52.95"E
Karo River Intake		SWQ-3	22°5.13.02' N	85°19'57.88"E

Jhikaria nallah before joining Karo		SWQ-4	22°5'22.50" N	85°19'10.05"E
Drinking Water Quality				
Mount Club Tap Water	Monthly Once	DW-1	22°6'56.24" N	85°19'58.21"E
Karo Guest House Tap Water		DW-2	22°5'36.68" N	85°20'32.09"E
Effluent Waste Water				
Oil Catch Pit Water Bottom Garage	Monthly Once	EWW-1	22°6'27.11" N	85°19'37.62"E
Oil Catch pit water G-Area		EWW-2	22°6'1.83"N	85°18'24.16"E

2.4 Ground Water Quality (GWQ)

In order to assess the quality of ground water, three (3) locations were identified in and around the mining lease area. One grab sample is collected from each location quarterly and analyzed for 21 parameters as stipulated in the scope of work. The details of the locations are as follows:

Table No. 2.4: Details of Ground Water Quality Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
Ground Water Quality				
Bolani Village-Well water	Quarterly	GWQ-1	22° 05' 27.20"N	85° 19'27.13"E
Bolani Gouda Basti-Well water		GWQ-2	22° 05'40.97"N	85° 20'2.45"E
Balagoda Village-Well water		GWQ-3	22° 05'57.02"N	85° 20'27.41"E

2.5 Weather/Meteorology

An Automatic Weather Monitoring Station (AWS) is installed at DAV Public School (22°7'7.85"N; 85°20'16.83"E) to collect the meteorological data on daily basis continuously. The parameters monitored at the meteorological station were Temperature, Relative Humidity, Wind Speed, Wind Direction and Rainfall. These parameters were recorded at weather monitoring station using the respective sensors.

Table No. 2.5: Details of Meteorological Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
DAV Public School	Daily Basis	M	22°7'7.85"N	85°20'16.83"E

Figure No.1: Location of Monitoring Station with ML Boundary

3.0 RESULTS AND DISCUSSION

3.1 Ambient Air Quality Monitoring

The Summarized results of AAQ for the month of November-2024 are given in the **Table below**

Table No. 3.1 (a): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	PM_{10}			$PM_{2.5}$		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Bolani Village Community center	A1	76.9	62.6	70.00	26.9	19.2	23.10
2.	Dav Public School	A2	76.9	63.9	70.21	26.5	19.9	23.64
3.	Main Gate	A3	76.8	62.5	69.78	26.6	19.5	22.61
4.	Bolani Mines Office Complex	A4	76.5	62.7	70.05	26.9	19.2	22.95
5.	Limtur Village	A5	54.00	42.10	47.56	25.90	18.60	22.22
6.	Karo Guest House	A6	53.50	42.30	47.76	25.90	18.40	22.37
CPCB Std.			**100 µg/m³**			**60 µg/m³**		

Table No. 3.1(b): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	SO_2			NO_x		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Bolani Village Community Center	A1	22.3	14	18.13	19.8	13	16.39
2.	Dav Public School	A2	22.8	14.1	18.75	20	13.3	16.41
3.	Main Gate	A3	22.5	14.1	18.04	19.7	13.8	17.33
4.	Bolani Mines Office Complex	A4	22.2	14	18.35	19.8	13.1	16.77
CPCB Std.			**80 µg/m³**			**80 µg/m³**		

BDL of $SO_2 \leq 4$ µg/m³, BDL of $NOx \leq 9$ µg/m³

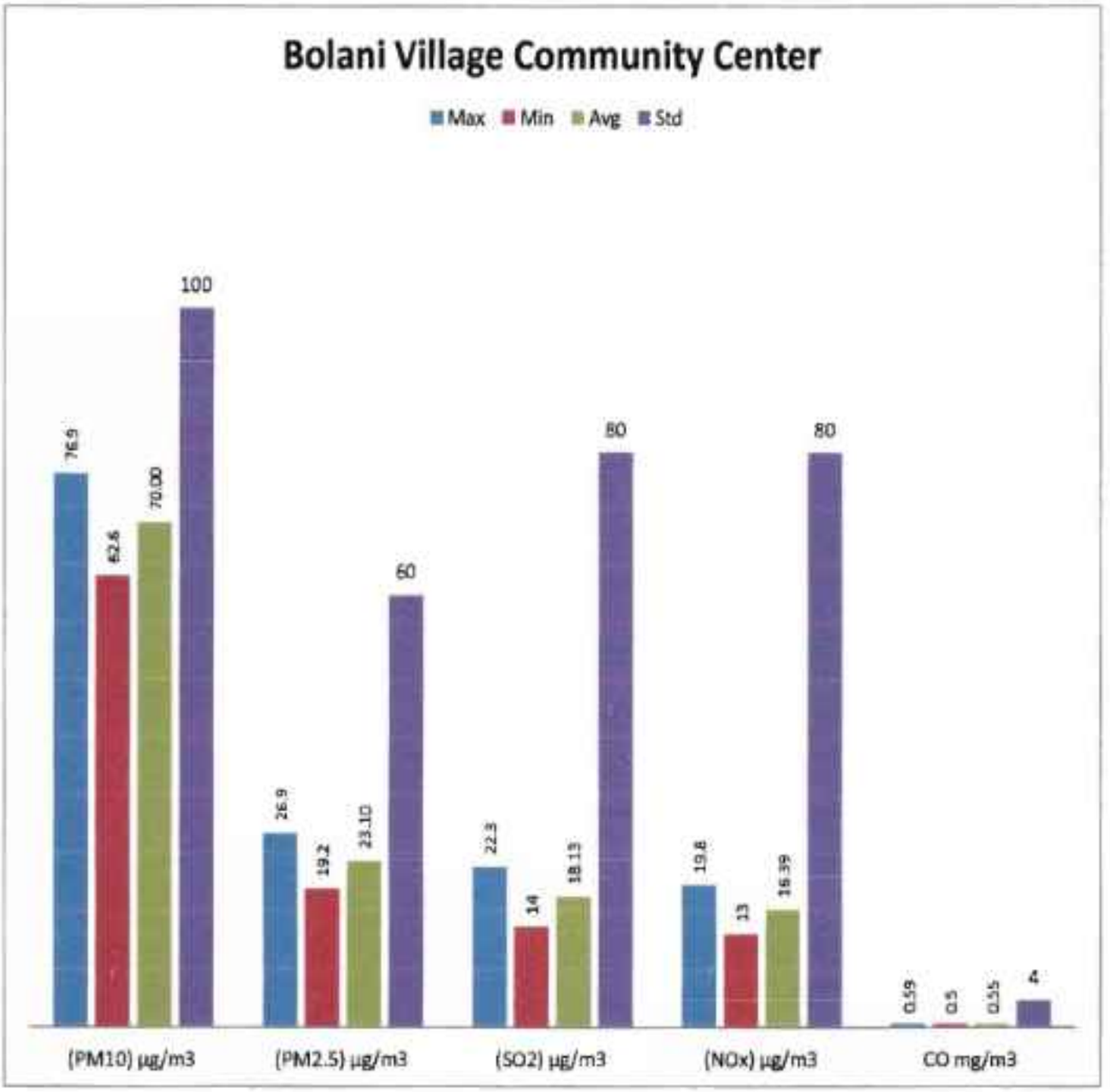
Table No. 3.1(c): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	CO		
			Max.	Min.	Avg.
1.	Bolani Village Community Center	A1	0.59	0.5	0.55
2.	Dav Public School	A2	0.61	0.49	0.54
3.	Main Gate	A3	0.62	0.49	0.56
4.	Bolani Mines Office Complex	A4	0.62	0.49	0.55
CPCB Std.			**4 mg/m3**		

Note: BDL value for CO-0.11 mg/m³

3.1.1 Bolani village Community Center (A1):

The pollution level in Bolani village Community Center for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **76.9** µg/m³ whereas minimum concentration was observed **62.6** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **19.2** µg/m³ to **26.9** µg/m³, SO_2 concentration ranges between **14** µg/m³ to **22.3** µg/m³, NO_x concentration ranges between **13** µg/m³ to **19.8** µg/m³ and CO concentration ranges between **0.5** mg/m³ to **0.59** mg/m³ was observed during the month



ecoMen

ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746262
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE5075H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/61
Test Report Issue date: 05.12.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited,**
   Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-1: Bolani village Community Center**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1.	01.11.2024	76.3	25.4	20.1	13.9	0.54
2.	02.11.2024	76.7	20.1	16.4	17.6	0.50
3.	03.11.2024	67.4	20.8	21.5	15.0	0.57
4.	04.11.2024	67.5	21.4	21.5	17.4	0.55
5.	05.11.2024	66.9	21.2	16.7	15.4	0.51
6.	06.11.2024	66.2	19.2	16.4	15.5	0.50
7.	07.11.2024	65.2	20.6	16.7	19.7	0.57
8.	08.11.2024	63.6	26.9	15.3	19.2	0.59
9.	09.11.2024	72.0	20.8	20.7	19.5	0.59
10.	10.11.2024	76.9	22.9	20.7	13.4	0.50
11.	11.11.2024	76.6	25.7	20.6	14.9	0.56
12.	12.11.2024	74.8	25.7	20.3	14.7	0.53
13.	13.11.2024	74.9	26.4	17.2	18.0	0.56
14.	14.11.2024	68.8	20.7	16.4	14.3	0.58
15.	15.11.2024	70.4	26.9	14.0	18.5	0.57
16.	16.11.2024	65.4	19.7	16.4	15.3	0.53
17.	17.11.2024	67.8	26.8	16.0	16.2	0.55
18.	18.11.2024	74.1	26.8	16.3	18.7	0.52
19.	19.11.2024	70.5	23.8	19.3	15.2	0.52
20.	20.11.2024	74.0	22.3	14.1	14.4	0.56
21.	21.11.2024	74.9	26.2	19.3	14.0	0.59
22.	22.11.2024	72.8	26.8	16.2	18.6	0.59
23.	23.11.2024	70.1	24.0	21.4	17.9	0.51
24.	24.11.2024	64.1	24.9	22.3	15.6	0.54
25.	25.11.2024	62.6	26.1	21.9	13.0	0.54
26.	26.11.2024	65.7	20.3	22.2	15.6	0.58
27.	27.11.2024	71.4	19.2	17.8	18.6	0.59
28.	28.11.2024	63.6	21.0	16.3	18.5	0.50
29.	29.11.2024	76.4	19.8	14.3	13.2	0.53
30.	30.11.2024	63.3	20.5	15.6	19.8	0.54
Average		69.5	23.0	18.0	16.2	0.55

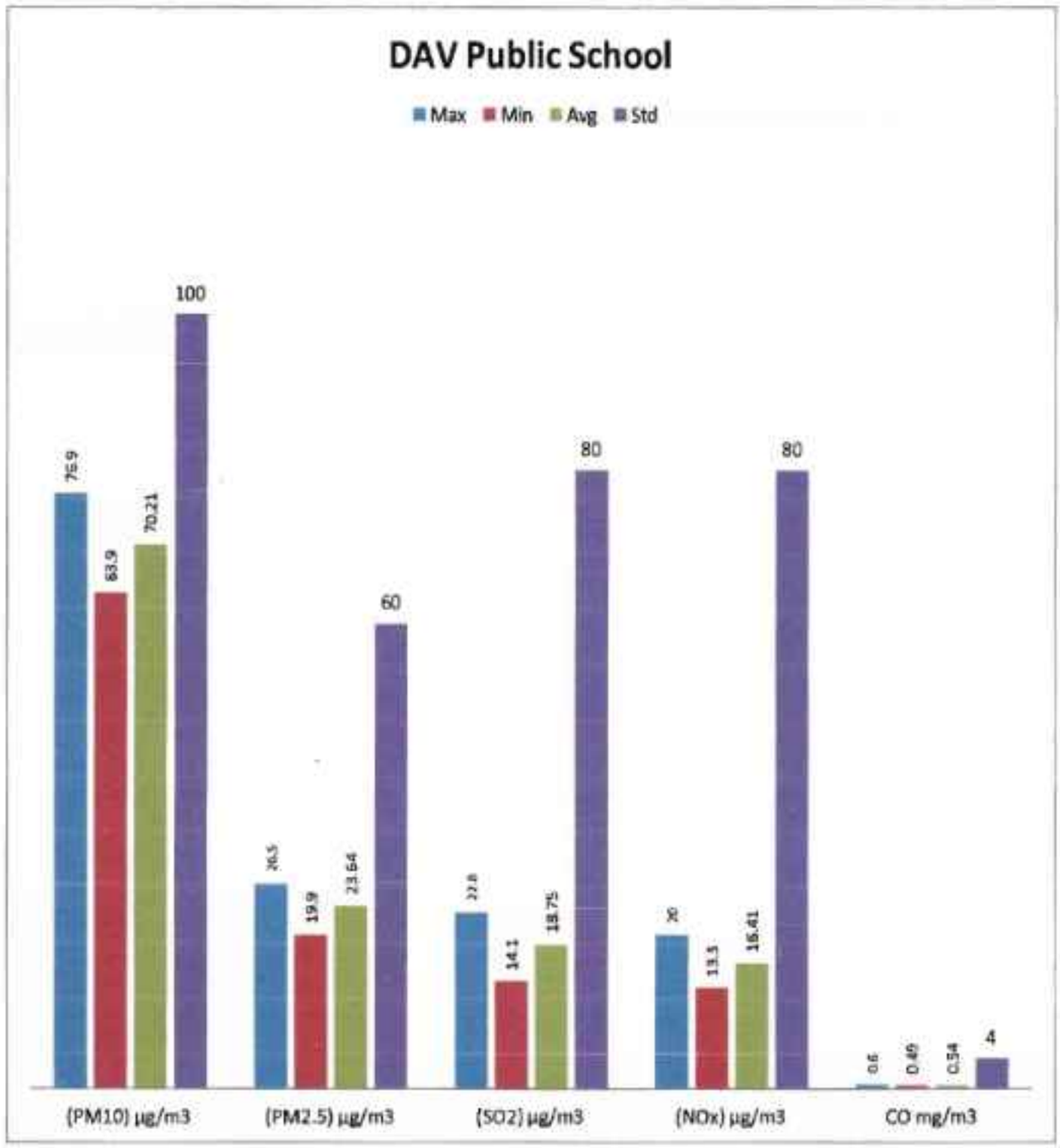
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.2 DAV Public School (A2):

The pollution level in DAV Public School for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **76.9** µg/m³ whereas minimum concentration was observed **63.9** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **19.9** µg/m³ to **26.5** µg/m³, SO_2 concentration ranges between **14.1** µg/m³to **22.8** µg/m³, NO_x concentration ranges between **13.3** µg/m³ to **20** µg/m³ and CO concentration ranges between **0.49** mg/m³ to **0.60** mg/m³ was observed during the month



ecoMen

ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/62
Test Report Issue date: 05.12.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-2: DAV Public School**
4. Sample collected by : EMPL representative in presence of Client's representative

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1.	01.11.2024	68.6	25.1	14.8	17.4	0.53
2.	02.11.2024	63.6	26.4	20.3	14.2	0.51
3.	03.11.2024	75.7	25.3	21.6	15.1	0.60
4.	04.11.2024	67.4	21.3	14.1	16.0	0.59
5.	05.11.2024	70.1	22.1	18.4	18.3	0.50
6.	06.11.2024	64.0	24.2	22.4	17.2	0.50
7.	07.11.2024	71.1	25.4	18.6	15.3	0.55
8.	08.11.2024	65.7	26.2	16.5	14.5	0.51
9.	09.11.2024	76.9	22.5	20.5	18.2	0.50
10.	10.11.2024	75.7	26.5	21.6	20.0	0.58
11.	11.11.2024	66.6	20.7	19.1	13.3	0.59
12.	12.11.2024	65.7	20.5	22.0	19.8	0.53
13.	13.11.2024	75.1	24.6	17.2	16.5	0.49
14.	14.11.2024	72.1	21.5	16.3	17.1	0.58
15.	15.11.2024	69.5	20.1	22.8	19.9	0.57
16.	16.11.2024	74.0	23.4	18.1	14.2	0.58
17.	17.11.2024	76.2	24.4	14.9	18.4	0.57
18.	18.11.2024	63.9	23.4	17.7	13.4	0.51
19.	19.11.2024	67.7	25.8	22.5	13.6	0.58
20.	20.11.2024	74.6	20.8	21.4	14.3	0.54
21.	21.11.2024	65.8	24.1	22.3	15.0	0.49
22.	22.11.2024	74.6	23.0	15.3	16.7	0.53
23.	23.11.2024	74.5	26.1	18.5	17.1	0.51
24.	24.11.2024	66.3	21.6	19.8	19.2	0.57
25.	25.11.2024	65.1	25.1	15.3	14.5	0.50
26.	26.11.2024	64.5	22.6	14.5	16.4	0.50
27.	27.11.2024	74.8	24.1	17.5	14.5	0.55
28.	28.11.2024	64.1	26.3	15.8	17.4	0.51
29.	29.11.2024	75.1	19.9	20.6	15.6	0.50
30.	30.11.2024	76.1	26.3	22.1	19.2	0.59
Average		69.7	23.5	18.6	16.3	0.54

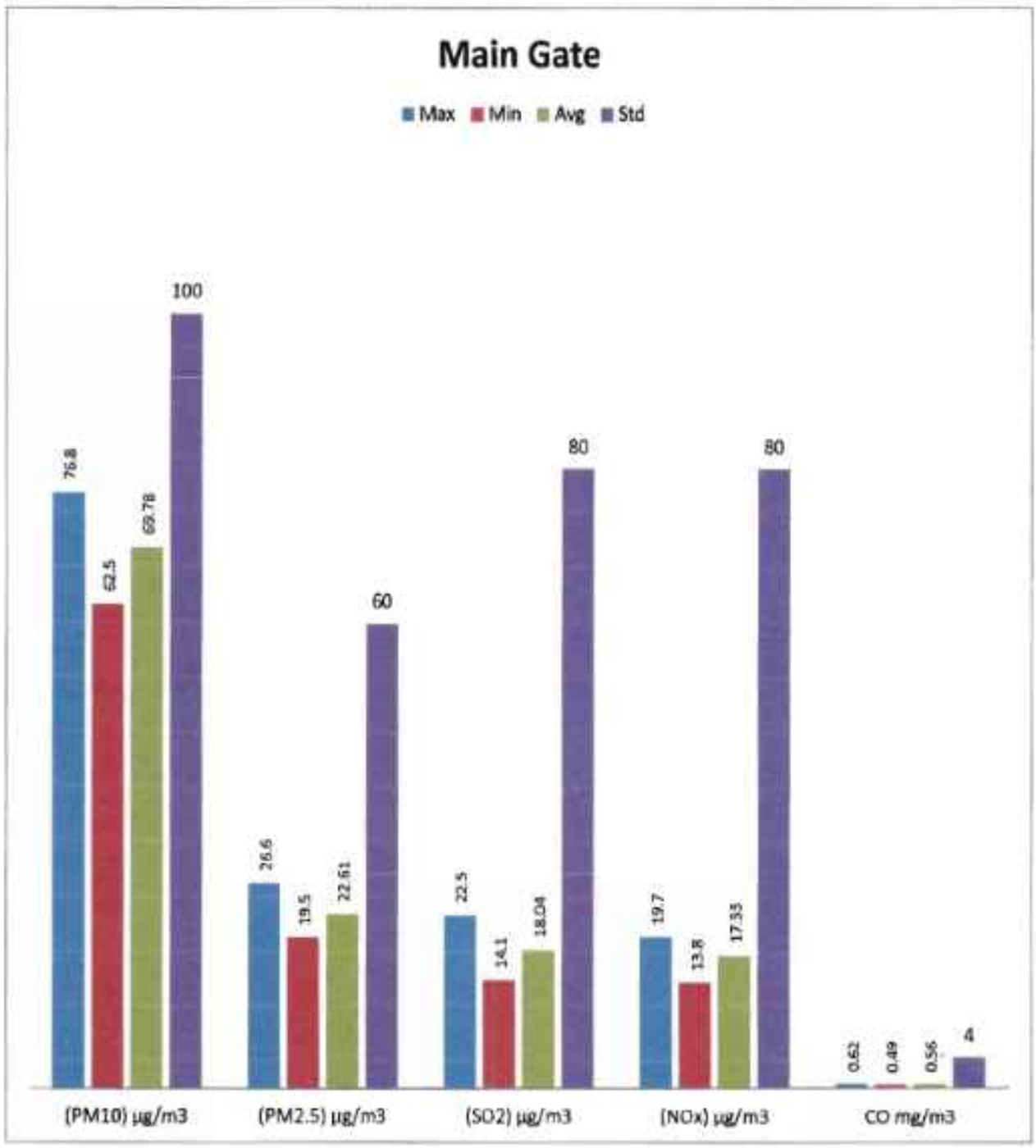
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.3 Main Gate (A3):

The pollution level in Main Gate for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **76.8** µg/m³ whereas minimum concentration was observed **62.5** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **19.5** µg/m³ to **26.6** µg/m³, SO_2 concentration ranges between **14.1** µg/m³to **22.5** µg/m³, NO_x concentration ranges between **13.8** µg/m³ to **19.7** µg/m³ and CO concentration ranges between **0.49** mg/m³ to **0.62** mg/m³ was observed during the month



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746262
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE5076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/63
Test Report Issue date: 05.12.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-3: Main Gate**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1.	01.11.2024	74.9	19.7	22.5	15.1	0.53
2.	02.11.2024	68.1	22.0	17.8	18.6	0.49
3.	03.11.2024	74.5	20.8	14.1	19.5	0.52
4.	04.11.2024	68.1	19.8	17.3	19.5	0.57
5.	05.11.2024	67.2	19.7	14.6	15.5	0.57
6.	06.11.2024	62.5	26.0	17.8	18.7	0.60
7.	07.11.2024	68.0	25.4	20.7	17.2	0.50
8.	08.11.2024	66.6	22.6	17.5	14.3	0.60
9.	09.11.2024	63.6	19.9	19.9	15.7	0.54
10.	10.11.2024	64.4	23.2	18.2	14.8	0.53
11.	11.11.2024	67.7	20.4	15.8	13.8	0.59
12.	12.11.2024	72.4	25.1	17.5	19.1	0.58
13.	13.11.2024	70.3	20.1	17.0	18.0	0.57
14.	14.11.2024	76.8	25.4	15.6	14.6	0.54
15.	15.11.2024	69.8	20.2	17.7	19.7	0.57
16.	16.11.2024	69.5	23.7	18.1	17.2	0.57
17.	17.11.2024	74.9	23.7	17.6	16.8	0.54
18.	18.11.2024	67.5	25.2	22.3	19.3	0.60
19.	19.11.2024	68.8	21.7	15.0	19.0	0.50
20.	20.11.2024	63.4	23.0	19.4	16.8	0.58
21.	21.11.2024	74.3	26.6	19.8	15.8	0.55
22.	22.11.2024	76.5	24.7	22.3	17.0	0.55
23.	23.11.2024	64.5	19.5	19.3	18.9	0.59
24.	24.11.2024	75.2	25.1	20.2	19.2	0.58
25.	25.11.2024	65.6	23.2	21.3	17.3	0.54
26.	26.11.2024	70.2	22.5	14.3	17.7	0.53
27.	27.11.2024	71.4	23.0	14.9	16.6	0.58
28.	28.11.2024	70.3	22.1	14.4	19.2	0.54
29.	29.11.2024	73.3	22.7	16.2	15.7	0.54
30.	30.11.2024	73.1	21.4	22.0	19.3	0.56
Average		69.3	22.5	17.9	17.2	0.55

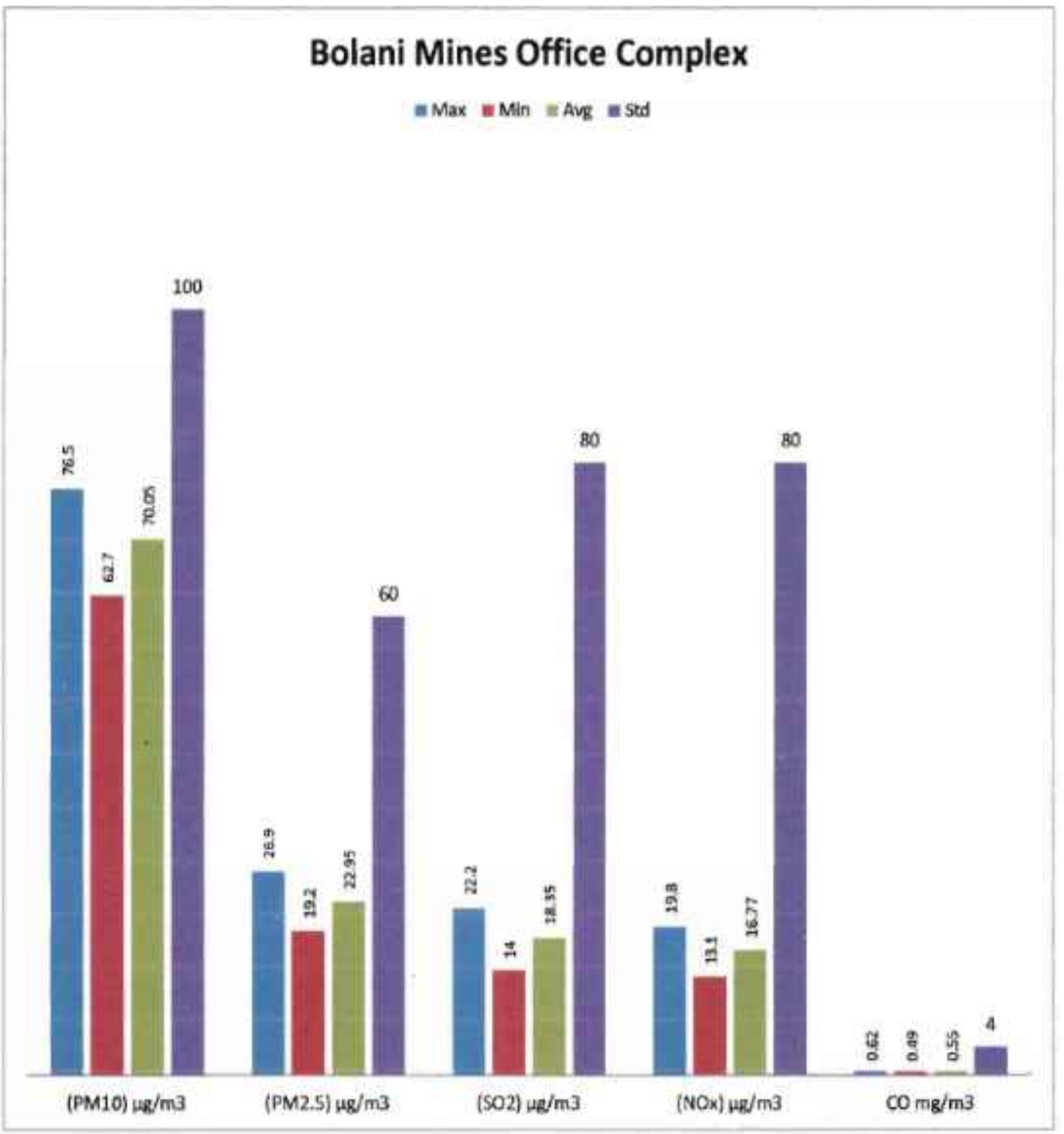
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.4 Bolani Mines Office Complex (A4):

The pollution level in Bolani Mines Office Complex for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **76.5** µg/m³ whereas minimum concentration was observed **62.7** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **19.2** µg/m³ to **26.9** µg/m³, SO_2 concentration ranges between **14** µg/m³to **22.2** µg/m³, NO_x concentration ranges between **13.1** µg/m³ to **19.8** µg/m³ and CO concentration ranges between **0.49** mg/m³ to **0.62** mg/m³ was observed during the month



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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Test Report No: ECO/BOM/AAQ/64

Test Report Issue date: 05.12.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-4: Bolani Mines Office Complex**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1.	01.11.2024	75.0	20.3	22.1	13.4	0.54
2.	02.11.2024	70.6	22.8	21.9	14.8	0.56
3.	03.11.2024	68.6	26.5	17.6	19.8	0.49
4.	04.11.2024	62.7	21.0	18.2	18.5	0.53
5.	05.11.2024	71.8	23.6	18.4	13.1	0.53
6.	06.11.2024	76.5	26.2	20.5	18.3	0.58
7.	07.11.2024	73.2	22.7	19.2	16.1	0.49
8.	08.11.2024	71.2	21.4	17.9	14.1	0.53
9.	09.11.2024	74.6	20.8	14.3	15.2	0.49
10.	10.11.2024	64.5	20.3	20.6	14.2	0.58
11.	11.11.2024	72.0	24.9	21.6	19.6	0.50
12.	12.11.2024	66.8	22.6	15.0	15.7	0.57
13.	13.11.2024	74.5	20.7	21.7	19.3	0.59
14.	14.11.2024	70.7	25.0	17.4	16.8	0.57
15.	15.11.2024	75.2	23.7	19.5	18.1	0.54
16.	16.11.2024	63.5	22.5	15.8	19.1	0.55
17.	17.11.2024	63.9	23.6	19.7	13.5	0.53
18.	18.11.2024	72.4	20.5	17.3	18.9	0.55
19.	19.11.2024	72.5	21.1	15.8	19.2	0.50
20.	20.11.2024	67.8	23.6	19.7	16.1	0.57
21.	21.11.2024	64.0	22.2	22.0	13.8	0.55
22.	22.11.2024	76.0	23.4	15.8	17.1	0.60
23.	23.11.2024	65.7	23.3	17.1	18.6	0.57
24.	24.11.2024	76.2	20.3	14.2	19.6	0.60
25.	25.11.2024	67.6	26.9	15.4	15.3	0.51
26.	26.11.2024	71.0	19.2	19.6	15.6	0.49
27.	27.11.2024	68.4	26.7	21.9	16.4	0.54
28.	28.11.2024	69.7	20.4	14.3	17.9	0.59
29.	29.11.2024	71.4	26.9	14.0	15.6	0.59
30.	30.11.2024	63.4	25.5	22.2	19.3	0.51
Average		69.5	22.8	18.2	16.6	0.54

----End of Report----

Verified By

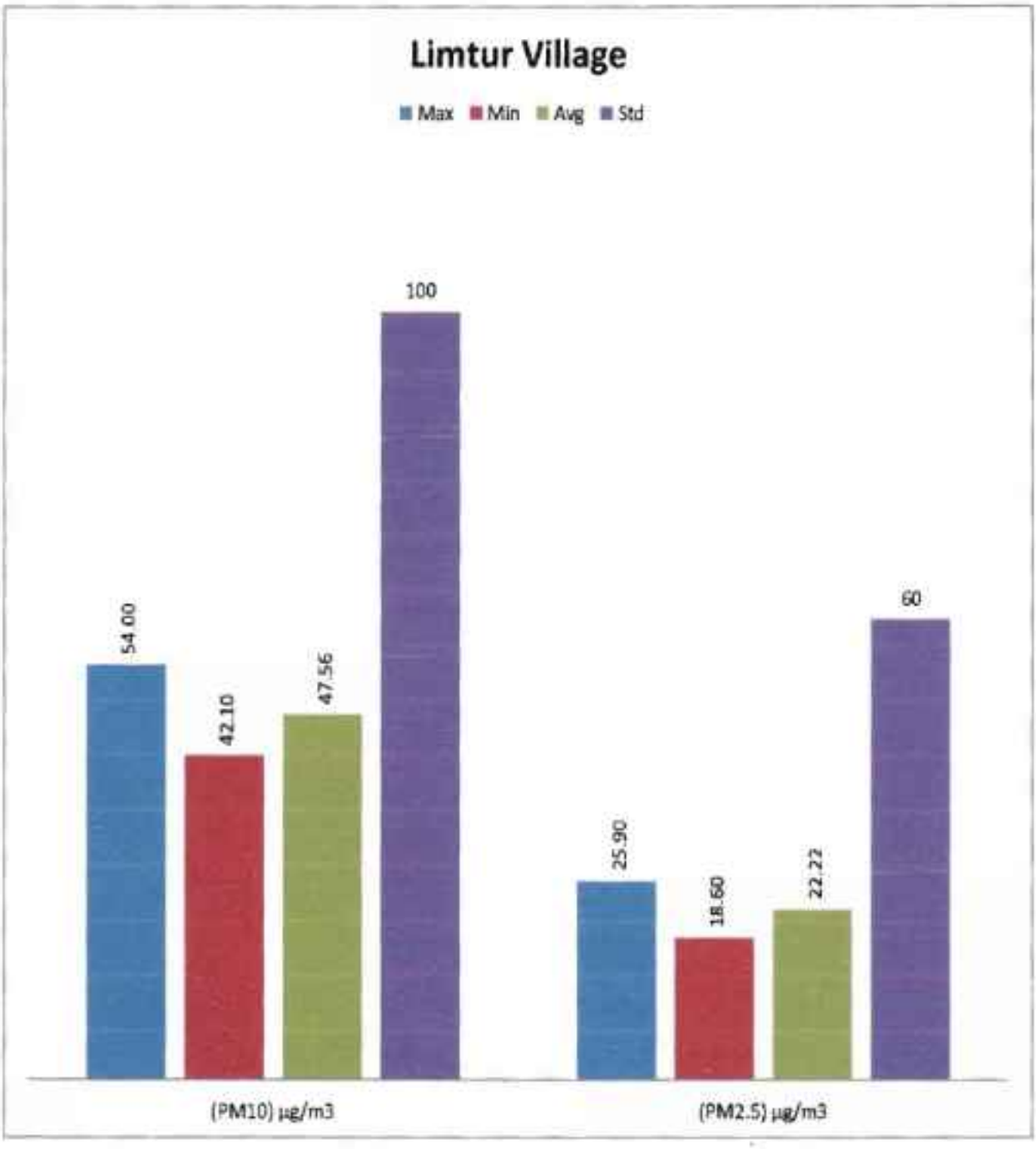
Technical Manager

Authorized By

Quality Manager

3.1.5 Limtur Village (A5):

The pollution level in Limtur Village for the parameters PM_{10} and $PM_{2.5}$ is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **54.0** µg/m³ whereas minimum concentration was observed **42.10** µg/m³ and $PM_{2.5}$ concentration ranges between **18.60** µg/m³ to **25.90** µg/m³ during the month.



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZJ

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/65
Test Report Issue date: 05.12.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-5: Limtur Village**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)
Limits of Detection		10-1000	10-1000
Limit as per National Ambient Air Quality Standards		100	60
S. No.	Sampling Date	Result	
1	01.11.2024	45.7	22.0
2	02.11.2024	44.8	18.9
3	03.11.2024	47.0	20.4
4	04.11.2024	43.1	22.7
5	05.11.2024	48.4	23.5
6	06.11.2024	45.7	24.3
7	07.11.2024	53.9	19.0
8	08.11.2024	45.1	18.6
9	09.11.2024	45.0	21.3
10	10.11.2024	43.9	22.9
11	11.11.2024	51.7	23.1
12	12.11.2024	54.0	22.7
13	13.11.2024	52.7	22.6
14	14.11.2024	47.4	21.4
15	15.11.2024	49.0	19.7
16	16.11.2024	50.7	24.1
17	17.11.2024	48.8	24.6
18	18.11.2024	42.8	24.9
19	19.11.2024	42.1	19.8
20	20.11.2024	51.6	20.4
21	21.11.2024	47.9	21.8
22	22.11.2024	47.3	25.3
23	23.11.2024	49.1	25.9
24	24.11.2024	43.7	25.7
25	25.11.2024	53.5	20.1
26	26.11.2024	42.2	21.7
27	27.11.2024	46.0	20.5
28	28.11.2024	45.8	22.3
29	29.11.2024	48.4	21.4
30	30.11.2024	47.4	25.1
Average		47.7	22.1

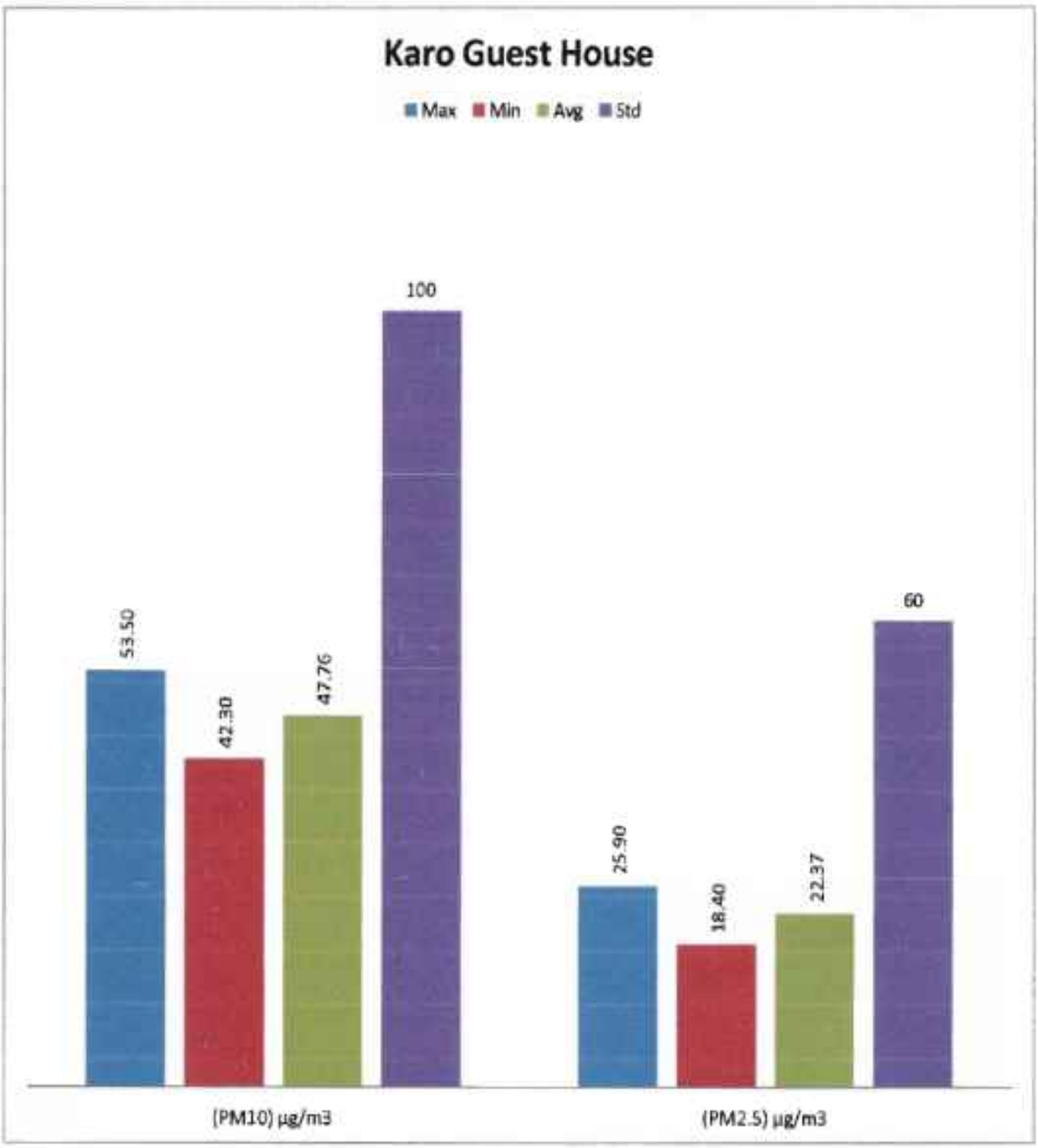
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.6 Karo Guest House (A6):

The pollution level in Karo Guest House for the parameters PM_{10} and $PM_{2.5}$ is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **53.50** µg/m³ whereas minimum concentration was observed **42.30** µg/m³ and $PM_{2.5}$ concentration ranges between **18.40** µg/m³ to **25.90** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/66
Test Report Issue date: 05.12.2024

AMBIENT AIR QUALITY MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-6: Karo Guest House**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)
Limits of Detection		10-1000	10-1000
Limit as per National Ambient Air Quality Standards		100	60
S. No.	Sampling Date	Result	
1	01.11.2024	48.6	19.5
2	02.11.2024	50.8	24.0
3	03.11.2024	47.3	22.7
4	04.11.2024	43.5	20.7
5	05.11.2024	53.3	18.8
6	06.11.2024	47.8	25.9
7	07.11.2024	48.7	24.7
8	08.11.2024	44.4	24.2
9	09.11.2024	52.8	20.3
10	10.11.2024	44.9	21.3
11	11.11.2024	46.4	21.0
12	12.11.2024	44.2	23.5
13	13.11.2024	43.8	25.5
14	14.11.2024	46.5	23.1
15	15.11.2024	42.3	25.5
16	16.11.2024	45.4	21.4
17	17.11.2024	46.8	23.5
18	18.11.2024	48.7	18.8
19	19.11.2024	45.8	25.8
20	20.11.2024	47.7	23.8
21	21.11.2024	46.0	21.0
22	22.11.2024	51.0	19.5
23	23.11.2024	44.4	18.4
24	24.11.2024	46.0	25.0
25	25.11.2024	53.5	25.1
26	26.11.2024	48.0	20.1
27	27.11.2024	51.5	25.5
28	28.11.2024	53.4	22.4
29	29.11.2024	52.0	20.7
30	30.11.2024	47.2	19.3
Average		47.9	22.3

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring:

The Summarized results of Work Zone Air Quality/Fugitive Dust Emission for the month of November-2024 are given in the **Table below**

Table No. 3.2: Summarized Results of Work Zone Air Quality/Fugitive Dust Emission

Sl. No.	Location Name	Station Code	SPM µg/m3			RSPM µg/m3		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Panposh	F1	687.3	596.5	632.5	142.1	108.8	124.7
2.	D Area	F2	688.9	595.8	651.9	141.5	116.1	129.5
3.	F Area	F3	683	598	641.6	140.1	109.5	124.8
4.	G Area	F4	684.9	595.6	636.1	137.1	108.8	124.4
5.	Lump Loading Point (near 600TPH)	F5	687.6	600.8	649.0	142.2	111	127.3
6.	Fines Loading Plant	F6	684.2	596.5	639.3	138.1	113.8	125.2
7.	Dump Fines handling route	F7	684.7	598.7	644.7	140.6	115.1	126.4
8.	SSP	F8	686.1	596.1	638.8	140.1	109.1	123.7
9.	Dump Fines Handling Site	F9	686.5	607.5	647.7	140.7	114.1	126.6
10.	Mn Quarry	F10	686.4	596.1	635.1	138.4	109.3	122.0
As Per CTO Std.			1200 µg/m³					

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/81
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Panposh**
4. Sample collected by : EMPL representative in presence of Client's representative

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	Panposh	672.8	139.5
2.	02-11-2024	Panposh	687.3	141.5
3.	03-11-2024	Panposh	598.2	119.6
4.	04-11-2024	Panposh	605.7	117.0
5.	05-11-2024	Panposh	654.3	119.1
6.	06-11-2024	Panposh	607.6	112.0
7.	07-11-2024	Panposh	621.0	129.4
8.	08-11-2024	Panposh	605.3	114.1
9.	09-11-2024	Panposh	645.5	132.2
10.	10-11-2024	Panposh	635.6	131.6
11.	11-11-2024	Panposh	664.5	120.4
12.	12-11-2024	Panposh	611.5	127.7
13.	13-11-2024	Panposh	603.1	108.8
14.	14-11-2024	Panposh	621.9	121.7
15.	15-11-2024	Panposh	620.3	123.0
16.	16-11-2024	Panposh	596.5	119.2
17.	17-11-2024	Panposh	655.8	125.3
18.	18-11-2024	Panposh	675.6	139.5
19.	19-11-2024	Panposh	632.5	120.1
20.	20-11-2024	Panposh	620.2	125.6
21.	21-11-2024	Panposh	613.4	112.0
22.	22-11-2024	Panposh	662.2	130.8
23.	23-11-2024	Panposh	624.4	124.4
24.	24-11-2024	Panposh	640.7	129.6
25.	25-11-2024	Panposh	597.4	114.4
26.	26-11-2024	Panposh	662.6	132.4
27.	27-11-2024	Panposh	617.6	127.7
28.	28-11-2024	Panposh	626.1	128.7
29.	29-11-2024	Panposh	611.5	110.4
30.	30-11-2024	Panposh	683.0	142.1
Average			**632.5**	**124.7**

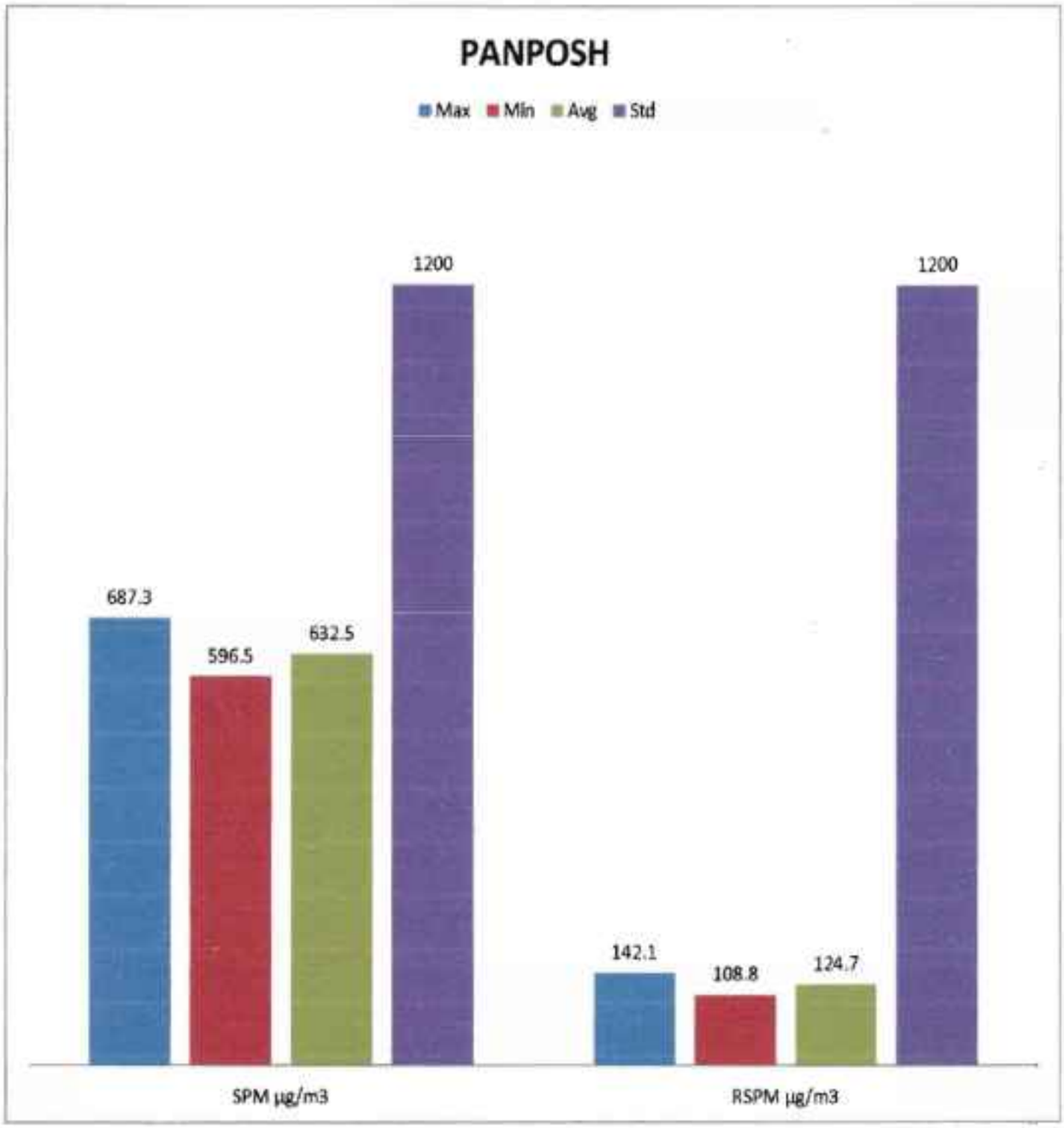
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

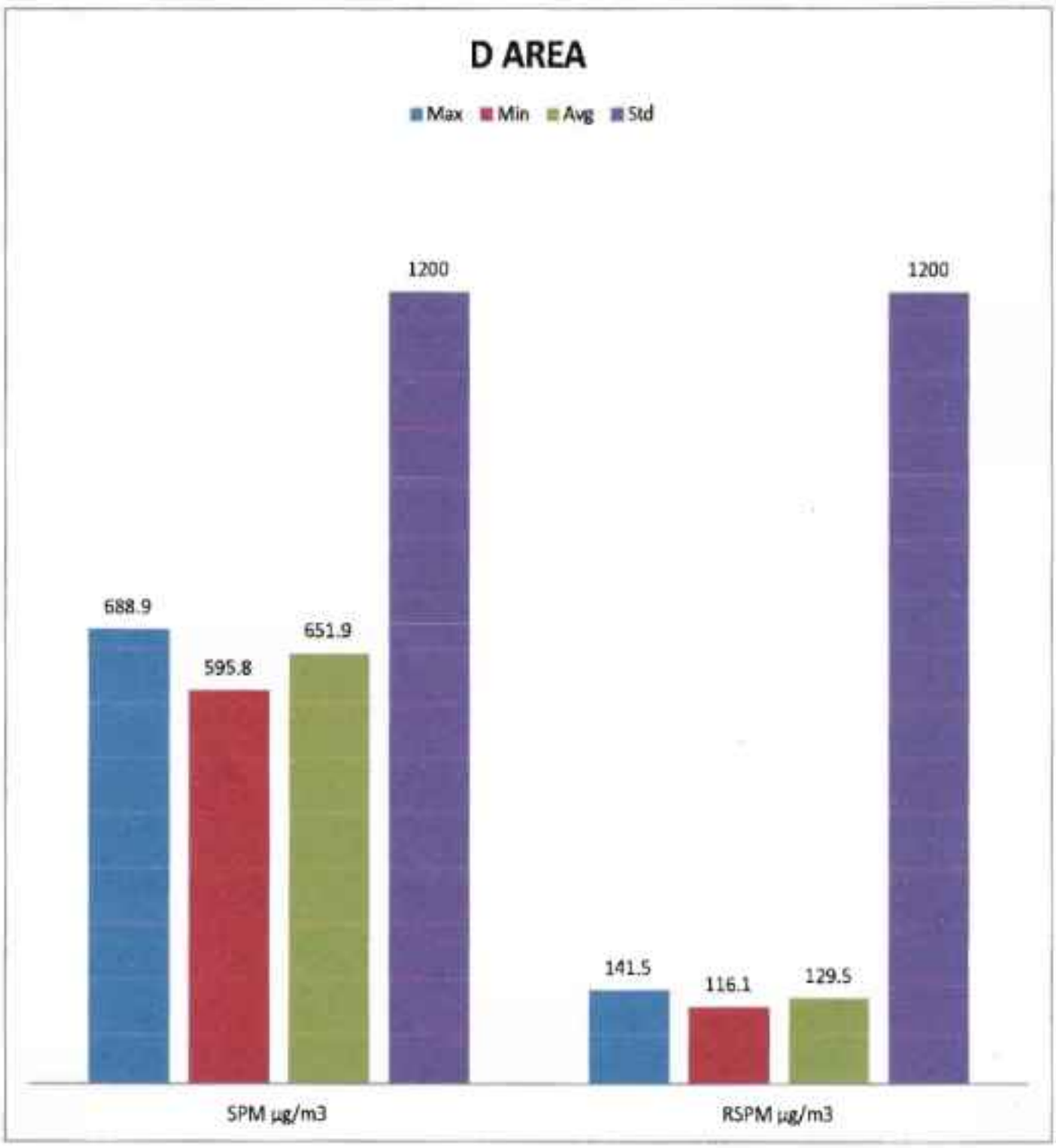
3.2.1 Panposh (F1):

The pollution level in Panposh Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **687.3** µg/m³ whereas minimum concentration was observed **596.5** µg/m³ and RSPM concentration ranges between **108.8**µg/m³ to **142.1** µg/m³ during the month.



3.2.2 D Area(F2)

The pollution level in D Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **688.9** µg/m³ whereas minimum concentration was observed **595.8** µg/m³ and RSPM concentration ranges between **116.1**µg/m³ to **141.5** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2740282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZJ

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/82
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **D Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	D Area	612.8	116.1
2.	02-11-2024	D Area	672.6	132.1
3.	03-11-2024	D Area	635.2	121.3
4.	04-11-2024	D Area	637.9	120.1
5.	05-11-2024	D Area	668.9	125.9
6.	06-11-2024	D Area	622.5	124.0
7.	07-11-2024	D Area	626.2	129.7
8.	08-11-2024	D Area	674.9	135.5
9.	09-11-2024	D Area	619.1	124.0
10.	10-11-2024	D Area	659.9	131.8
11.	11-11-2024	D Area	610.4	121.9
12.	12-11-2024	D Area	656.4	132.5
13.	13-11-2024	D Area	613.1	122.9
14.	14-11-2024	D Area	672.3	134.4
15.	15-11-2024	D Area	688.1	137.0
16.	16-11-2024	D Area	652.2	120.3
17.	17-11-2024	D Area	667.4	125.2
18.	18-11-2024	D Area	678.3	130.1
19.	19-11-2024	D Area	684.8	141.5
20.	20-11-2024	D Area	679.9	138.9
21.	21-11-2024	D Area	688.9	136.5
22.	22-11-2024	D Area	656.3	122.3
23.	23-11-2024	D Area	677.9	137.9
24.	24-11-2024	D Area	629.3	124.2
25.	25-11-2024	D Area	652.1	131.3
26.	26-11-2024	D Area	595.8	124.4
27.	27-11-2024	D Area	663.3	134.2
28.	28-11-2024	D Area	667.5	140.1
29.	29-11-2024	D Area	653.0	135.8
30.	30-11-2024	D Area	641.4	133.3
Average			**652.0**	**129.5**

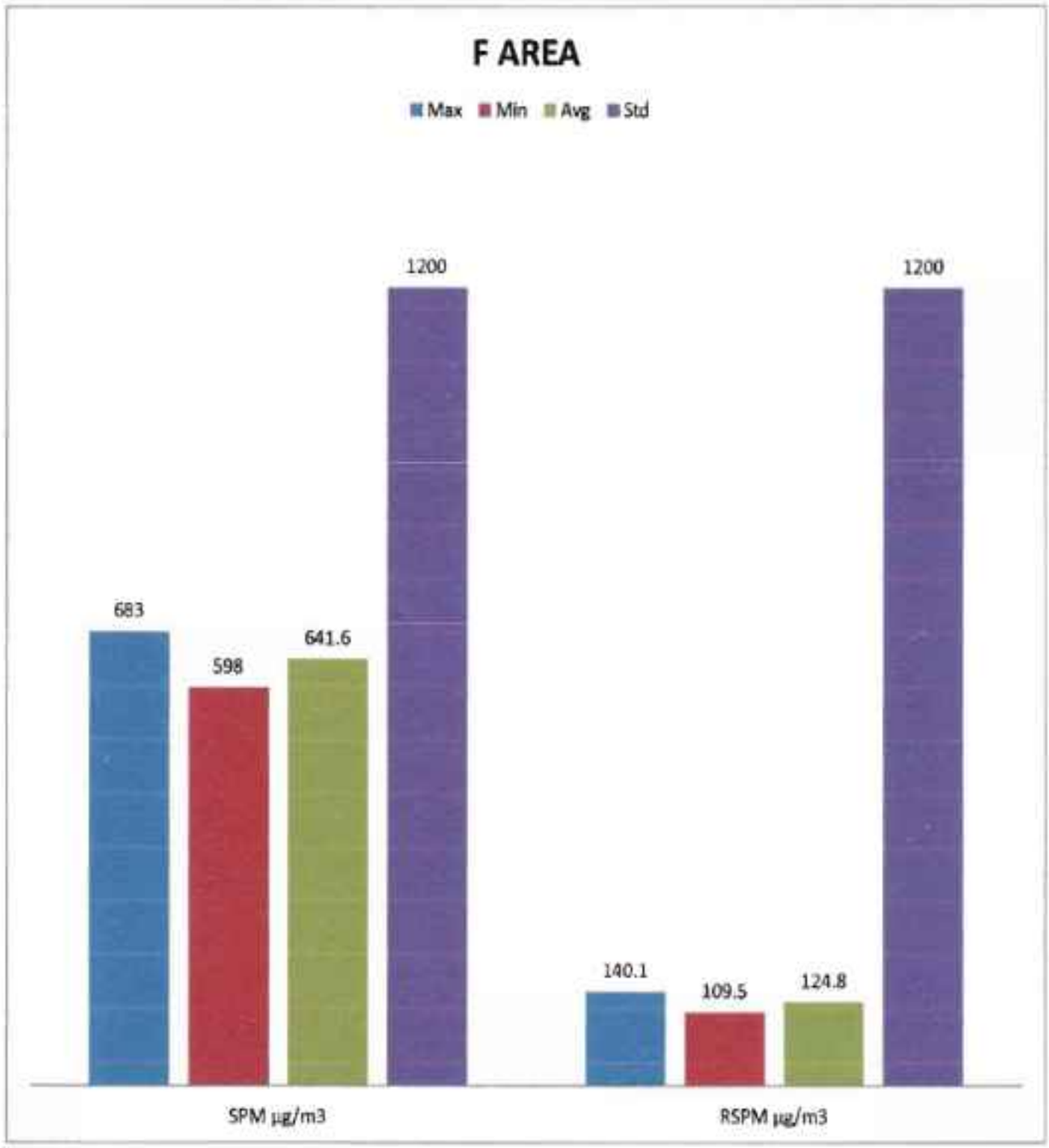
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.3 F Area(F3)

The pollution level in F Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **683** µg/m³ whereas minimum concentration was observed **598** µg/m³ and RSPM concentration ranges between **109.5** µg/m³ to **140.1** µg/m³ during the month



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/83
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **F Area**
4. Sample collected by : EMPL representative in presence of Client's representative

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	F Area	665.1	126.5
2.	02-11-2024	F Area	658.5	132.9
3.	03-11-2024	F Area	606.1	109.5
4.	04-11-2024	F Area	637.1	127.3
5.	05-11-2024	F Area	676.7	126.4
6.	06-11-2024	F Area	676.2	140.1
7.	07-11-2024	F Area	626.9	112.9
8.	08-11-2024	F Area	683.0	138.4
9.	09-11-2024	F Area	657.3	137.2
10.	10-11-2024	F Area	622.4	125.7
11.	11-11-2024	F Area	601.6	115.9
12.	12-11-2024	F Area	626.4	113.9
13.	13-11-2024	F Area	665.1	122.4
14.	14-11-2024	F Area	679.8	126.0
15.	15-11-2024	F Area	622.0	113.9
16.	16-11-2024	F Area	651.7	131.0
17.	17-11-2024	F Area	641.9	123.7
18.	18-11-2024	F Area	610.4	111.2
19.	19-11-2024	F Area	637.9	121.2
20.	20-11-2024	F Area	656.3	127.3
21.	21-11-2024	F Area	598.0	118.8
22.	22-11-2024	F Area	635.2	126.6
23.	23-11-2024	F Area	649.9	124.8
24.	24-11-2024	F Area	638.8	133.7
25.	25-11-2024	F Area	643.1	128.4
26.	26-11-2024	F Area	601.1	122.5
27.	27-11-2024	F Area	606.8	124.9
28.	28-11-2024	F Area	658.8	132.5
29.	29-11-2024	F Area	672.3	133.2
30.	30-11-2024	F Area	641.6	116.3
Average			**641.6**	**124.8**

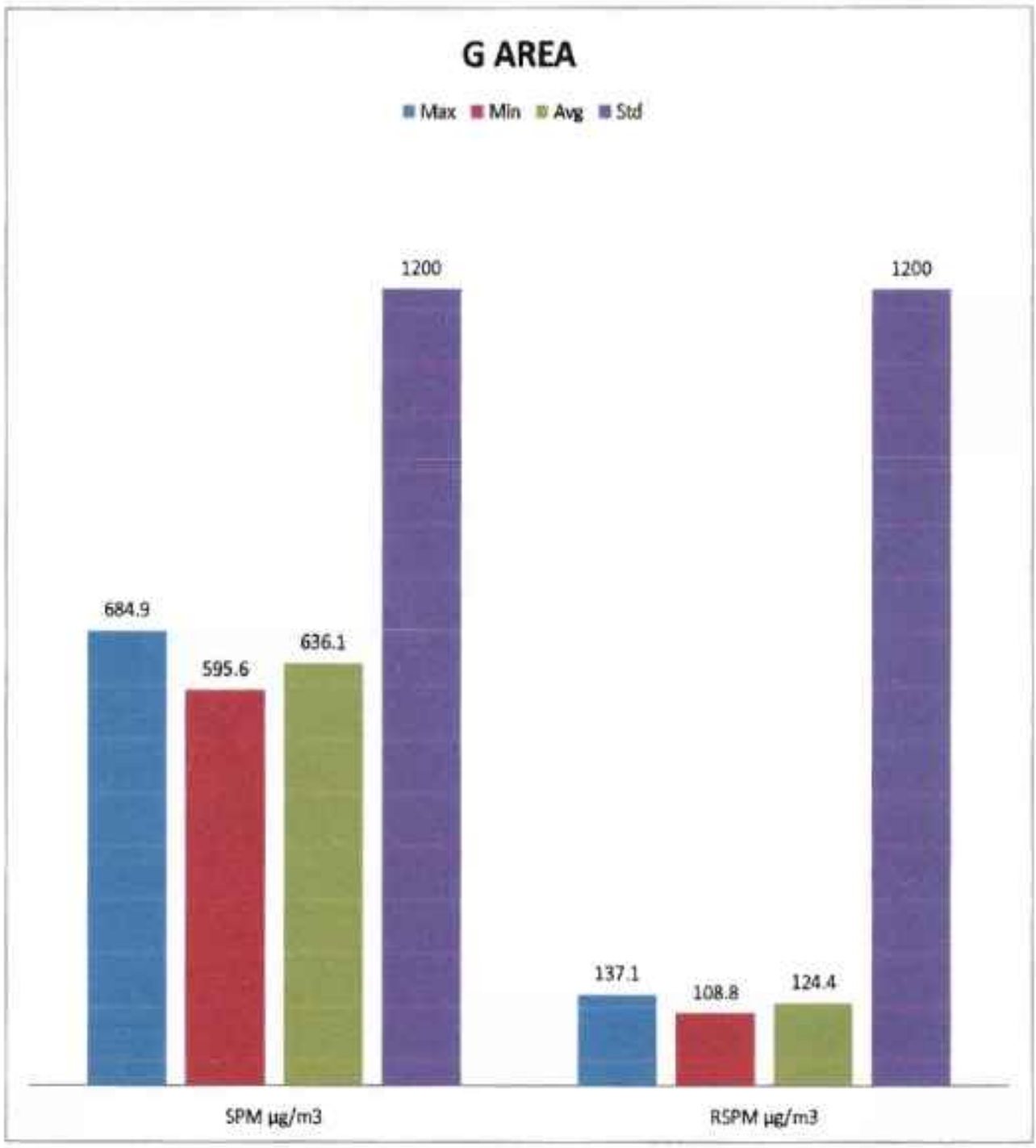
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.4 G Area(F4)

The pollution level in G Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **684.9** µg/m³ whereas minimum concentration was observed **595.6** µg/m³ and RSPM concentration ranges between **108.8** µg/m³ to **137.1** µg/m³ during the month



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/84
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **G Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	G Area	627.1	117.2
2.	02-11-2024	G Area	668.9	130.2
3.	03-11-2024	G Area	684.9	136.5
4.	04-11-2024	G Area	628.0	120.6
5.	05-11-2024	G Area	634.7	115.7
6.	06-11-2024	G Area	612.3	123.9
7.	07-11-2024	G Area	650.0	133.7
8.	08-11-2024	G Area	627.5	126.5
9.	09-11-2024	G Area	597.9	108.8
10.	10-11-2024	G Area	620.9	120.9
11.	11-11-2024	G Area	631.4	120.1
12.	12-11-2024	G Area	608.8	120.7
13.	13-11-2024	G Area	669.8	130.1
14.	14-11-2024	G Area	649.2	135.0
15.	15-11-2024	G Area	639.1	123.4
16.	16-11-2024	G Area	597.7	115.4
17.	17-11-2024	G Area	647.9	117.7
18.	18-11-2024	G Area	639.3	124.8
19.	19-11-2024	G Area	641.4	132.4
20.	20-11-2024	G Area	600.6	112.9
21.	21-11-2024	G Area	643.8	129.0
22.	22-11-2024	G Area	609.1	121.7
23.	23-11-2024	G Area	668.7	125.7
24.	24-11-2024	G Area	658.7	124.4
25.	25-11-2024	G Area	667.3	128.4
26.	26-11-2024	G Area	595.6	116.1
27.	27-11-2024	G Area	608.6	124.4
28.	28-11-2024	G Area	675.7	137.1
29.	29-11-2024	G Area	599.7	124.6
30.	30-11-2024	G Area	676.9	134.1
Average			**636.1**	**124.4**

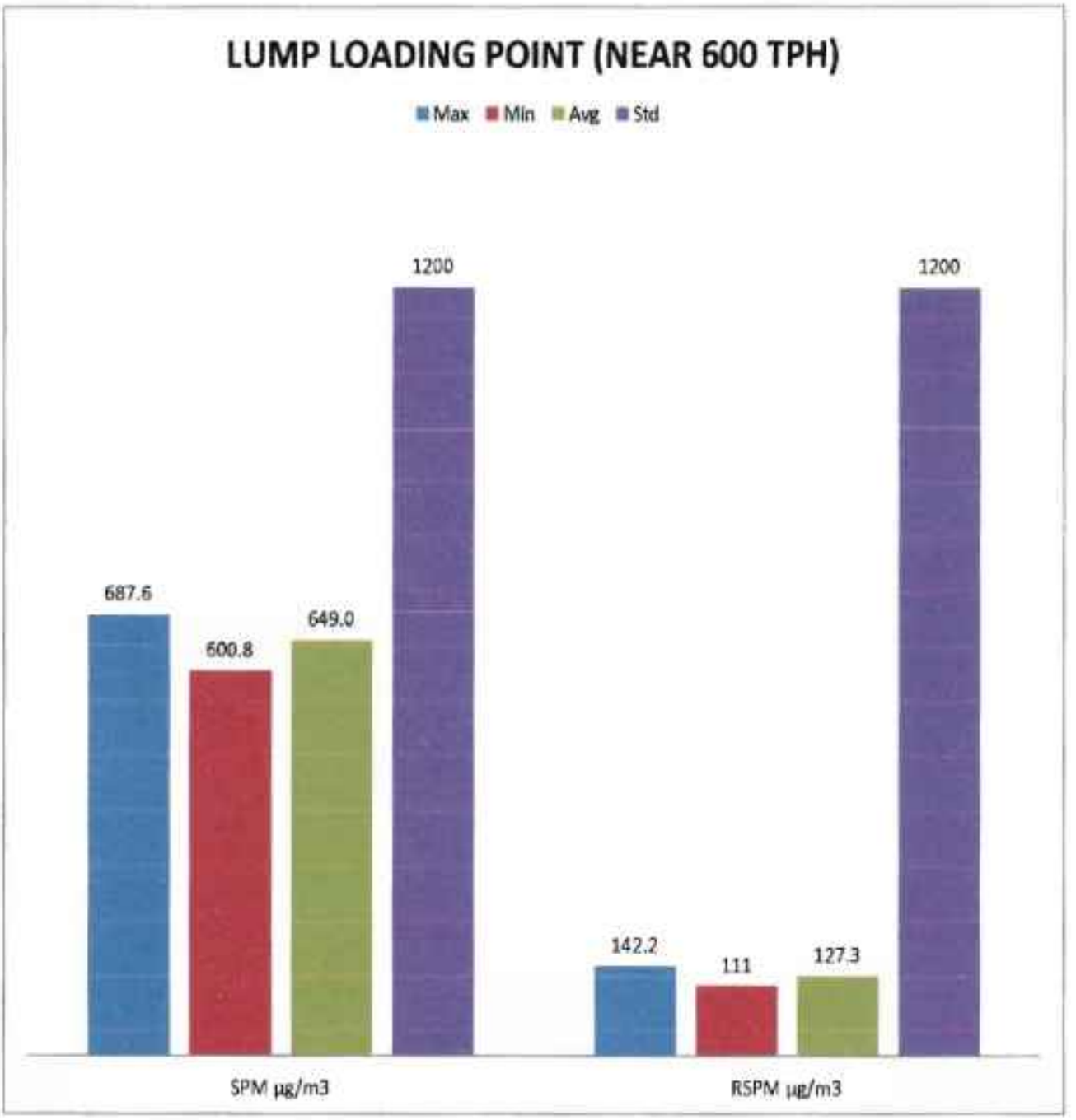
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.5 Lump Loading Point (Near 600 TPH) (F5)

The pollution level in Lump Loading Point (Near 600 TPH) for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **687.6** µg/m³ whereas minimum concentration was observed **600.8** µg/m³ and RSPM concentration ranges between **111** µg/m³ to **142.2** µg/m³ during the month.



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1999PTC010601, GSTIN : 09AAACE5076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/85
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Lump Loading Point (Near 600 TPH)**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	Lump Loading Point (Near 600 TPH)	686.7	139.2
2.	02-11-2024	Lump Loading Point (Near 600 TPH)	605.2	117.8
3.	03-11-2024	Lump Loading Point (Near 600 TPH)	675.5	135.6
4.	04-11-2024	Lump Loading Point (Near 600 TPH)	663.1	128.0
5.	05-11-2024	Lump Loading Point (Near 600 TPH)	609.7	112.3
6.	06-11-2024	Lump Loading Point (Near 600 TPH)	630.0	124.4
7.	07-11-2024	Lump Loading Point (Near 600 TPH)	617.5	124.0
8.	08-11-2024	Lump Loading Point (Near 600 TPH)	666.4	122.2
9.	09-11-2024	Lump Loading Point (Near 600 TPH)	625.8	117.9
10.	10-11-2024	Lump Loading Point (Near 600 TPH)	681.3	139.4
11.	11-11-2024	Lump Loading Point (Near 600 TPH)	610.1	111.0
12.	12-11-2024	Lump Loading Point (Near 600 TPH)	679.3	132.5
13.	13-11-2024	Lump Loading Point (Near 600 TPH)	634.6	121.8
14.	14-11-2024	Lump Loading Point (Near 600 TPH)	600.8	112.8
15.	15-11-2024	Lump Loading Point (Near 600 TPH)	669.7	136.8
16.	16-11-2024	Lump Loading Point (Near 600 TPH)	651.2	136.0
17.	17-11-2024	Lump Loading Point (Near 600 TPH)	620.8	116.6
18.	18-11-2024	Lump Loading Point (Near 600 TPH)	634.5	129.8
19.	19-11-2024	Lump Loading Point (Near 600 TPH)	676.6	127.1
20.	20-11-2024	Lump Loading Point (Near 600 TPH)	663.2	132.3
21.	21-11-2024	Lump Loading Point (Near 600 TPH)	650.3	122.7
22.	22-11-2024	Lump Loading Point (Near 600 TPH)	651.2	132.9
23.	23-11-2024	Lump Loading Point (Near 600 TPH)	653.0	133.8
24.	24-11-2024	Lump Loading Point (Near 600 TPH)	686.9	134.6
25.	25-11-2024	Lump Loading Point (Near 600 TPH)	646.9	134.9
26.	26-11-2024	Lump Loading Point (Near 600 TPH)	687.6	142.2
27.	27-11-2024	Lump Loading Point (Near 600 TPH)	646.4	123.7
28.	28-11-2024	Lump Loading Point (Near 600 TPH)	683.4	126.1
29.	29-11-2024	Lump Loading Point (Near 600 TPH)	658.4	122.7
30.	30-11-2024	Lump Loading Point (Near 600 TPH)	602.5	126.5
Average			**649.0**	**127.2**

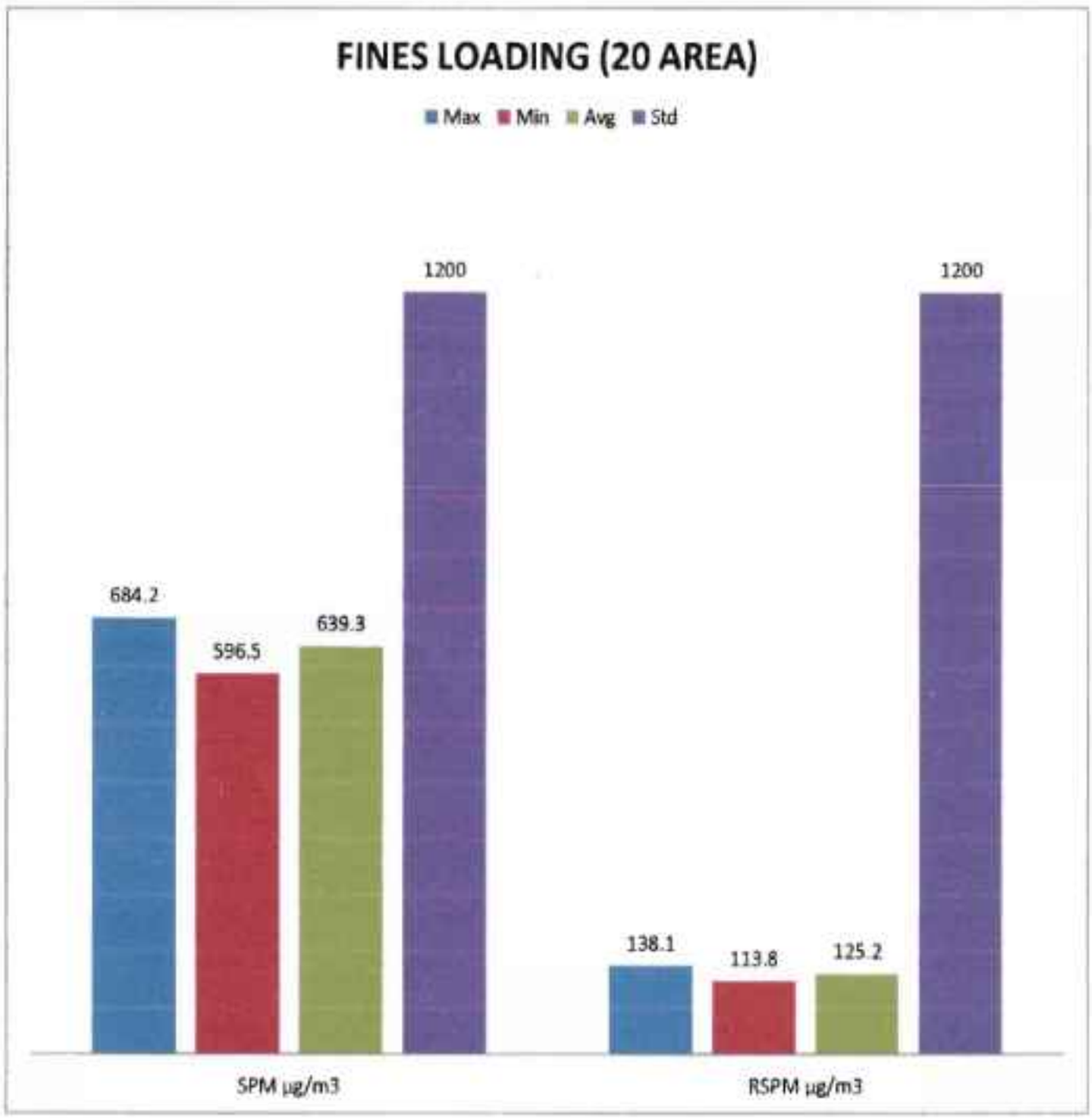
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.6 Fines Loading (20 area) (F6)

The pollution level in Fines Loading (20 area) for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **684.2** µg/m³ whereas minimum concentration was observed **596.5** µg/m³ and RSPM concentration ranges between **113.8** µg/m³ to **138.1** µg/m³ during the month.



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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/86
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Fines Loading (20 area)**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	Fines Loading (20 area)	596.5	115.8
2.	02-11-2024	Fines Loading (20 area)	615.1	128.7
3.	03-11-2024	Fines Loading (20 area)	655.4	118.5
4.	04-11-2024	Fines Loading (20 area)	603.8	113.8
5.	05-11-2024	Fines Loading (20 area)	611.1	123.8
6.	06-11-2024	Fines Loading (20 area)	638.7	115.7
7.	07-11-2024	Fines Loading (20 area)	613.6	126.6
8.	08-11-2024	Fines Loading (20 area)	667.3	128.7
9.	09-11-2024	Fines Loading (20 area)	604.3	118.6
10.	10-11-2024	Fines Loading (20 area)	634.3	116.9
11.	11-11-2024	Fines Loading (20 area)	600.5	121.7
12.	12-11-2024	Fines Loading (20 area)	649.4	136.1
13.	13-11-2024	Fines Loading (20 area)	635.4	116.0
14.	14-11-2024	Fines Loading (20 area)	630.9	124.4
15.	15-11-2024	Fines Loading (20 area)	660.9	131.9
16.	16-11-2024	Fines Loading (20 area)	680.5	124.0
17.	17-11-2024	Fines Loading (20 area)	643.3	129.8
18.	18-11-2024	Fines Loading (20 area)	656.9	134.1
19.	19-11-2024	Fines Loading (20 area)	664.4	130.2
20.	20-11-2024	Fines Loading (20 area)	654.7	132.6
21.	21-11-2024	Fines Loading (20 area)	684.2	138.1
22.	22-11-2024	Fines Loading (20 area)	628.7	117.3
23.	23-11-2024	Fines Loading (20 area)	640.9	124.5
24.	24-11-2024	Fines Loading (20 area)	652.1	124.8
25.	25-11-2024	Fines Loading (20 area)	635.9	124.8
26.	26-11-2024	Fines Loading (20 area)	642.8	132.4
27.	27-11-2024	Fines Loading (20 area)	613.9	117.3
28.	28-11-2024	Fines Loading (20 area)	654.8	135.5
29.	29-11-2024	Fines Loading (20 area)	662.8	132.9
30.	30-11-2024	Fines Loading (20 area)	647.2	120.0
Average			**639.3**	**125.2**

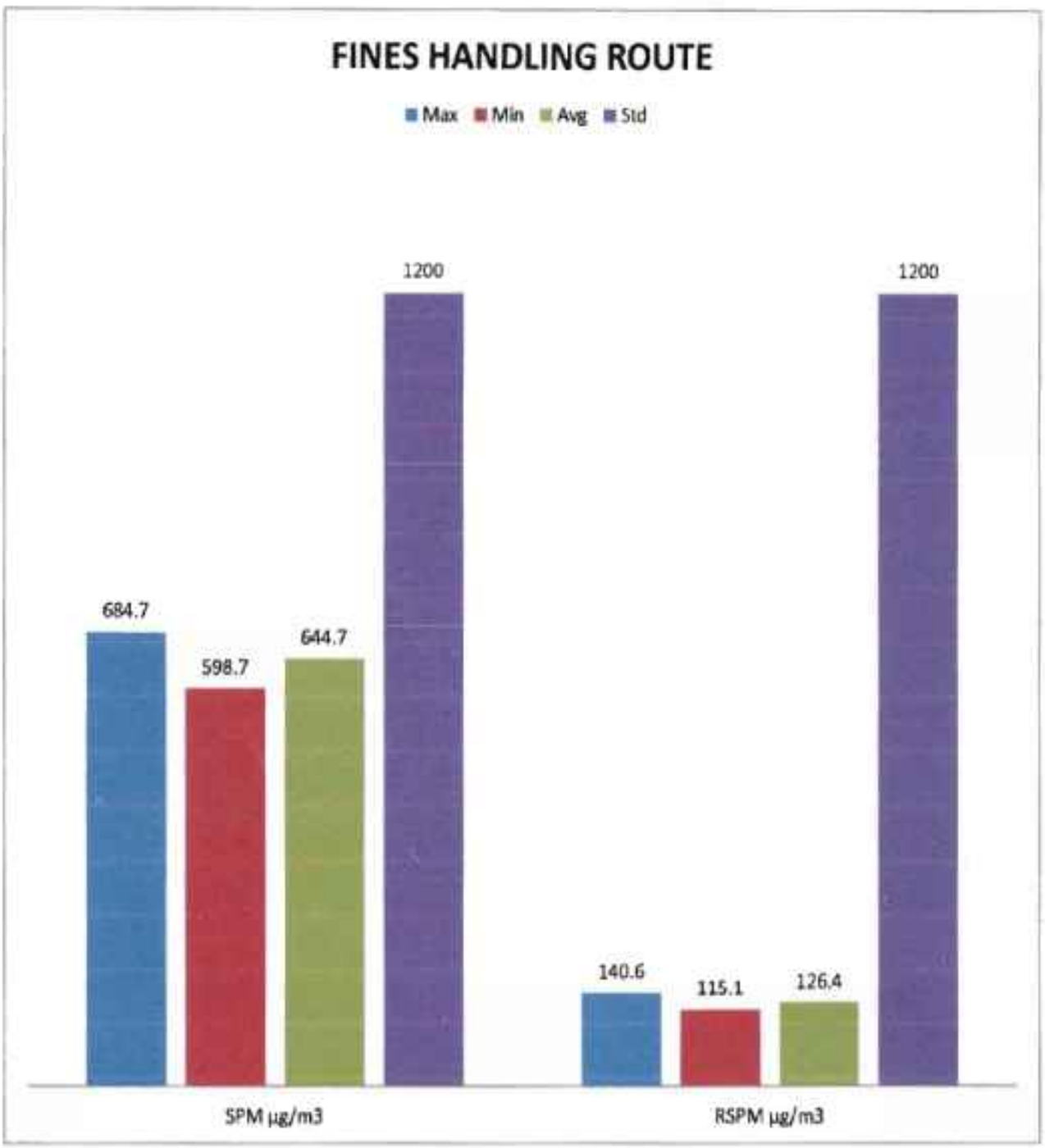
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.7 Fines Handling Route (F7)

The pollution level in Fines Handling Route for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **684.7** µg/m³ whereas minimum concentration was observed **598.7** µg/m³ and RSPM concentration ranges between **115.1** µg/m³ to **140.6** µg/m³ during the month.



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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/87
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Fines Handling Route**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	Fines Handling Route	603.4	125.7
2.	02-11-2024	Fines Handling Route	684.7	130.1
3.	03-11-2024	Fines Handling Route	613.5	118.8
4.	04-11-2024	Fines Handling Route	614.8	126.3
5.	05-11-2024	Fines Handling Route	631.6	116.3
6.	06-11-2024	Fines Handling Route	630.6	115.1
7.	07-11-2024	Fines Handling Route	602.8	119.6
8.	08-11-2024	Fines Handling Route	657.9	121.5
9.	09-11-2024	Fines Handling Route	672.1	128.7
10.	10-11-2024	Fines Handling Route	603.9	115.6
11.	11-11-2024	Fines Handling Route	654.5	134.7
12.	12-11-2024	Fines Handling Route	681.4	126.6
13.	13-11-2024	Fines Handling Route	684.2	140.6
14.	14-11-2024	Fines Handling Route	605.2	116.3
15.	15-11-2024	Fines Handling Route	681.3	136.4
16.	16-11-2024	Fines Handling Route	660.6	128.4
17.	17-11-2024	Fines Handling Route	669.0	133.3
18.	18-11-2024	Fines Handling Route	673.4	122.6
19.	19-11-2024	Fines Handling Route	657.4	129.4
20.	20-11-2024	Fines Handling Route	675.6	134.6
21.	21-11-2024	Fines Handling Route	641.6	126.1
22.	22-11-2024	Fines Handling Route	632.0	129.9
23.	23-11-2024	Fines Handling Route	668.5	139.3
24.	24-11-2024	Fines Handling Route	632.5	123.8
25.	25-11-2024	Fines Handling Route	679.5	133.8
26.	26-11-2024	Fines Handling Route	598.7	121.5
27.	27-11-2024	Fines Handling Route	609.5	127.8
28.	28-11-2024	Fines Handling Route	683.4	123.6
29.	29-11-2024	Fines Handling Route	616.4	123.0
30.	30-11-2024	Fines Handling Route	621.3	122.2
Average			**644.7**	**126.4**

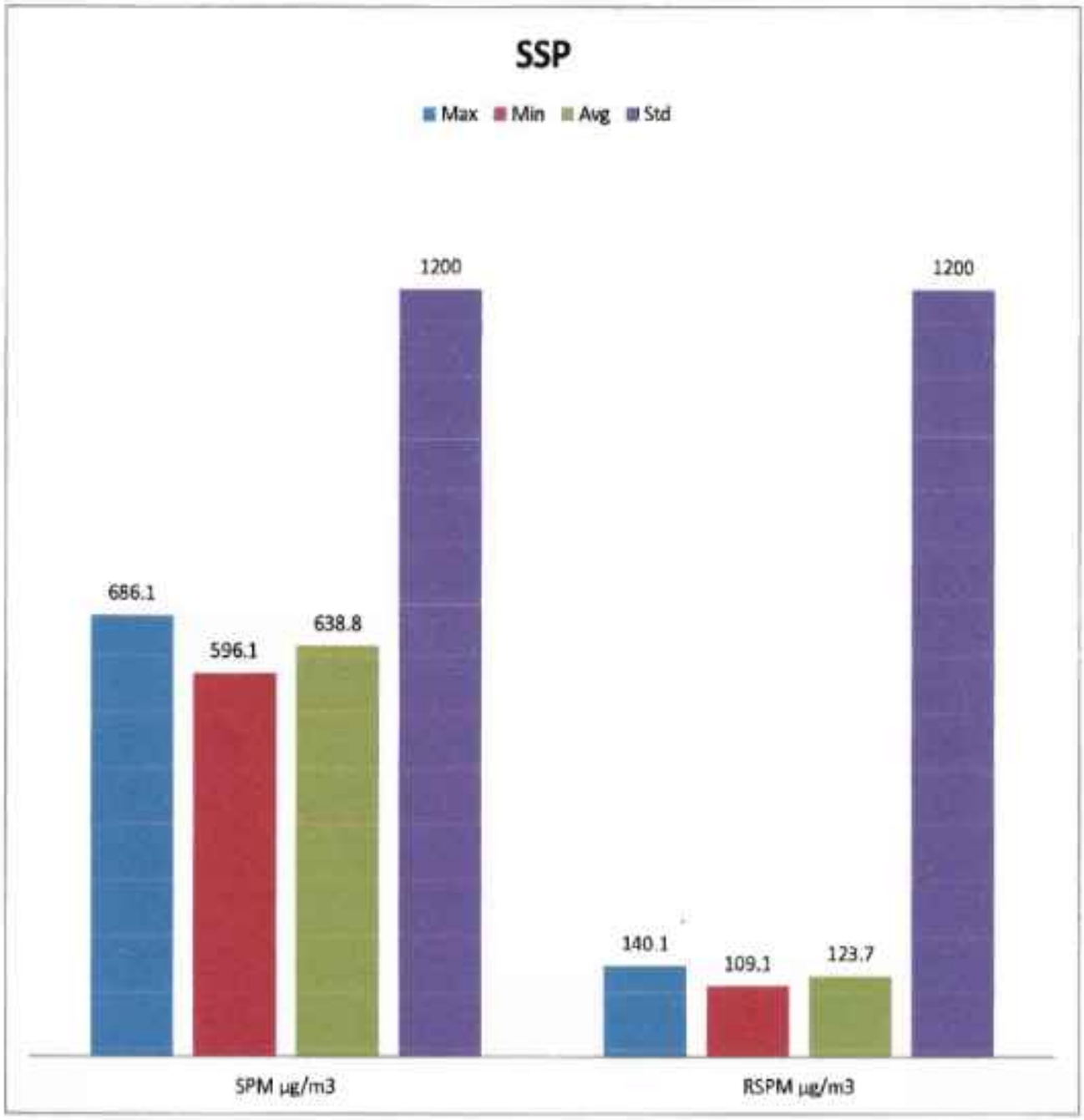
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.8 SSP (F8)

The pollution level in SSP Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **686.1** µg/m³ whereas minimum concentration was observed **596.1** µg/m³ and RSPM concentration ranges between **109.1** µg/m³ to **140.1** µg/m³ during the month.



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/88
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **SSP**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	SSP	656.7	119.3
2.	02-11-2024	SSP	610.5	125.8
3.	03-11-2024	SSP	673.3	123.7
4.	04-11-2024	SSP	596.4	111.2
5.	05-11-2024	SSP	670.6	123.4
6.	06-11-2024	SSP	639.9	124.9
7.	07-11-2024	SSP	670.1	126.0
8.	08-11-2024	SSP	617.5	128.2
9.	09-11-2024	SSP	686.1	140.1
10.	10-11-2024	SSP	661.0	120.0
11.	11-11-2024	SSP	650.1	118.9
12.	12-11-2024	SSP	614.5	122.0
13.	13-11-2024	SSP	667.8	136.4
14.	14-11-2024	SSP	646.0	117.0
15.	15-11-2024	SSP	642.6	133.7
16.	16-11-2024	SSP	614.2	121.4
17.	17-11-2024	SSP	685.3	126.8
18.	18-11-2024	SSP	604.0	110.0
19.	19-11-2024	SSP	633.2	126.3
20.	20-11-2024	SSP	664.9	121.3
21.	21-11-2024	SSP	605.4	126.9
22.	22-11-2024	SSP	615.2	128.3
23.	23-11-2024	SSP	596.1	113.4
24.	24-11-2024	SSP	679.8	137.0
25.	25-11-2024	SSP	679.2	132.1
26.	26-11-2024	SSP	651.6	120.0
27.	27-11-2024	SSP	638.4	128.3
28.	28-11-2024	SSP	599.6	109.1
29.	29-11-2024	SSP	597.4	121.0
30.	30-11-2024	SSP	597.3	117.3
Average			**638.8**	**123.7**

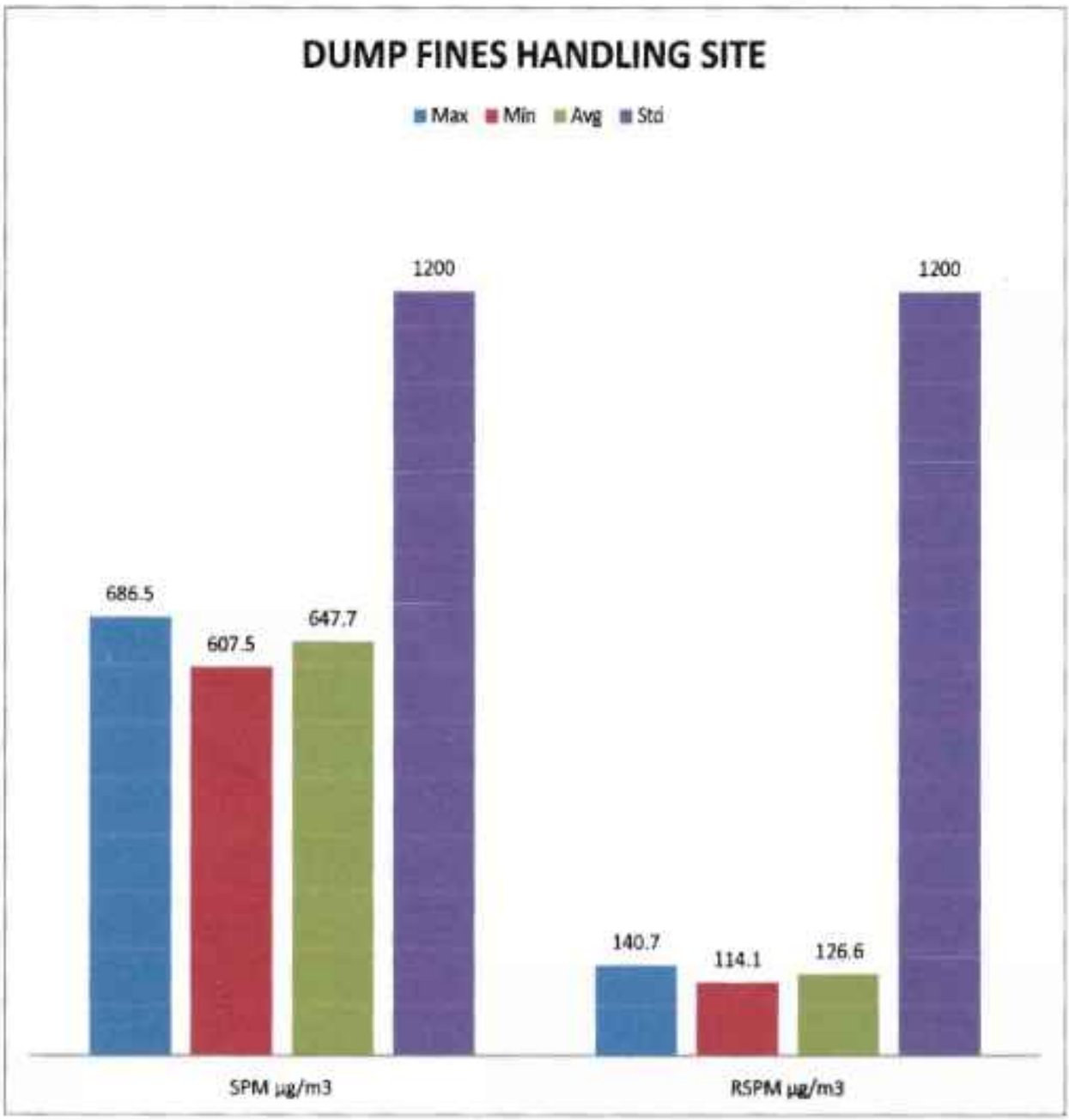
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.9 Dump Fines Handling Site (F9)

The pollution level in Dump Fines Handling Site for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **686.5** µg/m³ whereas minimum concentration was observed **607.5** µg/m³ and RSPM concentration ranges between **114.1** µg/m³ to **140.7** µg/m³ during the month.



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746262
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/89
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Dump Fines Handling Site**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	Dump Fines Handling Site	660.7	135.3
2.	02-11-2024	Dump Fines Handling Site	675.4	137.5
3.	03-11-2024	Dump Fines Handling Site	621.5	125.5
4.	04-11-2024	Dump Fines Handling Site	639.7	116.6
5.	05-11-2024	Dump Fines Handling Site	629.6	116.8
6.	06-11-2024	Dump Fines Handling Site	685.6	140.7
7.	07-11-2024	Dump Fines Handling Site	650.4	118.1
8.	08-11-2024	Dump Fines Handling Site	681.6	135.0
9.	09-11-2024	Dump Fines Handling Site	619.5	120.1
10.	10-11-2024	Dump Fines Handling Site	635.0	128.4
11.	11-11-2024	Dump Fines Handling Site	608.5	114.1
12.	12-11-2024	Dump Fines Handling Site	626.6	129.1
13.	13-11-2024	Dump Fines Handling Site	686.5	137.0
14.	14-11-2024	Dump Fines Handling Site	607.5	123.1
15.	15-11-2024	Dump Fines Handling Site	647.3	124.0
16.	16-11-2024	Dump Fines Handling Site	677.2	126.4
17.	17-11-2024	Dump Fines Handling Site	684.5	127.8
18.	18-11-2024	Dump Fines Handling Site	638.2	125.7
19.	19-11-2024	Dump Fines Handling Site	650.2	126.3
20.	20-11-2024	Dump Fines Handling Site	615.0	117.8
21.	21-11-2024	Dump Fines Handling Site	667.5	128.4
22.	22-11-2024	Dump Fines Handling Site	634.1	132.9
23.	23-11-2024	Dump Fines Handling Site	653.8	134.4
24.	24-11-2024	Dump Fines Handling Site	619.3	127.4
25.	25-11-2024	Dump Fines Handling Site	665.7	123.8
26.	26-11-2024	Dump Fines Handling Site	630.4	115.6
27.	27-11-2024	Dump Fines Handling Site	677.5	126.1
28.	28-11-2024	Dump Fines Handling Site	678.2	139.0
29.	29-11-2024	Dump Fines Handling Site	629.6	116.7
30.	30-11-2024	Dump Fines Handling Site	634.7	127.3
Average			**647.7**	**126.6**

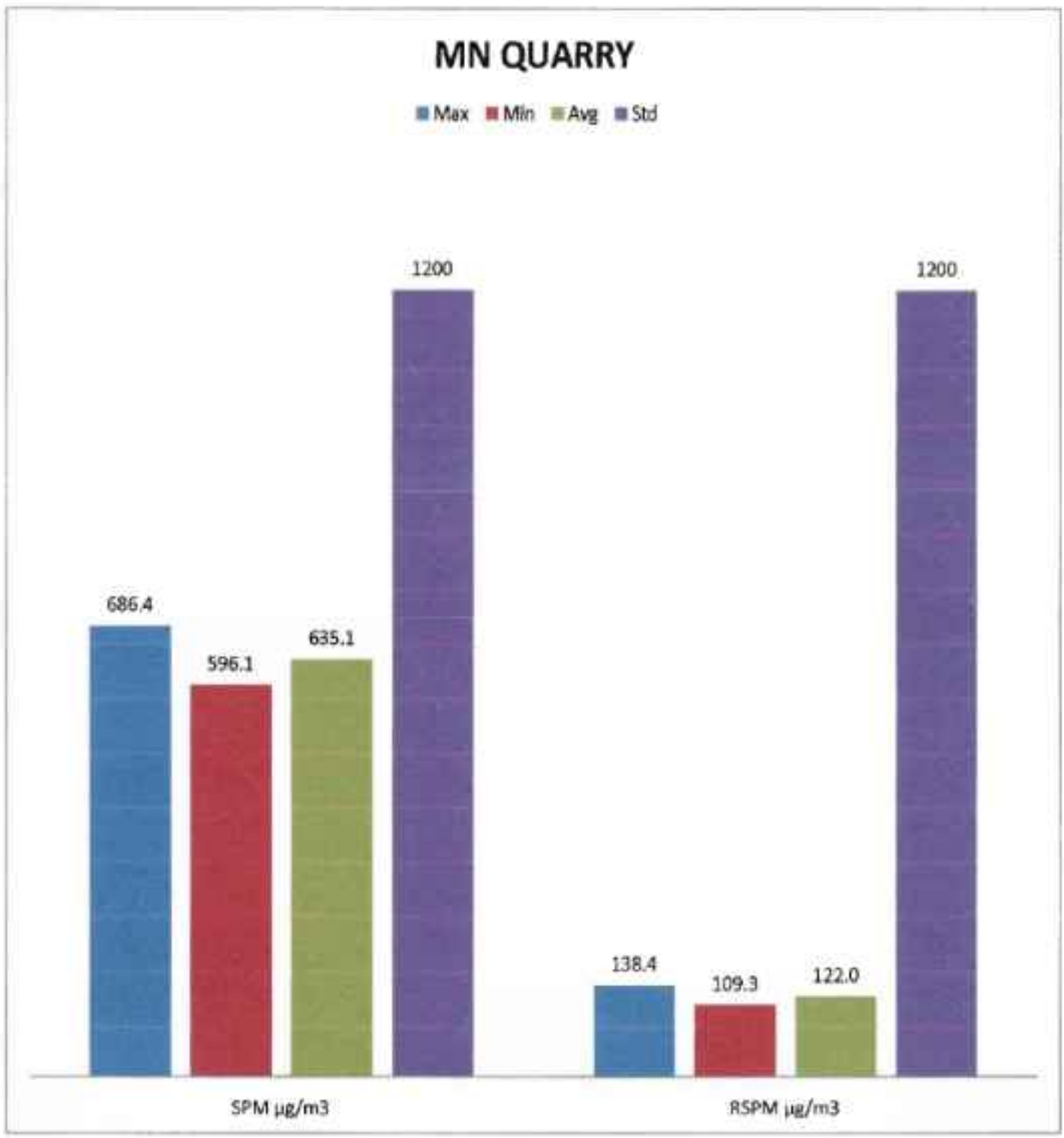
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.10 Mn Quarry (F5)

The pollution level in Mn Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **686.4** µg/m³ whereas minimum concentration was observed **596.1** µg/m³ and RSPM concentration ranges between **109.3** µg/m³ to **138.4** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/90
Test Report Issue date: 05.12.2024

FUGITIVE EMISSION MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Mn Quarry**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-11-2024	Mn Quarry	608.0	115.2
2.	02-11-2024	Mn Quarry	605.3	117.0
3.	03-11-2024	Mn Quarry	635.8	121.1
4.	04-11-2024	Mn Quarry	612.1	112.5
5.	05-11-2024	Mn Quarry	686.4	126.1
6.	06-11-2024	Mn Quarry	673.9	124.0
7.	07-11-2024	Mn Quarry	640.3	115.8
8.	08-11-2024	Mn Quarry	672.1	132.2
9.	09-11-2024	Mn Quarry	596.1	116.0
10.	10-11-2024	Mn Quarry	619.6	118.4
11.	11-11-2024	Mn Quarry	633.7	122.1
12.	12-11-2024	Mn Quarry	601.4	116.6
13.	13-11-2024	Mn Quarry	631.1	114.8
14.	14-11-2024	Mn Quarry	631.0	114.4
15.	15-11-2024	Mn Quarry	614.7	113.6
16.	16-11-2024	Mn Quarry	613.9	114.8
17.	17-11-2024	Mn Quarry	630.0	124.9
18.	18-11-2024	Mn Quarry	643.4	117.9
19.	19-11-2024	Mn Quarry	620.5	122.9
20.	20-11-2024	Mn Quarry	671.3	133.8
21.	21-11-2024	Mn Quarry	674.0	138.4
22.	22-11-2024	Mn Quarry	681.0	134.3
23.	23-11-2024	Mn Quarry	668.7	135.0
24.	24-11-2024	Mn Quarry	660.3	120.9
25.	25-11-2024	Mn Quarry	612.9	124.1
26.	26-11-2024	Mn Quarry	627.3	
27.	27-11-2024	Mn Quarry	623.2	
28.	28-11-2024	Mn Quarry	600.7	110.2
29.	29-11-2024	Mn Quarry	657.7	137.9
30.	30-11-2024	Mn Quarry	605.5	109.3
Average			**635.1**	**122.0**

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.3 Surface/Effluent/Drinking Water Quality:

As per the guideline of CPCB, the following criteria shall be taken into consideration for use of the surface water bodies. Reports below shows the surface water quality analysis results at identified locations near the ML area.

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	• Total Coliforms Organism MPN/100ml shall be 50 or less • pH between 6.5 and8.5 • Dissolved Oxygen 6mg/l or more • Biochemical Oxygen Demand 5 days 20C 2mg/l or less
Outdoor bathing (Organized)	B	• Total Coliforms Organism MPN/100ml shall be 500 or less • pH between 6.5 and8.5 • Dissolved Oxygen 5mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Drinking water source after conventional treatment and disinfection	C	• Total Coliforms Organism MPN/100ml shall be 5000 or less • pH between 6 to9 • Dissolved Oxygen 4mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Propagation of Wild life and Fisheries	D	• pH between 6.5 to8.5 • Dissolved Oxygen 4mg/l or more • Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	• pH between 6.0 to8.5 • Electrical Conductivity at 25C micro mhos/cmMax.2250 • Sodium absorption Ratio Max.26 • Boron Max.2mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.3.1 Surface Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Baloni Ore Mines (SAIL)	ULR No.	TC127512400001297F
		Test Report No.	ECO/LAB/SW/0227/1297/11/2024
		Issue Date of Test Report	02.12.2024
Type of Sample	Surface Water		
Sample Registration No.	0227	Name of Location	Karo Near Lease Boundary at Limture Village
Sampling Method	APHA 24th Ed :2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	22.11.2024	Time of Sample Collection	-
Date of Sample Receipt	25.11.2024	Time of Sample Receipt	10:30 AM
Start Date of Analysis	25.11.2024	End Date of Analysis	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 56%	Sample ID Code	ECO/LAB/1297/11/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	28.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	36.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	2.20	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	20.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.09	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO_3-E	5-100	<5.0	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.05	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.06	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.

The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-015		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	25/11/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Karo Near Lease Boundryat Limtur Village)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2025 To 02/12/2024		
Date of Reporting	02/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.34	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5500 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.004	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by
Idma Laboratories Ltd.
Dipti Jain
Asst. Tech. Manager
Panchkula

Authorised Signatory
Idma Laboratories Ltd.
Kartar Singh
Tech. Mgr.
Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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- Samples not drawn by us unless otherwise stated.
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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001298F
		Test Report No.	ECO/LAB/SW/0227/1298/11/2024
		Issue Date of Test Report	02.12.2024
Type of Sample	Surface Water		
Sample Registration No.	0227	Name of Location	JhikaraNalla before Joining Karo River
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	22.11.2024	Time of Sample Collection	-
Date of Sample Receipt	25.11.2024	Time of Sample Receipt	10:30 AM
Start Date of Analysis	25.11.2024	End Date of Analysis	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 56%	Sample ID Code	ECO/LAB/1298/11/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. 2017,2540-D	5 -5000	32.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. 2017,5220 A+C	1 -1000	40.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. 2017,5210 A+B	1 -1000	2.4	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	22.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. 2017,4500NO3-E	5-100	9.20	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.05	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.06	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Munganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters

Note:

1. Test results relate to the items sampled & tested
2. Test report shall not be reproduced except in full without approval of the laboratory
3. The test samples will be disposed of after one Month from the date of issue of test report

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-016		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	25/11/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Jhinkaria Nallah Before Joining Karo)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Date of Reporting	02/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.19	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5520 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.002	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised Signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746262

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1999PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001299F
		Test Report No.	ECO/LAB/SW/0227/1299/11/2024
		Issue Date of Test Report	02.12.2024
Type of Sample	Surface Water		
Sample Registration No.	0227	Name of Location	PanpashNallah
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	22.11.2024	Time of Sample Collection	-
Date of Sample Receipt	25.11.2024	Time of Sample Receipt	10:30 AM
Start Date of Analysis	25.11.2024	End Date of Analysis	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 56%	Sample ID Code	ECO/LAB/1299/11/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5-5000	30.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1-1000	36.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1-1000	6.5	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	34.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.16	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO_3-E	5-100	7.10	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.09	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.05	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters

Note:

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2. Test report shall not be reproduced except in full without approval of the laboratory.
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----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-017		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	25/11/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Panposh Nallah)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Date of Reporting	02/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.35	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5520 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	<0.0005	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by
Idma Laboratories Ltd.
Dipti Jain
Asst. Tech. Manager
Panchkula

Authorised signatory
Idma Laboratories Ltd.
Kartar Singh
Tech. Mgr.
Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001300F
		Test Report No.	ECO/LAB/SW/0227/1300/11/2024
		Issue Date of Test Report	02.12.2024
Type of Sample	Surface Water		
Sample Registration No.	0227	Name of Location	Karo River Intake
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	22.11.2024	Time of Sample Collection	-
Date of Sample Receipt	25.11.2024	Time of Sample Receipt	10:30 AM
Start Date of Analysis	25.11.2024	End Date of Analysis	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 56%	Sample ID Code	ECO/LAB/1300/11/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	24.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	32.0	-
3.	Biochemical Oxygen Demand as BOD (3 days at 27°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	3.3	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	22.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.12	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO3-E	5-100	6.15	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.09	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-018		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	25/11/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle, (Loc. Karo River Intake)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Date of Reporting	02/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.29	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5520 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.0006	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by
Idma Laboratories Ltd.
Dipti Jain
Asst. Tech. Manager
Panchkula

Authorised signatory
Idma Laboratories Ltd.
Kartar Singh
Tech. Mgr.
Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.3.2 Effluent Waste Water Quality:

TEST REPORT

NAME & ADDRESS OF CUSTOMER:	Bolani Ore Mines (SAIL)	ULR No	TC127512400001303F
		Test Report No.	ECO/LAB/WW/0227/1303/11/2024
		Issue Date of Test Report	02.12.2024
Type of Sample	Waste Water		
Sample Registration No.	0227	Name of Location	Oil Catch Pit Water Bottom Garbage
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	22.11.2024	Time of Sample Collection	-
Date of Sample Receipt	25.11.2024	Time of Sample Receipt	10:30 PM
Start Date of Analysis	25.11.2024	End Date of Analysis	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 56%	Sample ID Code	ECO/LAB/1303/11/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.94	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	42.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. : 2017,5220 A+C	1 -1000	24.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. : 2017,5210 A+B	1 -1000	3.20	30.0
5.	Oil & Grease as O&G	mg/l	APHA, 23rd Ed. : 2017,5520 A+D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.18	2.0
7.	Nitrate nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3-E	5-100	6.20	-
8.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017,3114 A+B	0.01-2	0.19	-
9.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3500 A+B	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017,3500 Fe-B	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S^{2-} F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.002	2.0

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-019		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Waste Water		
Customer's Description of Sample#	Waste Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	25/11/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc. Oil Catchpit Water Bottom Garage)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Date of Reporting	02/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Waste Water)	-	-	-
1	Total Residual Chlorine	mg/L	<0.1	APHA4500Cl B24th Edition, 2023
2	Cyanide as CN-	mg/L	<0.05	APHA4500CN-C&E 24th Edition, 2023
3	Total Iron	mg/L	0.013	CPCB Guide Manual:Water & waste water Analysis

Represents details provided by the customer.

End of Report

Reviewed by

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No	TC127512400001304F
		Test Report No.	ECO/LAB/WW/0227/1304/11/2024
		Issue Date of Test Report	02.12.2024
Type of Sample	Waste Water		
Sample Registration No.	0227	Name of Location	Oil Catch pit water G-Area
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	22.11.2024	Time of Sample Collection	-
Date of Sample Receipt	25.11.2024	Time of Sample Receipt	10:30 PM
Start Date of Analysis	25.11.2024	End Date of Analysis	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 56%	Sample ID Code	ECO/LAB/1304/11/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.57	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	24.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. : 2017,5220 A+C	1 -1000	36.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. : 2017,5210 A+B	1 -1000	3.8	30.0
5.	Oil & Grease as O&G	mg/l	APHA, 23rd Ed. : 2017,5520 A+D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.25	2.0
7.	Nitrate nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3-E	5-100	5.80	-
8.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017,3114 A+B	0.01-2	0.20	-
9.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3500 A+B	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017,3500 Fe-B	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S^{2-} F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.002	2.0

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-020		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Waste Water		
Customer's Description of Sample#	Waste Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	25/11/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc Oil Catchpit Water G-Area)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Date of Reporting	02/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Waste Water)	-	-	-
1	Total Residual Chlorine	mg/L	<0.1	APHA4500Cl B24th Edition, 2023
2	Cyanide as CN-	mg/L	<0.05	APHA4500CN-C&E 24th Edition, 2023
3	Total Iron	mg/L	0.023	CPCB Guide Manual:Water & waste water Analysis

Represents details provided by the customer.

End of Report

Dipti Jain
Asst. Tech. Manager
Idma Laboratories Ltd.
Panchkula

Authorised Signatory
Kartar Singh
Tech. Mgr.
Idma Laboratories Ltd.
Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.3.3 Drinking Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001301F
		Test Report No.	ECO/LAB/DW/0227/1301/11/2024
		Issue Date of Test Report	02.12.2024
Type of Sample	Drinking Water		
Sample Registration No.	0227	Name of Location	Mount Club Tap Water
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	22.11.2024	Time of Sample Collection	-
Date of Sample Receipt	25.11.2024	Time of Sample Receipt	10:30 AM
Start Date of Analysis	25.11.2024	End Date of Analysis	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 56%	Sample ID Code	ECO/LAB/1301/11/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	5.86	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5.0	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.08	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO_3^-E	5-100	<5.0	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.03	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	0.06	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per IS 10500:2012(Reaff:2018).

Note-

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-013		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Type of Sample#	Drinking Water		
Customer's Description of Sample#	Drinking Water		
Quantity#	1 Ltr.		
Packing, Markings, Seal & Quantity#	Plastic Bottle. (Loc.Mount Club Tap Water)		
Mode of Collection of Sample	By Hand		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Date of Receipt of Sample	23/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Visual Observation	N/A		
Date of Reporting	02/12/2024		
Testing Protocol	IS: 10500:2012		

RESULTS

S.No.	Test Parameter	Units	Results	Limit of IS: 10500-2012		Test Method
				Requirement (Acceptable Limit)	Permissible Limit in absence of alternate	
	Chemical Testing (Water)	-	-	-	-	-
1	Cyanide as CN	mg/L	<0.05	Max. 0.05	No Relaxation	APHA 4500CN-C&F 24th Edition, 2023
2	Oil & Grease	mg/L	<2.5	-	-	APHA 5500 B 24th Edition, 2023
3	Total Residual Chlorine	mg/L	<0.1	-	-	APHA 4500Cl B 24th Edition, 2023
4	Total Iron	mg/L	0.002	Max. 1.0	No Relaxation	APHA 3120 B 24th Edition, 2023
5	Lead as Pb	mg/L	<0.0005	Max. 0.01	No Relaxation	APHA 3120 B 24th Edition, 2023

Opinion :

Represents details provided by the customer.

End of Report

Idma Laboratories Ltd. Reviewed by Dipti Jain Asst. Tech. Manager Panchkula

Authorised signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001302F
		Test Report No.	ECO/LAB/DW/0227/1302/11/2024
		Issue Date of Test Report	02.12.2024
Type of Sample	Drinking Water		
Sample Registration No.	0227	Name of Location	Karo Guest House Tap Water
Sampling Method	APHA, 23rd Ed.-2017,1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	22.11.2024	Time of Sample Collection	-
Date of Sample Receipt	25.11.2024	Time of Sample Receipt	10:30 AM
Start Date of Analysis	25.11.2024	End Date of Analysis	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 56%	Sample ID Code	ECO/LAB/1302/11/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.82	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5.0	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 - 10	0.05	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO_3^-E	5-100	<5.0	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.06	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per **IS 10500:2012(Reaff:2018).**

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-014		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Type of Sample#	Drinking Water		
Customer's Description of Sample#	Drinking Water		
Quantity#	1 Ltr.		
Packing, Markings, Seal & Quantity#	Plastic Bottle. (Loc.Karo Guest House Tap Water)		
Mode of Collection of Sample	By Hand		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Visual Observation	N/A		
Date of Reporting	02/12/2024		
Testing Protocol	IS: 10500:2012		

RESULTS

S.No.	Test Parameter	Units	Results	Limit of IS: 10500-2012		Test Method
				Requirement (Acceptable Limit)	Permissible Limit in absence of alternate	
	Chemical Testing (Water)	-	-	-	-	-
1	Cyanide as CN	mg/L	<0.05	Max. 0.05	No Relaxation	APHA 4500CN-C&F 24th Edition, 2023
2	Oil & Grease	mg/L	<2.5	-	-	APHA 5520 B 24th Edition, 2023
3	Total Residual Chlorine	mg/L	<0.1	-	-	APHA 4500Cl B 24th Edition, 2023
4	Total Iron	mg/L	0.091	Max. 1.0	No Relaxation	APHA 3120 B 24th Edition, 2023
5	Lead as Pb	mg/L	<0.0005	Max. 0.01	No Relaxation	APHA 3120 B 24th Edition, 2023

Opinion :

Represents details provided by the customer.

End of Report

Reviewed by

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised Signatory

02/12/24

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.4 Ground Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001306F
		Test Report No.	ECO/LAB/GW/0227/1306/11/2024
		Issue Date of Test Report	02.12.2024
Type of Sample	Ground Water		
Sample Registration No.	0227	Name of Location	Bolani Gouda Basti Dug well
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	22.11.2024	Time of Sample Collection	-
Date of Sample Receipt	25.11.2024	Time of Sample Receipt	10:30 AM
Start Date of Analysis	25.11.2024	End Date of Analysis	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 56%	Sample ID Code	ECO/LAB/1306/11/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.52	6.5-8.5	No Relax
2	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5.0	-	-
3	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.07	1	1.5
4	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO_3 E	5-100	<5.0	45	No Relax
5	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.04	0.3	No Relax
8	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	<0.02	5.0	15.0
10	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per **IS 10500:2012(Reaff:2018).**

Note:

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2. Test report shall not be reproduced except in full without approval of the laboratory
3. The test samples will be disposed of after one Month from the date of issue of test report
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-022		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Ground Water		
Customer's Description of Sample#	Ground Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	25/11/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Gouda Basti-Well Water)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Date of Reporting	02/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
2	Oil & Grease	mg/L	<2.5	APHA 5520 B 24th Edition, 2023
3	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
4	Chromium (Hexavalent)	mg/L	<0.05	USEPA Method 7196A
5	Cadmium	mg/L	<0.0005	APHA 3120 B 24th Edition, 2023
6	Copper as Cu	mg/L	<0.0005	APHA 3120 B 24th Edition, 2023
7	Iron	mg/L	0.002	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Authorised signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**ULR No.**	**TC127512400001305F**
		Test Report No.	**ECO/LAB/GW/0227/1305/11/2024**
		Issue Date of Test Report	**02.12.2024**
Type of Sample	Ground Water		
Sample Registration No.	0227	**Name of Location**	Balagoda Village Dug well Water
Sampling Method	APHA, 23rd Ed. 2017,1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	22.11.2024	**Time of Sample Collection**	-
Date of Sample Receipt	25.11.2024	**Time of Sample Receipt**	10:30 AM
Start Date of Analysis	25.11.2024	**End Date of Analysis**	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 56%	**Sample ID Code**	ECO/LAB/1305/11/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.20	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5.0	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.10	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO_3^-E	5-100	<5.0	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.04	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	0.08	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per **IS 10500:2012(Reaff:2018).**

Note-

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-023		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Ground Water		
Customer's Description of Sample#	Ground Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	25/11/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Balagoda Village -Well Water)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Date of Reporting	02/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
2	Oil & Grease	mg/L	<2.5	APHA 5520 B 24th Edition, 2023
3	Total Residual Chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
4	Chromium (Hexavalent)	mg/L	<0.05	USEPA Method 7196A
5	Cadmium	mg/L	<0.0005	APHA 3120 B 24th Edition, 2023
6	Copper as Cu	mg/L	0.0009	APHA 3120 B 24th Edition, 2023
7	Iron as Fe	mg/L	0.003	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by

Authorised signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**ULR No.**	**TC127512400001307F**
		Test Report No.	**ECO/LAB/GW/0227/1307/11/2024**
		Issue Date of Test Report	**02.12.2024**
Type of Sample	Ground Water		
Sample Registration No.	0227	**Name of Location**	Bolani Basti Dug well
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	22.11.2024	**Time of Sample Collection**	-
Date of Sample Receipt	25.11.2024	**Time of Sample Receipt**	10:30 AM
Start Date of Analysis	25.11.2024	**End Date of Analysis**	02.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 56%	**Sample ID Code**	ECO/LAB/1307/11/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.75	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5.0	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.09	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO_3^-E	5-100	<5.0	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.07	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per **IS 10500:2012(Reaff:2018).**

Note:

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2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	251124N-E-021		Page No. 1/2
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Ground Water		
Customer's Description of Sample#	Ground Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	25/11/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc. Bolani Village -Well Water)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	25/11/2024		
Period of Analysis	25/11/2024 To 02/12/2024		
Date of Reporting	02/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
2	Oil & Grease	mg/L	<2.5	APHA 5520 B 24th Edition, 2023
3	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
4	Chromium (Hexavalent)	mg/L	<0.05	USEPA Method 7196A
5	Cadmium	mg/L	<0.0005	APHA 3120 B 24th Edition, 2023
6	Copper as Cu	mg/L	0.002	APHA 3120 B 24th Edition, 2023
7	Iron	mg/L	0.005	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed By

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised Signatory

Idma Laboratories Ltd. Kuldip Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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2.5.1 Meteorology

Summarized meteorological data such as temperature, relative humidity, rainfall, and wind speed and wind direction are given in **Table No. 2.5.2.** During the month of 'November 2024'the temperature varied from 12.2°C to 34.7°C & Relative Humidity varied from 1.1% to 98.8%. The maximum wind speed recorded during the month was 34 m/s and the overall average wind speed is calculated to be 2.5m/s, 23.06% of the time the wind remained calm (<0.5 m/s). The predominant wind direction as observed to be from South West (SW) direction during the month. The total rainfall observed during the month was 23.6 & 1 out of 30 were rainy days. Max. And Min. Value of temperature, relative humidity, rainfall, wind speed and wind direction on each day basis for November 2024 are given below.

Table No. 2.5.2: Results of Site Specific Meteorological Data

Parameters		November, 2024
Temperature (°C)	Maximum	34.7
	Minimum	12.2
	Average	23.4
Relative Humidity (%)	Maximum	98.8
	Minimum	1.1
	Average	79.6
Wind Speed(m/s)	Maximum	34
	Average	2.5
Wind Direction (%)	N	10.82
	NNE	1.82
	NE	3.75
	ENE	5.14
	E	4.87
	ESE	3.48
	SE	3.06
	SSE	3.33
	S	5
	SSW	9.58
	SW	26.54
	WSW	7.64
	W	5.42
	WNW	4.31
	NW	4.02
	NNW	1.12
	CALM	23.06
Rainfall(mm)	Monthly Total	23.6
	No. of rainy days	01

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AWS/09
Test Report Issue date: 05.12.2024

METEROLOGICAL MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist- Keonjhar , Odisha**
2. Monitoring Instruments : Automatic Weather Station (AWS)
3. Sampling Location : **DAV Public School**

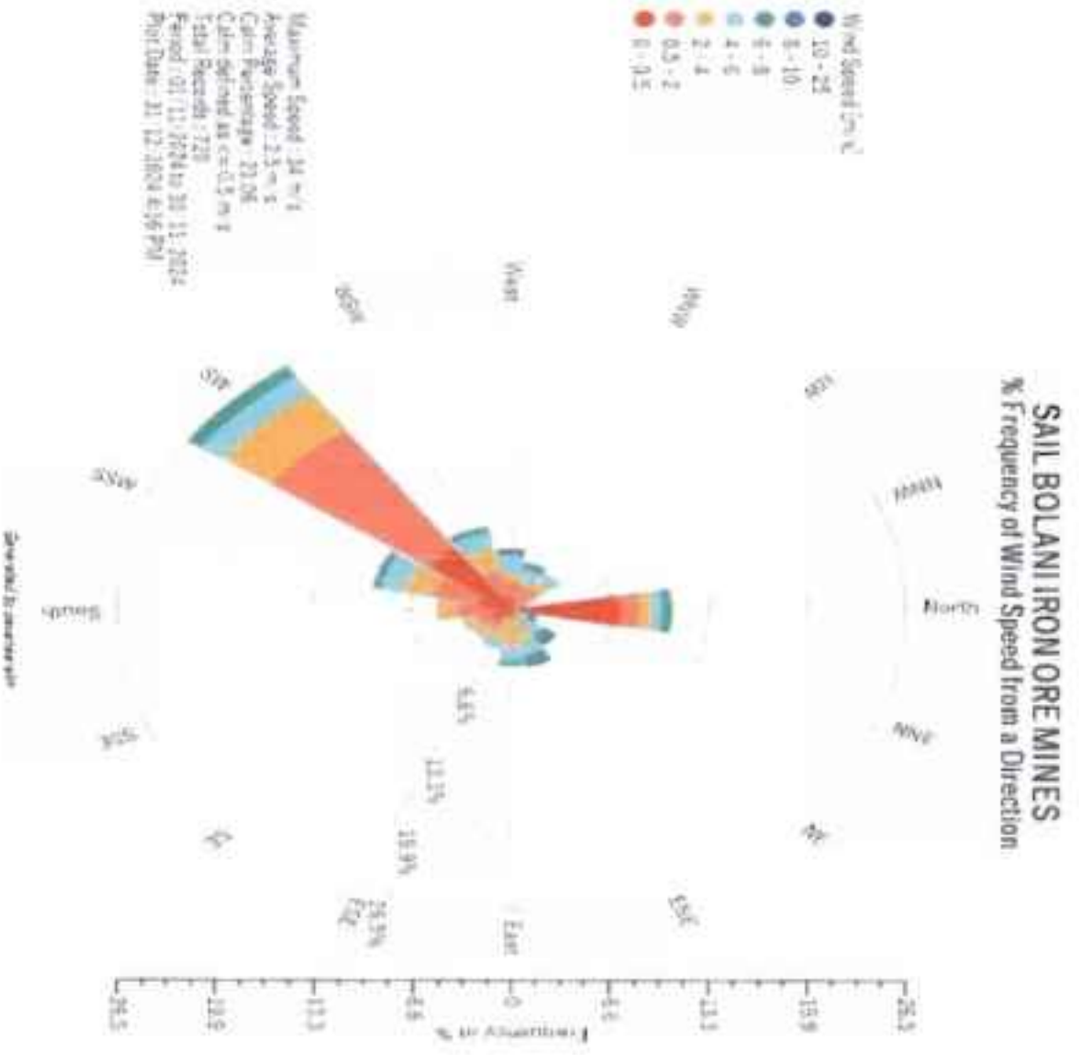
Date	Temperature (°C)		Relative Humidity (%)		Wind Speed (m/s)		Rainfall (mm)
	Max.	Min.	Max.	Min.	Max.	Min.	
01.11.2024	34.3	19.4	98.7	37.6	6.25	0	0
02.11.2024	34.7	19.3	97.8	37.4	6.00	0	0
03.11.2024	32.5	19.3	98.6	45.3	7.00	0	0
04.11.2024	33	19.3	98.6	40.6	7.25	0	0
05.11.2024	32.7	19.3	98.6	44.8	4.00	0	0
06.11.2024	33.1	18.9	98.6	44.8	34	0	0
07.11.2024	32.3	19.4	98.6	44.4	4.00	0	0
08.11.2024	32.3	20	98.6	47.1	5.75	0	0
09.11.2024	32	14.2	98.6	1.1	6.00	0	0
10.11.2024	31.8	18.6	98.5	44.7	6.75	0	0
11.11.2024	32.8	17.3	98.5	43.2	7.75	0	0
12.11.2024	34.3	19.4	90.4	69.6	8.50	0	0
13.11.2024	34.7	19.3	88.1	74.4	6.00	0	0
14.11.2024	32.5	19.3	98.1	83	7.50	0	0
15.11.2024	33	19.3	98.1	71.5	10.00	0	0
16.11.2024	32.7	19.3	93.8	46.7	4.75	0	0
17.11.2024	33.1	18.9	98.1	52.4	3.50	0	0
18.11.2024	32.3	19.4	98	44.9	7.25	0	0
19.11.2024	32.3	20	98.8	48.1	5.25	0	0
20.11.2024	32	14.2	98.7	51.7	5.25	0	0
21.11.2024	31.8	18.6	98.7	57.2	8.00	0	0
22.11.2024	32.2	17.2	98.7	55.6	6.75	0	0
23.11.2024	32.4	15.4	98.7	47	7.75	0	0
24.11.2024	28.2	13.8	98.3	45.4	8.00	0	0
25.11.2024	28.3	12.7	98.3	42.1	6.50	0	0
26.11.2024	28.5	12.5	98.3	36	7.50	0	0
27.11.2024	28.2	12.2	98.3	41.2	6.50	0	0
28.11.2024	28.2	12.6	98.3	42.1	8.75	0	0
29.11.2024	29.3	15.3	98.3	45	7.25	0	0
30.11.2024	21.5	17.3	98.5	78.6	5.75	0	23.6

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Figure No.2: Wind Rose (24 hrly) During the Month of November' 2024



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2.6 Ground Water Level:

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/GWL/04
Test Report Issue date: 05.12.2024

GROUND WATER LEVEL MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ore Mine ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : Piezometer
3. Sampling Location : **Balagoda village, Bolani Gauda Basti, Bolani Basti**
4. Sample collected by : ELPL representative in presence of Client's representative.

Sl. No.	Name of Location	Unit	Ground Water Level (in Meter)
1.	Balagoda Village	Meter	1.15
2.	Bolani Gauda Basti	Meter	2.58
3.	Bolani Basti	Meter	1.05
4.	Dhanurjarpur	Meter	5.30
5.	Dhanurjarpur(thakurani pitha)	Meter	6.45
6.	Dhanurjarpur(gagarai sahi)	Meter	5.28

---End of Report---

Verified By
Technical Manager

Authorized By
Quality Manager

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2.7 Surface Flow Rate (Nallah/Stream):

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/SWF/09
Test Report Issue date: 05.12.2024

SURFACE FLOW RATE MONITORING REPORT FOR NOVEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : Flow Meter
3. Sampling Location : **Karo River Limtur Villg, Jhikaria Nallah , Panposh Nallah**
4. Sample collected by : EMPL representative in presence of Client's representative.

Location Name	Station Code	Result in (m/sec)
Karo River Limtur Village	SWFM1	0.54
Jhikaria nallah	SWFM2	0.30
Panposh Nallah	SWFM3	0.36

—End of Report—

Verified By
Technical Manager

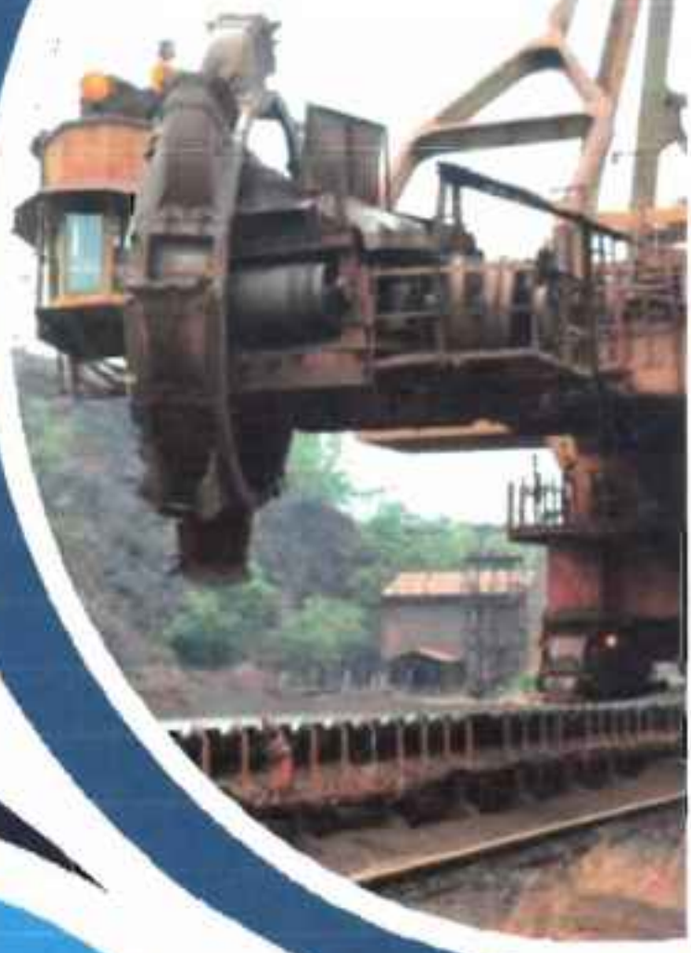
Authorized By
Quality Manager

SAIL BOLANI
ORE MINES

ENVIRONMENTAL MONITORING

REPORT

DECEMBER 2024



Presented By

Ecomen Mining Pvt.Ltd

1.0 PREAMBLE

Steel Authority of India Limited (***hereinafter termed as SAIL***), is a central public sector undertaking under the ownership of Ministry of Steel, Govt. of India has engaged M/s Ecomen Mining Pvt. Ltd., Lucknow, U.P. for carrying out various **Environmental Monitoring and Analysis Work** in its Bolani Ores Mines –RSP located in the district of Keonjhar.

M/s Ecomen Mining Pvt. Ltd. has obtained MoEF & CC Recognition, NABL Accreditation and SPCB, Odisha empanelment for its laboratory division and also a NABET Accredited consultant to carry out EIA/EMP Report for various sectors like Mining, Mineral Beneficiation, Coal Washery, Thermal Power Plant, Metallurgical Industry and Infrastructure & Building Projects etc.

Work Order issued by Bolani Ores Mines-RSP-SAIL vide No-CC/REV/284/2023-24 dated.11.01.2024 for Environmental Monitoring & Analysis Work includes monitoring & analysis of Air Environment, Water Environment, Land Environment such as Ambient Air Quality, Work Zone Air Quality, Water Quality, Waste Water Quality, Vehicular Emission and Soil Quality. This report presents the Environmental monitoring data collected from the core and buffer zone of Bolani Ores Mines in respect of following Environmental attributes during **'December-2024'** in the given frequency. Further, in compliance of condition no 6 (vi) of the EC Grant order vide J/11015/418/2008-IA.II(M) dated. 21.12.2012 and condition no 7 A(III) of EC Grant order vide J/11015/396/2008-IA.II(M) dated. 21.12.2012the analysis of air quality monitoring data is done in this report with the objective to see the effectiveness of the mitigative measures already implemented.

Scope of the Work

The scope of work as per the work order for FY-2024-25 is as follows:

Table No. 1.1: Scope of Work

Sl. No.	Particulates	Frequency of monitoring	No. of Stations
1.	Sampling & Analyses for Ambient Air Quality(AAQ) for 5 Parameters i.e. PM 10, PM 2.5, SO_2,NO_x & CO	Daily	04
2.	Sampling & Analyses for Ambient Air Quality (AAQ) for 2 Parameters i.e. PM 10, PM 2.5	Daily	02
3.	Sampling & Analyses of Fugitive dust/Emission (SPM & RSPM)	Daily	10
4.	Sampling & Analyses of Surface/ effluent/ drinking water Quality for 21 parameter	Monthly	08
5.	Sampling and Analyses of ground water quality for 21 parameters	Quarterly	03
6.	Sampling and Analyses of Soil Samples for specified 9 parameters	Yearly	06
7.	Monitoring of weather/meteorological Parameters and continuous generation of data daily round the year by	Daily	01

	establishing online station round the clock throughout the Year		
8.	Smoke Density Monitoring of Vehicular Exhaust	Annually	09
9.	Ground water level Monitoring	Quarterly	03
10.	Nallah/River Flow rate Monitoring	Monthly	03

2.0 DETAILS OF MONITORING/SAMPLING STATIONS:

To carry out the Environmental Data Generation program, ECOMEN in due consultation with SAIL has identified different locations to collect the samples for Air & Water Environment in and around the mining lease area. The details of stations identified are as follows. The details of locations identified for monitoring different environmental parameters are given in the subsequent sections.

2.1 Ambient Air Quality (A)

The prime objective of the ambient air quality study is to establish the existing ambient air quality in and around the mining lease area. The existing ambient air quality was monitored at six (6) locations. Out of six (06) locations, monitoring was carried out for Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$), Sulphur Dioxide (SO_2), Oxides of Nitrogen (NOx) as (NO_2) and Carbon Monoxide (CO) at (4) Location and monitoring of Particulate Matter (PM_{10}) and Particulate Matter ($PM_{2.5}$) was carried out at the rest two (2) Locations as per the guidelines stipulated by Central Pollution Control Board. The locations are as given below.

Table No. 2.1: Details of AAQ Monitoring Stations

Sl. No.	Station Details	ML	Frequency	Station Code	GPS Coordinates	
					Latitude	Longitude
Ambient Air Quality (AAQ) for 5 Parameters i.e. PM_{10}, $PM_{2.5}$, SO_2,NOx & CO						
1	Bolani Village Community Center	6.90	Daily	A1	22°5'34.13"N	85°19'33.43"E
2	DAV Public School	6.90		A2	22°7'7.37"N	85°20'16.61"E
3	Main Gate	5.10		A3	22°6'18.18"N	85°19'47.27"E
4	Bolani Mines Office complex	5.10		A4	22°6'23.84"N	85°19'45.40"E
Ambient Air Quality (AAQ) for 2 Parameters i.e. PM_{10}, $PM_{2.5}$						
5	Limtur Village	6.90		A5	22°7'35.14"N	85°21'10.46"E
6	Karo Guest House	6.90		A6	22°05'36.38"N	85°20'32.38"E

2.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring (F)

To assess the level of fugitive dust due to mining and allied activities, ten (10) monitoring stations were selected within the lease considering the activity area. Fugitive emissions monitoring was carried out on Daily Basis. The locations are as given below.

Table No. 2.2: Details of Fugitive Emission Monitoring Stations

Sl. No.	Station Details	ML	Frequency	Station Code	GPS Coordinates	
					Latitude	Longitude
1	Panposh	5.10	Daily	F1	22°6'41.46"N	85°19'41.60"E
2	D Area	5.10		F2	22°07'19.78"N	85°20'5.70"E
3	F Area	5.10		F3	22°05'45.19"N	85°18'21.95"E
4	G Area	5.10		F4	22°06'3.88"N	85°18'8.22"E
5	Lump Loading Point (near 600TPH)	6.90		F5	22°06'18.79"N	85°19'54.78"E
6	Fines Loading Plant	6.90		F6	22°05'51.12"N	85°19'45.79"E
7	Dump Fines handling route	6.90		F7	22°5'39.31"N	85°19'26.29"E
8	SSP	5.10		F8	22°06'13.80"N	85°19'12.52"E
9	Dump Fines Handling Site	5.10		F9	22°06'09.94"N	85°19'30.61"E
10	Mn Quarry	6.90		F10	22°07'23.56"N	85°21'8.86"E

2.3 Surface/Effluent/Drinking Water Quality:

In order to assess the quality of surface/effluent/drinking water, Eight (8) locations were identified in and around the ML area. Out of eight (8) locations, surface water was taken from four (4) locations, drinking water was taken from two (2) locations and effluent water was taken from two (2) locations. One grab sample was collected from each location in the month and was analyzed for 21 parameters as stipulated in the scope of work. The details of the locations are as follows:

Table No. 2.3: Details of Surface/Effluent/Drinking Water Quality Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
Surface Water Quality				
Panposh Nallah	Monthly Once	SWQ-1	22°6'31.68"N	85°19'34.41"E
Karo Near Lease Boundary		SWQ-2	22°7'26.27" N	85°21'52.95"E
Karo River Intake		SWQ-3	22°5.13.02' N	85°19'57.88"E

Jhikaria nallah before joining Karo		SWQ-4	22°5'22.50" N	85°19'10.05"E
Drinking Water Quality				
Mount Club Tap Water	Monthly Once	DW-1	22°6'56.24" N	85°19'58.21"E
Karo Guest House Tap Water		DW-2	22°5'36.68" N	85°20'32.09"E
Effluent Waste Water				
Oil Catch Pit Water Bottom Garage	Monthly Once	EWW-1	22°6'27.11" N	85°19'37.62"E
Oil Catch pit water G-Area		EWW-2	22°6'1.83"N	85°18'24.16"E

2.4 Ground Water Quality (GWQ)

In order to assess the quality of ground water, three (3) locations were identified in and around the mining lease area. One grab sample is collected from each location quarterly and analyzed for 21 parameters as stipulated in the scope of work. The details of the locations are as follows:

Table No. 2.4: Details of Ground Water Quality Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
Ground Water Quality				
Bolani Village-Well water	Quarterly	GWQ-1	22° 05' 27.20"N	85° 19'27.13"E
Bolani Gouda Basti-Well water		GWQ-2	22° 05'40.97"N	85° 20'2.45"E
Balagoda Village-Well water		GWQ-3	22° 05'57.02"N	85° 20'27.41"E

2.5 Weather/Meteorology

An Automatic Weather Monitoring Station (AWS) is installed at DAV Public School (22°7'7.85"N; 85°20'16.83"E) to collect the meteorological data on daily basis continuously. The parameters monitored at the meteorological station were Temperature, Relative Humidity, Wind Speed, Wind Direction and Rainfall. These parameters were recorded at weather monitoring station using the respective sensors.

Table No. 2.5: Details of Meteorological Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
DAV Public School	Daily Basis	M	22°7'7.85"N	85°20'16.83"E

Figure No.1: Location of Monitoring Station with ML Boundary

3.0 RESULTS AND DISCUSSION

3.1 Ambient Air Quality Monitoring

The Summarized results of AAQ for the month of December-2024 are given in the **Table below**

Table No. 3.1 (a): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	PM_{10}			$PM_{2.5}$		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Bolani Village Community center	A1	65.7	54.1	59.4	20.8	13.4	16.9
2.	Dav Public School	A2	68.9	58.1	63.0	24.9	18.0	21.6
3.	Main Gate	A3	77.8	68.0	73.2	29.9	22.7	26.3
4.	Bolani Mines Office Complex	A4	73.8	62.4	67.7	28.0	20.1	23.6
5.	Limtur Village	A5	54.0	43.1	48.2	25.9	18.1	22.3
6.	Karo Guest House	A6	53.1	42.5	47.8	26.0	18.1	21.7
CPCB Std.			100 µg/m³			60 µg/m³		

Table No. 3.1(b): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	SO_2			NO_x		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Bolani Village Community Center	A1	23.9	15.9	19.2	20.8	14.1	17.7
2.	Dav Public School	A2	21.7	13.1	17.9	18.8	12.1	15.7
3.	Main Gate	A3	24.9	16.6	20.6	24.9	18.1	21.9
4.	Bolani Mines Office Complex	A4	21.9	14.1	17.7	19.6	13.0	16.3
CPCB Std.			80 µg/m³			80 µg/m³		

BDL of $SO_2 \leq 4$ µg/m³, BDL of NOx ≤ 9 µg/m³(No_x as No_2)

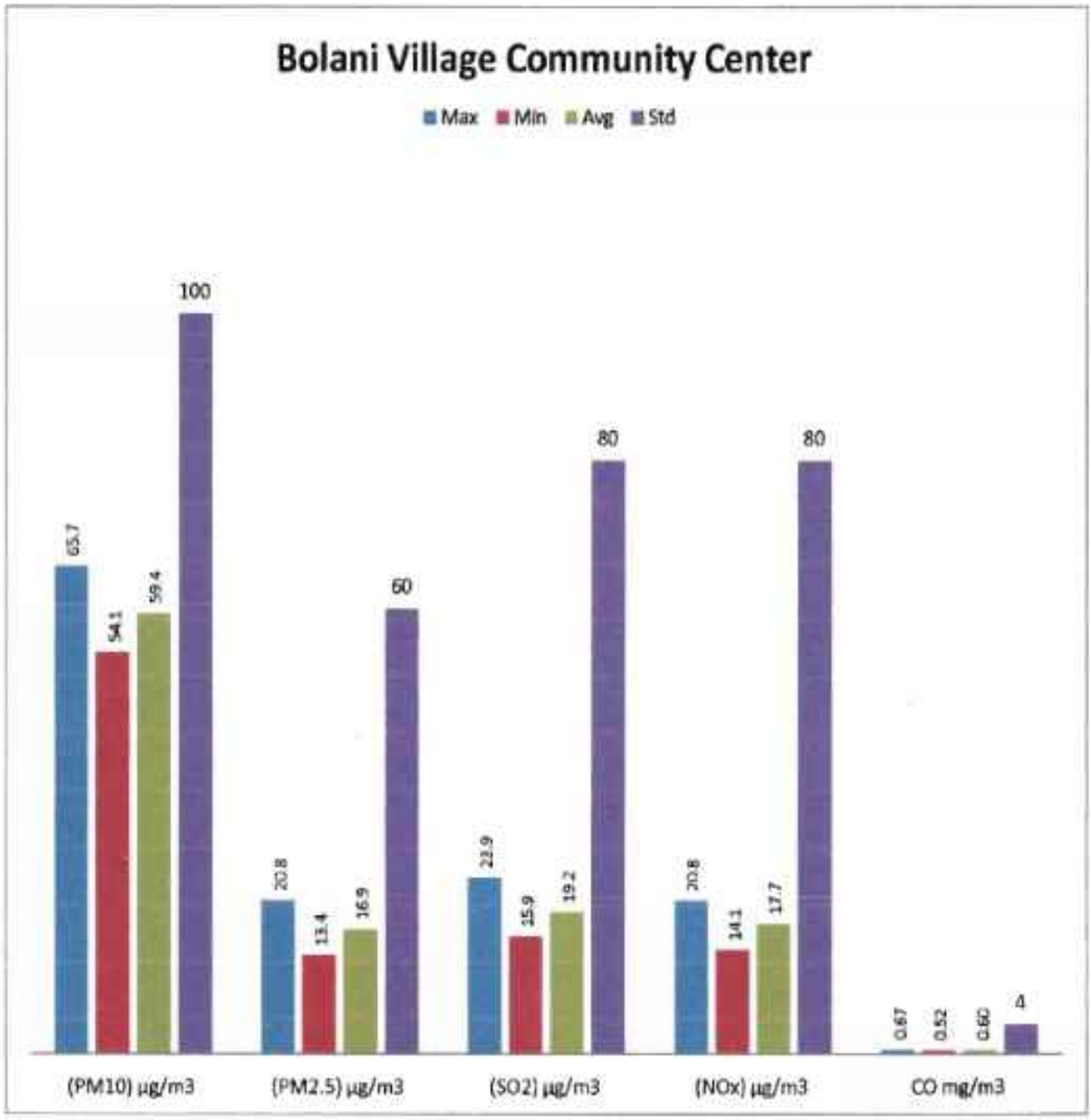
Table No. 3.1(c): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	CO		
			Max.	Min.	Avg.
1.	Bolani Village Community Center	A1	0.67	0.52	0.60
2.	Dav Public School	A2	0.63	0.49	0.57
3.	Main Gate	A3	0.74	0.60	0.66
4.	Bolani Mines Office Complex	A4	0.60	0.49	0.54
CPCB Std.			4 mg/m3		

Note: BDL value for CO-0.11 mg/m³

3.1.1 Bolani village Community Center (A1):

The pollution level in Bolani village Community Center for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **65.7** µg/m³ whereas minimum concentration was observed **54.1** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **13.4** µg/m³ to **20.8** µg/m³, SO_2 concentration ranges between **15.9** µg/m³ to **23.9** µg/m³, NO_x as (NO_2) concentration ranges between **14.1** µg/m³ to **20.8** µg/m³ and CO concentration ranges between **0.52** mg/m³ to **0.67** mg/m³ was observed during the month



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ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/67

Test Report Issue date: 05.01.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-1: Bolani village Community Center**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1	01.12.2024	57.0	16.4	17.8	16.8	0.57
2	02.12.2024	54.1	19.2	16.5	14.7	0.53
3	03.12.2024	63.8	19.8	16.7	18.4	0.52
4	04.12.2024	61.7	15.1	18.0	20.8	0.65
5	05.12.2024	64.8	14.7	17.8	18.4	0.57
6	06.12.2024	56.0	18.9	18.4	15.9	0.53
7	07.12.2024	56.5	20.8	16.3	15.9	0.62
8	08.12.2024	62.0	13.7	19.5	20.0	0.65
9	09.12.2024	64.5	13.8	22.4	17.9	0.59
10	10.12.2024	58.0	16.3	21.3	19.7	0.65
11	11.12.2024	65.7	18.1	18.2	16.1	0.67
12	12.12.2024	64.8	15.4	20.0	19.6	0.53
13	13.12.2024	65.1	20.3	20.8	16.0	0.53
14	14.12.2024	57.6	16.2	18.1	15.2	0.64
15	15.12.2024	62.0	13.8	19.2	16.6	0.60
16	16.12.2024	55.9	20.1	17.8	18.0	0.57
17	17.12.2024	57.9	19.7	21.6	15.9	0.60
18	18.12.2024	62.7	19.5	21.4	18.9	0.53
19	19.12.2024	61.5	14.2	15.9	18.7	0.66
20	20.12.2024	58.6	17.3	17.4	17.2	0.59
21	21.12.2024	54.5	20.3	23.9	14.1	0.64
22	22.12.2024	54.7	13.4	16.5	18.7	0.54
23	23.12.2024	58.7	15.6	22.0	18.8	0.58
24	24.12.2024	56.7	14.2	19.3	15.8	0.65
25	25.12.2024	55.0	17.2	18.5	19.9	0.66
26	26.12.2024	54.1	16.0	20.5	19.5	0.57
27	27.12.2024	62.6	18.3	21.4	16.6	0.66
28	28.12.2024	55.1	14.0	19.0	19.6	0.64
29	29.12.2024	56.7	17.4	16.9	17.8	0.57
30	30.12.2024	58.9	15.8	20.0	17.6	0.57
31	31.12.2024	63.5	18.0	22.8	18.3	0.62
Average		**59.4**	**16.9**	**19.2**	**17.7**	**0.60**

Note- No_x is Given as No_2

----End of Report----

Verified By

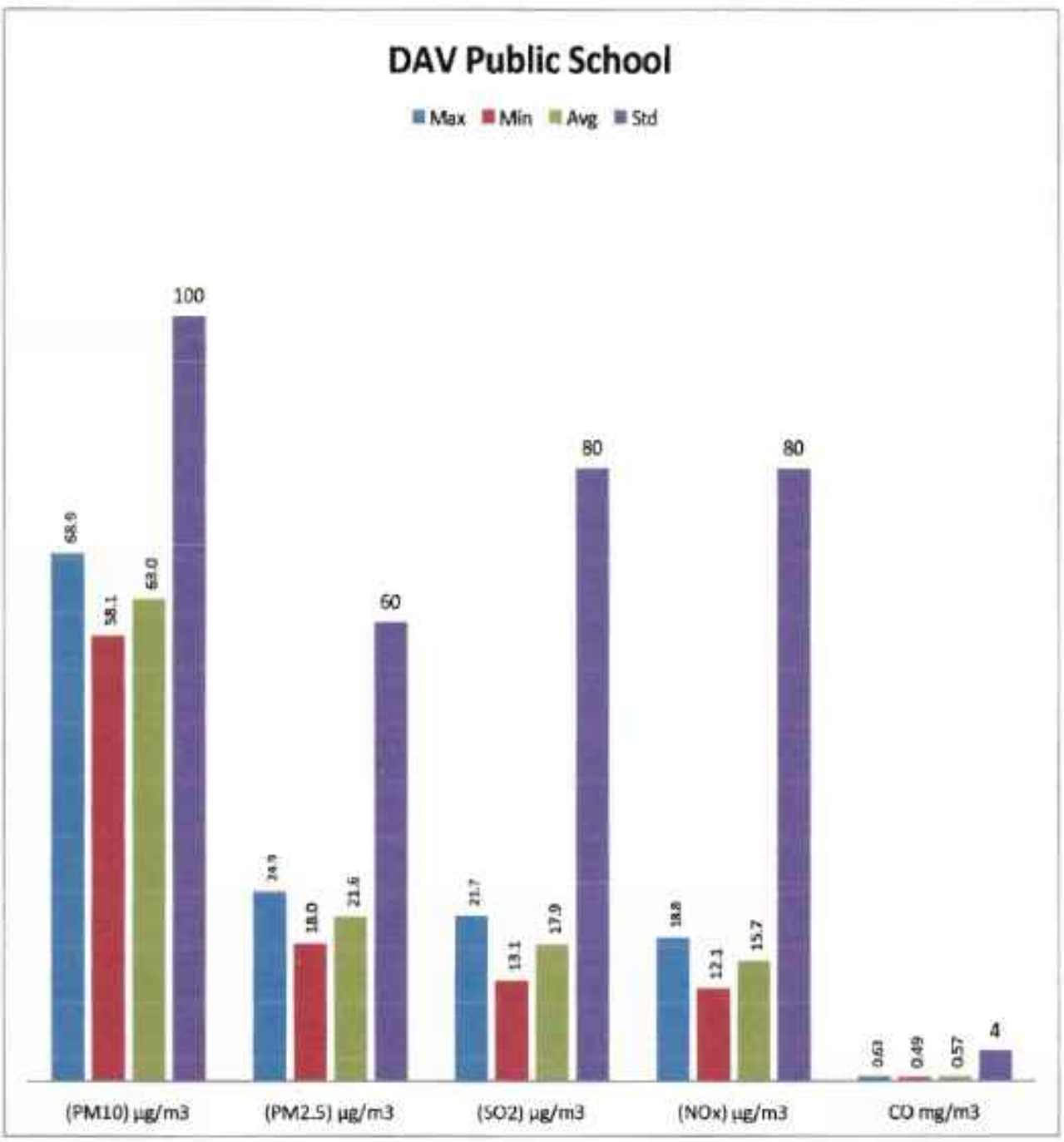
Technical Manager

Authorized By

Quality Manager

3.1.2 DAV Public School (A2):

The pollution level in DAV Public School for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **68.9** µg/m³ whereas minimum concentration was observed **58.1** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **18.0** µg/m³ to **24.9** µg/m³, SO_2 concentration ranges between **13.1** µg/m³to **21.7** µg/m³, NO_x as (NO_2) concentration ranges between **12.1** µg/m³ to **18.8** µg/m³ and CO concentration ranges between **0.49** mg/m³ to **0.63** mg/m³ was observed during the month



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(Formerly known as Ecomen Laboratories Private Limited)

Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/68

Test Report Issue date: 05.01.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-2: DAV Public School**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1	01.12.2024	67.2	19.7	20.9	12.1	0.56
2	02.12.2024	60.5	22.5	21.6	18.3	0.49
3	03.12.2024	60.8	22.9	17.4	15.9	0.58
4	04.12.2024	59.3	24.9	21.0	12.5	0.58
5	05.12.2024	66.0	23.8	21.7	18.4	0.57
6	06.12.2024	61.6	20.0	16.2	17.2	0.59
7	07.12.2024	67.8	19.6	17.4	13.9	0.51
8	08.12.2024	66.9	18.7	18.3	18.0	0.59
9	09.12.2024	68.0	18.8	17.0	13.5	0.53
10	10.12.2024	60.1	23.2	21.6	15.8	0.56
11	11.12.2024	62.9	18.0	15.5	12.4	0.59
12	12.12.2024	63.3	24.5	20.1	18.5	0.50
13	13.12.2024	58.3	18.6	14.0	15.9	0.62
14	14.12.2024	60.1	18.2	15.0	13.3	0.58
15	15.12.2024	68.9	20.9	17.0	12.4	0.61
16	16.12.2024	66.1	22.4	19.5	18.8	0.61
17	17.12.2024	60.9	21.1	17.7	15.5	0.58
18	18.12.2024	67.1	21.8	18.2	16.8	0.63
19	19.12.2024	64.6	24.5	19.9	15.2	0.55
20	20.12.2024	64.7	18.0	19.7	14.5	0.61
21	21.12.2024	62.6	23.1	19.1	13.6	0.54
22	22.12.2024	59.9	20.6	13.1	14.5	0.54
23	23.12.2024	59.5	19.6	17.3	12.4	0.61
24	24.12.2024	64.7	24.0	14.0	18.4	0.63
25	25.12.2024	68.5	18.2	21.7	16.2	0.57
26	26.12.2024	62.6	24.9	18.6	18.8	0.60
27	27.12.2024	58.3	24.7	13.9	14.4	0.60
28	28.12.2024	58.2	22.4	15.7	17.0	0.60
29	29.12.2024	59.2	23.0	15.4	17.1	0.51
30	30.12.2024	63.4	21.0	15.1	18.6	0.60
31	31.12.2024	59.8	24.6	21.6	17.3	0.51
Average		**63.0**	**21.6**	**17.9**	**15.7**	**0.57**

Note- No_x is Given as NO_2

----End of Report----

Verified By

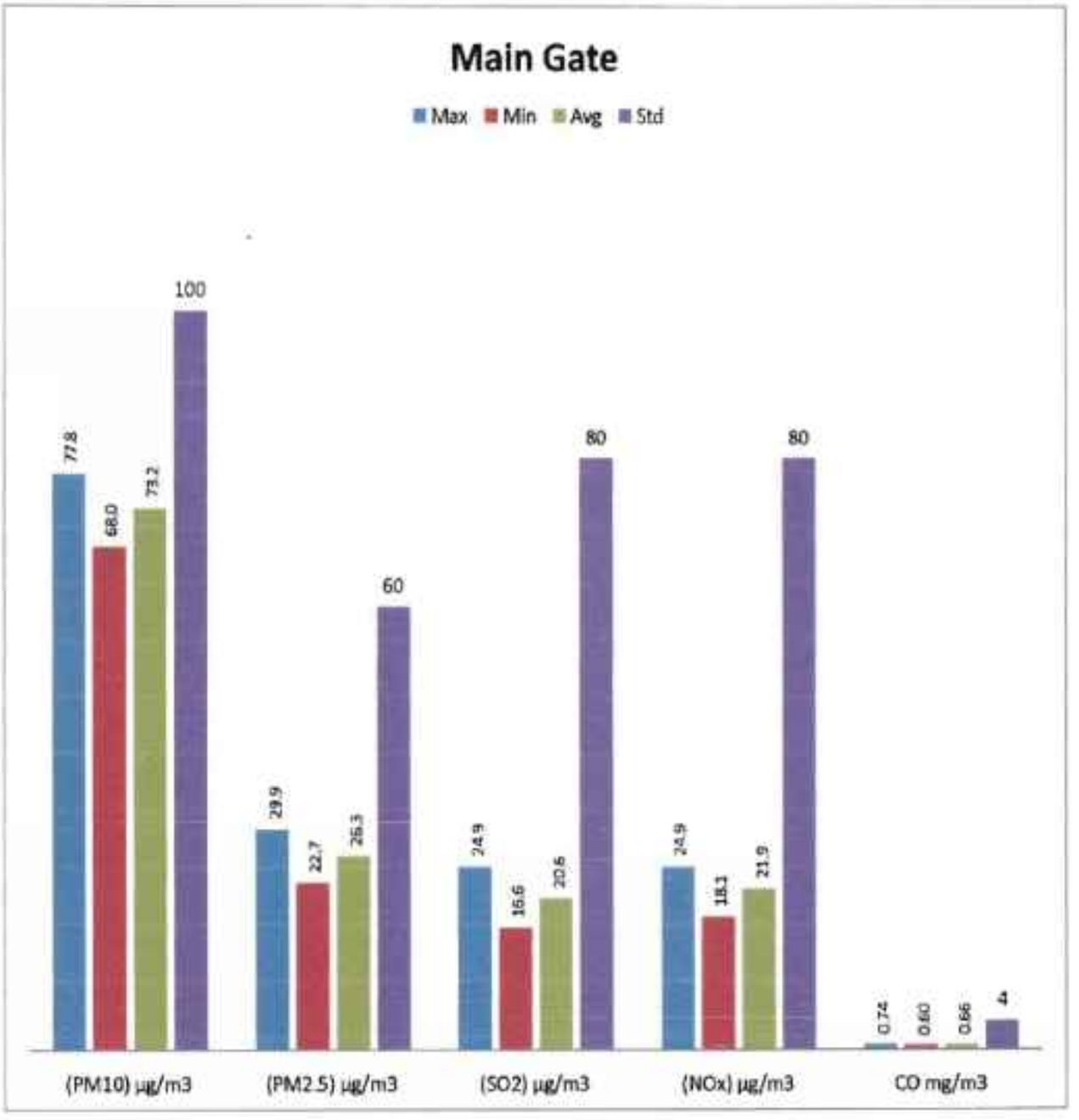
Technical Manager

Authorized By

Quality Manager

3.1.3 Main Gate (A3):

The pollution level in Main Gate for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **77.8** µg/m³ whereas minimum concentration was observed **68.0** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **22.7** µg/m³ to **29.9** µg/m³, SO_2 concentration ranges between **16.6** µg/m³to **24.9** µg/m³, NO_x as (NO_2) concentration ranges between **18.1** µg/m³ to **24.9** µg/m³ and CO concentration ranges between **0.60** mg/m³ to **0.74** mg/m³ was observed during the month



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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZJ

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/69
Test Report Issue date: 05.01.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-3: Main Gate**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1	01.12.2024	77.5	23.7	22.3	24.3	0.60
2	02.12.2024	70.3	23.9	19.5	18.5	0.61
3	03.12.2024	77.3	29.1	23.5	22.4	0.66
4	04.12.2024	72.6	27.4	19.4	22.4	0.74
5	05.12.2024	74.2	29.9	18.2	18.3	0.73
6	06.12.2024	68.4	28.2	17.5	21.1	0.62
7	07.12.2024	74.9	24.2	22.2	24.9	0.68
8	08.12.2024	77.8	27.5	17.0	23.3	0.66
9	09.12.2024	71.6	24.3	18.2	24.4	0.68
10	10.12.2024	74.1	26.0	18.0	23.3	0.73
11	11.12.2024	74.4	22.7	21.1	23.4	0.71
12	12.12.2024	76.1	24.9	19.5	20.8	0.65
13	13.12.2024	71.0	28.7	18.8	23.7	0.64
14	14.12.2024	76.6	22.8	21.7	21.1	0.72
15	15.12.2024	73.7	25.5	21.1	18.1	0.60
16	16.12.2024	73.1	24.9	20.9	23.5	0.68
17	17.12.2024	76.8	28.3	18.8	22.8	0.69
18	18.12.2024	76.8	27.9	17.3	24.1	0.67
19	19.12.2024	72.3	27.9	24.8	20.6	0.61
20	20.12.2024	75.6	25.9	22.8	22.9	0.64
21	21.12.2024	71.7	27.6	18.1	18.5	0.61
22	22.12.2024	69.2	25.6	24.8	23.2	0.63
23	23.12.2024	72.8	25.5	24.9	18.3	0.67
24	24.12.2024	69.1	28.0	20.1	18.4	0.65
25	25.12.2024	70.7	24.6	24.0	19.7	0.64
26	26.12.2024	70.2	29.4	22.1	22.9	0.61
27	27.12.2024	72.0	29.4	21.8	24.0	0.67
28	28.12.2024	74.5	24.9	24.0	23.1	0.62
29	29.12.2024	71.9	28.3	22.5	23.4	0.67
30	30.12.2024	68.0	22.7	16.6	21.6	0.69
31	31.12.2024	73.4	26.0	17.7	22.0	0.66
Average		**73.2**	**26.3**	**20.6**	**21.9**	**0.66**

Note- No_x is Given as No_2

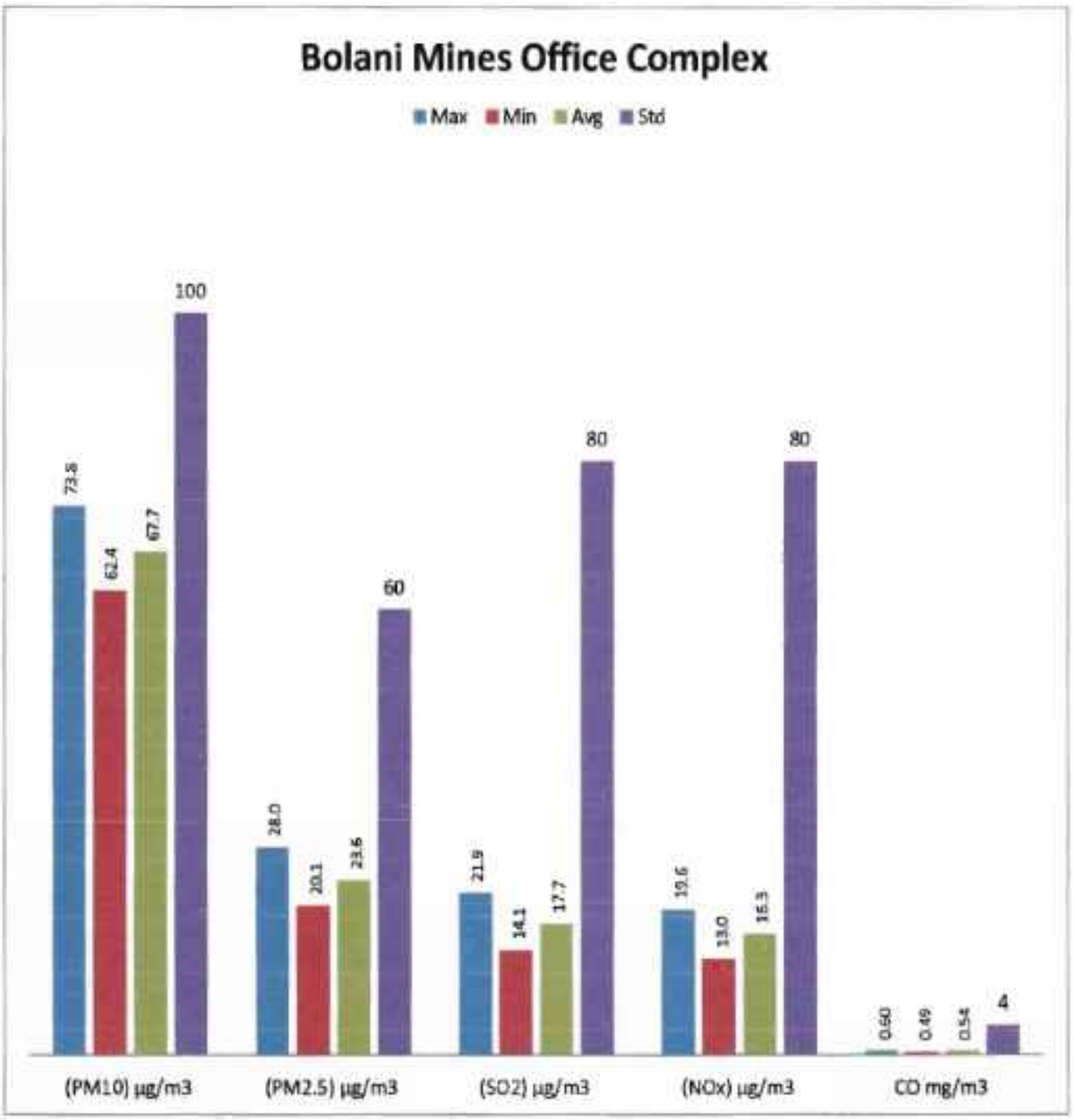
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.4 Bolani Mines Office Complex (A4):

The pollution level in Bolani Mines Office Complex for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **73.8** µg/m³ whereas minimum concentration was observed **62.4** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **20.1** µg/m³ to **28.0** µg/m³, SO_2 concentration ranges between **14.1** µg/m³to **21.9** µg/m³, NO_x as (NO_2) concentration ranges between **13.0** µg/m³ to **19.6** µg/m³ and CO concentration ranges between **0.49** mg/m³ to **0.60** mg/m³ was observed during the month



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE5076H1ZI

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Test Report No: ECO/BOM/AAQ/70
Test Report Issue date: 05.01.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-4: Bolani Mines Office Complex**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1	01.12.2024	67.0	23.9	21.6	13.9	0.59
2	02.12.2024	71.1	23.5	15.4	15.1	0.60
3	03.12.2024	72.2	21.4	14.1	18.0	0.50
4	04.12.2024	70.3	27.0	20.0	18.6	0.54
5	05.12.2024	69.3	22.4	14.8	17.0	0.50
6	06.12.2024	67.9	26.4	17.4	19.6	0.55
7	07.12.2024	70.5	20.8	14.6	16.8	0.56
8	08.12.2024	65.0	28.0	17.9	19.5	0.55
9	09.12.2024	70.2	22.5	14.4	18.6	0.52
10	10.12.2024	62.4	21.9	14.6	15.2	0.59
11	11.12.2024	67.7	20.2	19.4	18.9	0.55
12	12.12.2024	64.7	21.6	16.8	15.9	0.54
13	13.12.2024	66.3	20.5	18.8	14.7	0.52
14	14.12.2024	73.8	22.1	21.0	14.3	0.54
15	15.12.2024	69.8	22.0	21.4	15.8	0.51
16	16.12.2024	62.6	26.2	21.9	16.4	0.53
17	17.12.2024	66.1	23.7	20.6	14.2	0.58
18	18.12.2024	72.4	26.6	17.1	14.2	0.50
19	19.12.2024	66.5	23.1	15.7	15.0	0.54
20	20.12.2024	65.0	27.3	18.4	15.5	0.57
21	21.12.2024	65.4	25.4	15.0	15.0	0.54
22	22.12.2024	64.0	24.6	14.7	15.4	0.59
23	23.12.2024	70.4	23.2	15.6	17.0	0.57
24	24.12.2024	66.5	26.8	21.3	13.0	0.59
25	25.12.2024	64.0	24.6	15.7	17.4	0.53
26	26.12.2024	66.5	21.8	16.2	15.7	0.55
27	27.12.2024	63.9	22.1	15.9	18.9	0.51
28	28.12.2024	72.0	25.9	21.8	17.4	0.51
29	29.12.2024	70.2	20.1	21.4	15.3	0.49
30	30.12.2024	69.8	23.8	19.6	15.0	0.52
31	31.12.2024	65.8	21.3	16.2	19.1	0.56
Average		**67.7**	**23.6**	**17.7**	**16.3**	**0.54**

Note- NO_x is Given as NO_2

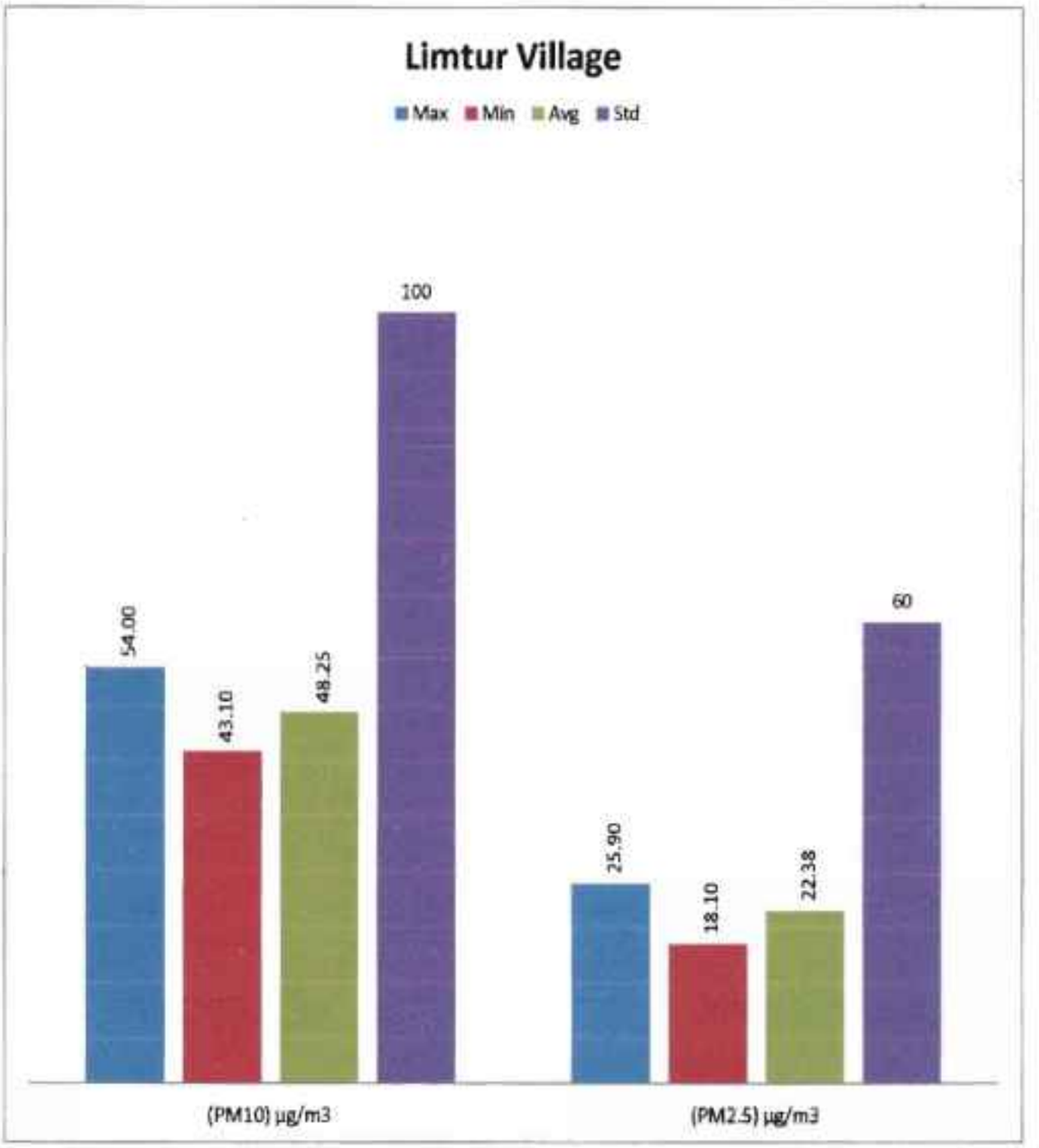
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.5 Limtur Village (A5):

The pollution level in Limtur Village for the parameters PM_{10} and $PM_{2.5}$ is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **54.00** µg/m³ whereas minimum concentration was observed **43.10** µg/m³ and $PM_{2.5}$ concentration ranges between **18.10** µg/m³ to **25.90** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1969PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/71
Test Report Issue date: 05.01.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQM5-5: Limtur Village**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)
Limits of Detection		10-1000	10-1000
Limit as per National Ambient Air Quality Standards		100	60
S. No.	Sampling Date	Result	
1	01.12.2024	51.8	25.0
2	02.12.2024	45.8	22.0
3	03.12.2024	52.3	25.5
4	04.12.2024	52.7	21.2
5	05.12.2024	51.6	21.3
6	06.12.2024	47.1	25.3
7	07.12.2024	43.6	22.7
8	08.12.2024	50.1	25.6
9	09.12.2024	53.6	25.9
10	10.12.2024	46.3	24.8
11	11.12.2024	43.1	19.3
12	12.12.2024	44.7	18.9
13	13.12.2024	44.6	22.2
14	14.12.2024	44.8	22.4
15	15.12.2024	49.6	20.3
16	16.12.2024	52.9	22.5
17	17.12.2024	51.7	25.0
18	18.12.2024	45.1	25.5
19	19.12.2024	49.1	21.6
20	20.12.2024	45.4	22.6
21	21.12.2024	51.3	24.1
22	22.12.2024	49.8	25.3
23	23.12.2024	52.5	19.5
24	24.12.2024	44.2	20.7
25	25.12.2024	46.7	18.1
26	26.12.2024	44.4	20.5
27	27.12.2024	52.1	18.7
28	28.12.2024	54.0	19.7
29	29.12.2024	46.4	24.7
30	30.12.2024	44.9	24.4
31	31.12.2024	43.7	18.5
Average		**48.25**	**22.38**

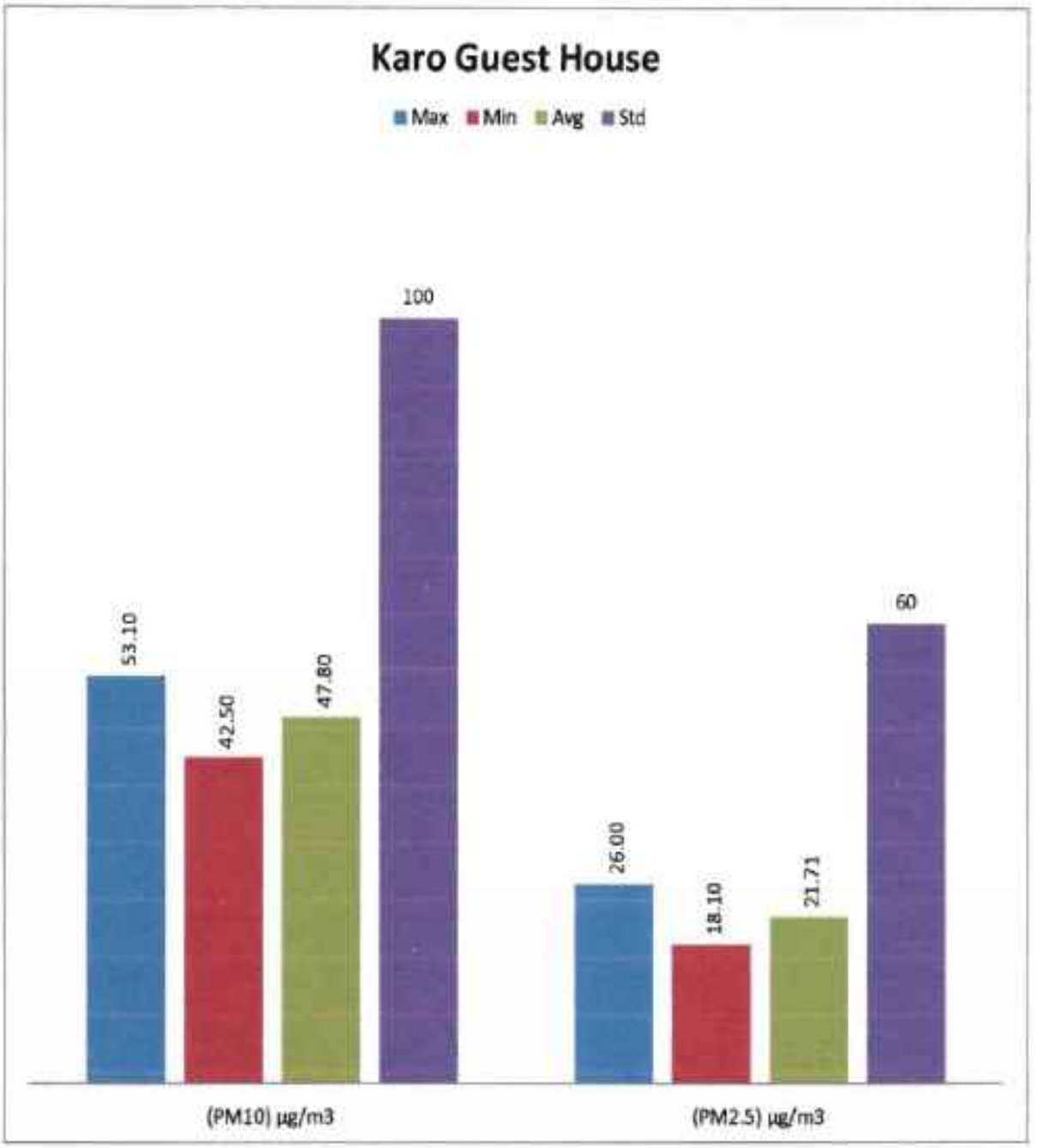
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.6 Karo Guest House (A6):

The pollution level in Karo Guest House for the parameters PM_{10} and $PM_{2.5}$ is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **53.10** µg/m³ whereas minimum concentration was observed **42.50** µg/m³ and $PM_{2.5}$ concentration ranges between **18.10** µg/m³ to **26.00** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

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Test Report No: ECO/BOM/AAQ/72

Test Report Issue date: 05.01.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-6: Karo Guest House**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)
Limits of Detection		10-1000	10-1000
Limit as per National Ambient Air Quality Standards		100	60
S. No.	Sampling Date	Result	
1	01.12.2024	44.7	24.4
2	02.12.2024	46.3	24.4
3	03.12.2024	51.8	19.2
4	04.12.2024	52.8	20.7
5	05.12.2024	47.0	19.5
6	06.12.2024	53.1	25.0
7	07.12.2024	42.7	18.9
8	08.12.2024	46.8	21.8
9	09.12.2024	45.7	18.3
10	10.12.2024	52.8	24.0
11	11.12.2024	46.1	25.2
12	12.12.2024	47.9	26.0
13	13.12.2024	42.5	20.5
14	14.12.2024	50.7	21.0
15	15.12.2024	48.3	21.7
16	16.12.2024	52.4	24.7
17	17.12.2024	50.9	18.7
18	18.12.2024	47.2	19.0
19	19.12.2024	49.4	24.9
20	20.12.2024	50.4	19.4
21	21.12.2024	46.5	20.9
22	22.12.2024	42.5	18.1
23	23.12.2024	46.6	20.6
24	24.12.2024	46.2	24.2
25	25.12.2024	44.5	25.2
26	26.12.2024	46.2	18.1
27	27.12.2024	47.6	25.4
28	28.12.2024	47.8	24.6
29	29.12.2024	51.7	19.5
30	30.12.2024	49.3	20.2
31	31.12.2024	43.4	18.9
Average		**47.80**	**21.71**

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

3.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring:

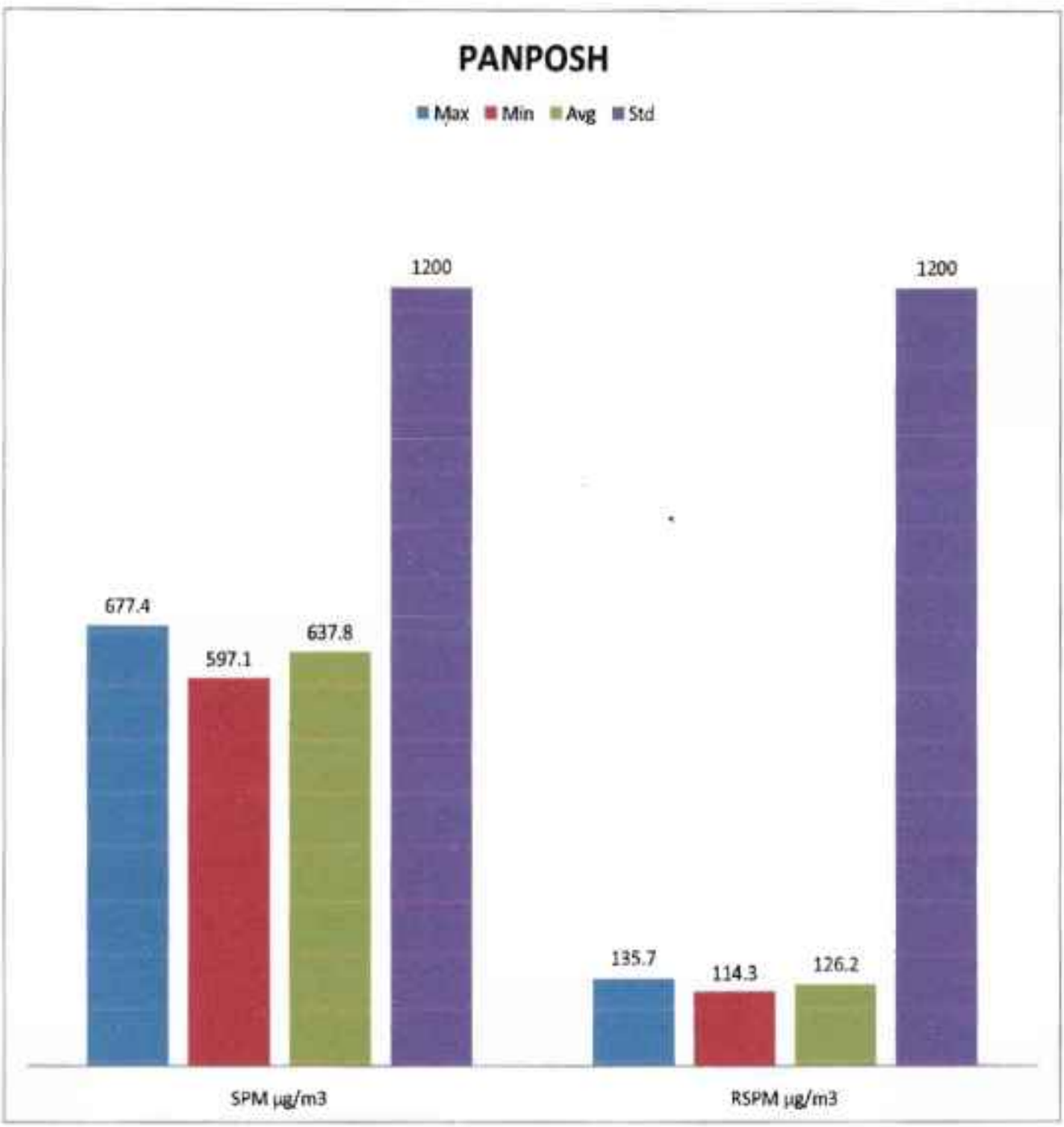
The Summarized results of Work Zone Air Quality/Fugitive Dust Emission for the month of December-2024 are given in the **Table below**

Table No. 3.2: Summarized Results of Work Zone Air Quality/Fugitive Dust Emission

Sl. No.	Location Name	Station Code	SPM µg/m3			RSPM µg/m3		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Panposh	F1	677.4	597.1	637.8	135.7	114.3	126.2
2.	D Area	F2	683.9	598.6	635.6	138.1	110.6	125.7
3.	F Area	F3	674.0	598.4	638.3	137.4	110.2	124.3
4.	G Area	F4	682.8	602.6	636.9	139.9	108.8	125.1
5.	Lump Loading Point (near 600TPH)	F5	676.8	590.7	628.6	135.2	107.7	121.2
6.	Fines Loading Plant	F6	681.2	603.7	645.4	141.1	113.5	127.0
7.	Dump Fines handling route	F7	684.9	597.6	641.5	138.9	109.7	125.8
8.	SSP	F8	671.8	597.2	632.2	139.0	108.8	122.8
9.	Dump Fines Handling Site	F9	678.3	593.2	631.8	141.8	110.1	123.2
10.	Mn Quarry	F10	676.5	597.5	635.3	135.9	111.3	123.6
As Per CTO Std.			1200 µg/m³					

3.2.1 Panposh (F1):

The pollution level in Panposh Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **677.4** µg/m³ whereas minimum concentration was observed **597.1** µg/m³ and RSPM concentration ranges between **114.3** µg/m³ to **135.7** µg/m³ during the month.



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Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

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Test Report No: ECO/BOM/FUG/91
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Panposh**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	Panposh	640.4	125.5
2.	02-12-2024	Panposh	612.7	128.1
3.	03-12-2024	Panposh	606.0	121.3
4.	04-12-2024	Panposh	604.3	124.9
5.	05-12-2024	Panposh	642.6	132.7
6.	06-12-2024	Panposh	631.7	131.0
7.	07-12-2024	Panposh	598.7	120.8
8.	08-12-2024	Panposh	605.3	126.5
9.	09-12-2024	Panposh	641.5	122.8
10.	10-12-2024	Panposh	677.4	131.3
11.	11-12-2024	Panposh	661.1	124.3
12.	12-12-2024	Panposh	647.8	130.0
13.	13-12-2024	Panposh	646.5	128.1
14.	14-12-2024	Panposh	649.0	133.2
15.	15-12-2024	Panposh	649.3	127.6
16.	16-12-2024	Panposh	663.2	132.6
17.	17-12-2024	Panposh	649.9	124.7
18.	18-12-2024	Panposh	676.1	133.1
19.	19-12-2024	Panposh	635.3	128.6
20.	20-12-2024	Panposh	651.5	119.5
21.	21-12-2024	Panposh	631.8	114.3
22.	22-12-2024	Panposh	636.3	121.1
23.	23-12-2024	Panposh	597.1	117.7
24.	24-12-2024	Panposh	597.1	121.3
25.	25-12-2024	Panposh	670.5	135.7
26.	26-12-2024	Panposh	642.2	122.2
27.	27-12-2024	Panposh	642.8	134.2
28.	28-12-2024	Panposh	662.9	122.0
29.	29-12-2024	Panposh	646.5	121.4
30.	30-12-2024	Panposh	645.4	126.9
31.	31-12.2024	Panposh	608.3	127.5
Average			**637.8**	**126.2**

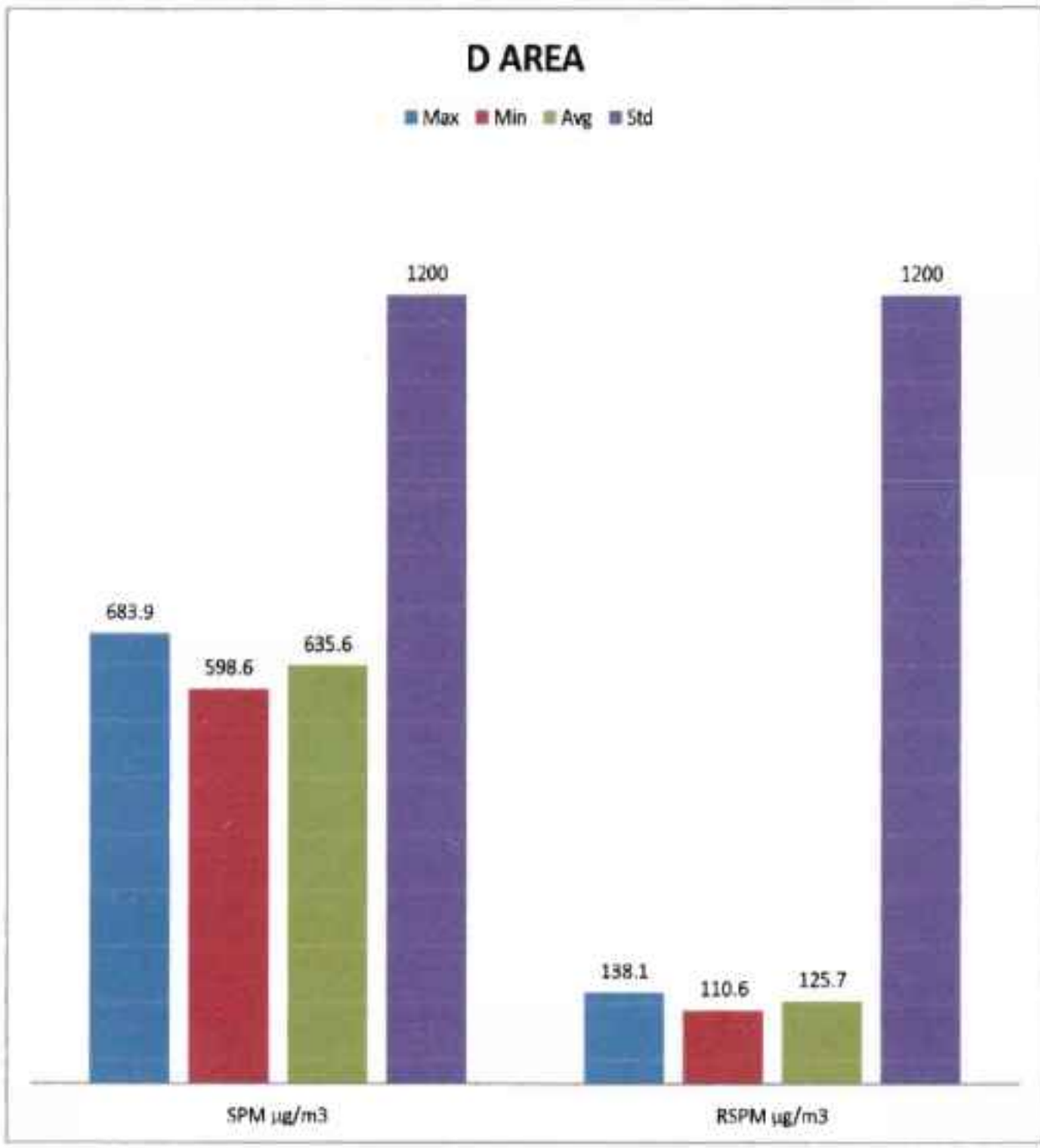
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.2 D Area(F2)

The pollution level in D Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **683.9** µg/m³ whereas minimum concentration was observed **598.6** µg/m³ and RSPM concentration ranges between **110.6** µg/m³ to **138.1** µg/m³ during the month.



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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/92
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **D Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	D Area	631.6	123.8
2.	02-12-2024	D Area	616.2	125.9
3.	03-12-2024	D Area	606.3	125.4
4.	04-12-2024	D Area	627.9	128.8
5.	05-12-2024	D Area	643.9	131.7
6.	06-12-2024	D Area	673.6	127.3
7.	07-12-2024	D Area	656.5	124.0
8.	08-12-2024	D Area	616.7	116.3
9.	09-12-2024	D Area	636.8	125.5
10.	10-12-2024	D Area	682.2	136.7
11.	11-12-2024	D Area	621.2	130.3
12.	12-12-2024	D Area	611.9	112.5
13.	13-12-2024	D Area	603.5	118.0
14.	14-12-2024	D Area	636.8	123.9
15.	15-12-2024	D Area	663.9	128.2
16.	16-12-2024	D Area	645.3	133.9
17.	17-12-2024	D Area	604.1	116.3
18.	18-12-2024	D Area	609.0	119.6
19.	19-12-2024	D Area	602.5	110.6
20.	20-12-2024	D Area	661.9	136.5
21.	21-12-2024	D Area	608.9	122.8
22.	22-12-2024	D Area	640.9	132.3
23.	23-12-2024	D Area	657.3	124.6
24.	24-12-2024	D Area	647.0	130.6
25.	25-12-2024	D Area	601.4	126.1
26.	26-12-2024	D Area	683.9	138.1
27.	27-12-2024	D Area	660.9	121.6
28.	28-12-2024	D Area	658.0	129.0
29.	29-12-2024	D Area	651.2	130.1
30.	30-12-2024	D Area	644.7	130.4
31.	31-12.2024	D Area	598.6	115.6
Average			**635.6**	**125.7**

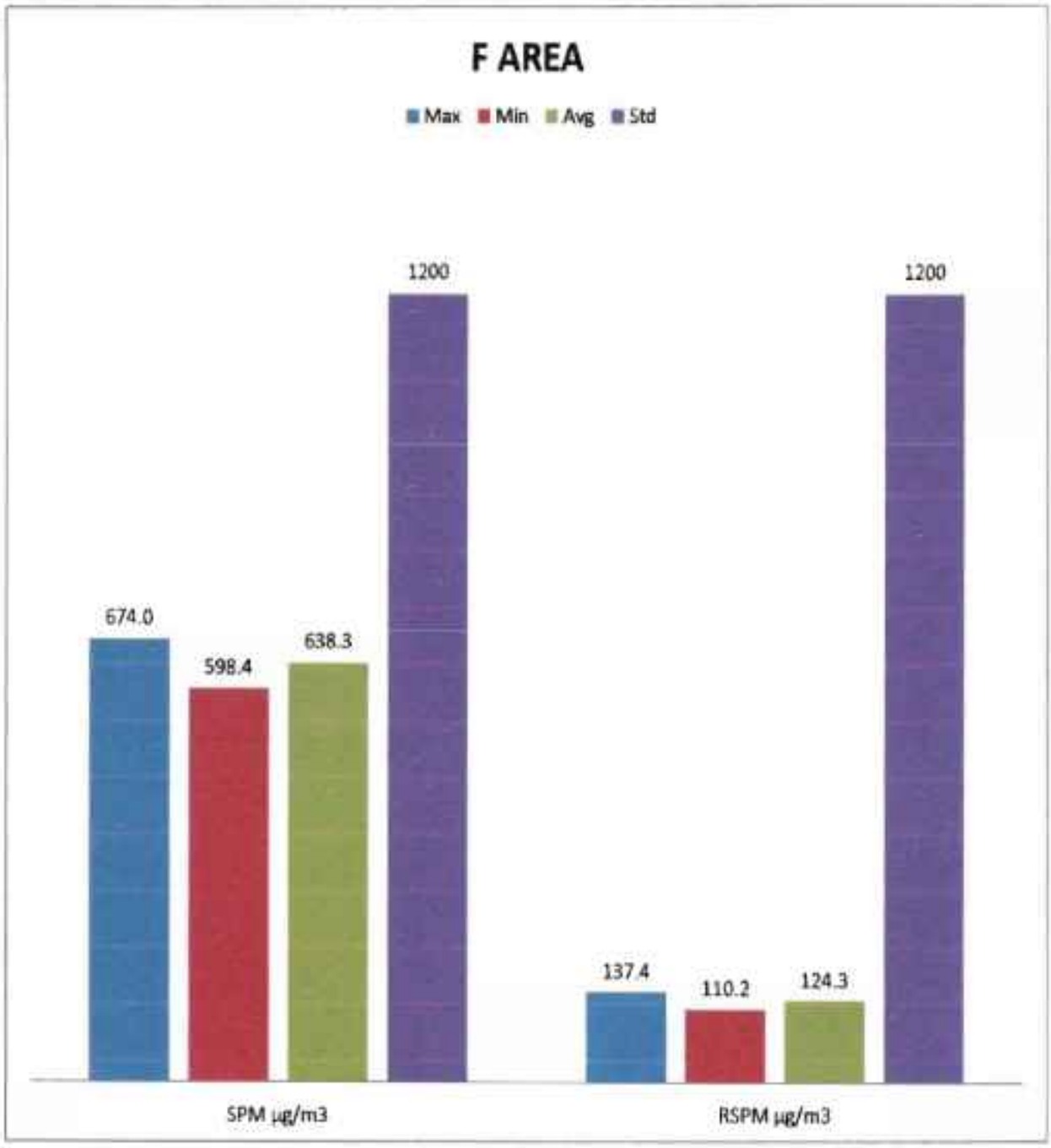
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.3 F Area(F3)

The pollution level in F Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **674.0** µg/m³ whereas minimum concentration was observed **598.4** µg/m³ and RSPM concentration ranges between **110.2** µg/m³ to **137.4** µg/m³ during the month



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1999PTC010601, GSTIN : 09AAACE5076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/93
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **F Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	F Area	667.1	137.4
2.	02-12-2024	F Area	619.6	124.7
3.	03-12-2024	F Area	653.3	124.1
4.	04-12-2024	F Area	660.0	119.5
5.	05-12-2024	F Area	619.5	127.8
6.	06-12-2024	F Area	644.9	118.4
7.	07-12-2024	F Area	622.4	117.2
8.	08-12-2024	F Area	612.5	121.2
9.	09-12-2024	F Area	653.6	126.1
10.	10-12-2024	F Area	616.5	129.4
11.	11-12-2024	F Area	653.2	129.0
12.	12-12-2024	F Area	638.2	128.9
13.	13-12-2024	F Area	603.3	110.2
14.	14-12-2024	F Area	670.6	125.2
15.	15-12-2024	F Area	674.0	124.3
16.	16-12-2024	F Area	608.6	123.3
17.	17-12-2024	F Area	657.2	125.5
18.	18-12-2024	F Area	667.8	135.4
19.	19-12-2024	F Area	643.6	127.8
20.	20-12-2024	F Area	600.0	111.2
21.	21-12-2024	F Area	627.0	117.8
22.	22-12-2024	F Area	598.4	111.9
23.	23-12-2024	F Area	671.5	127.8
24.	24-12-2024	F Area	607.3	126.9
25.	25-12-2024	F Area	649.7	133.9
26.	26-12-2024	F Area	672.2	122.9
27.	27-12-2024	F Area	649.4	130.8
28.	28-12-2024	F Area	667.9	135.1
29.	29-12-2024	F Area	621.0	125.1
30.	30-12-2024	F Area	635.8	121.9
31.	31-12-2024	F Area	599.7	113.6
Average			**638.3**	**124.3**

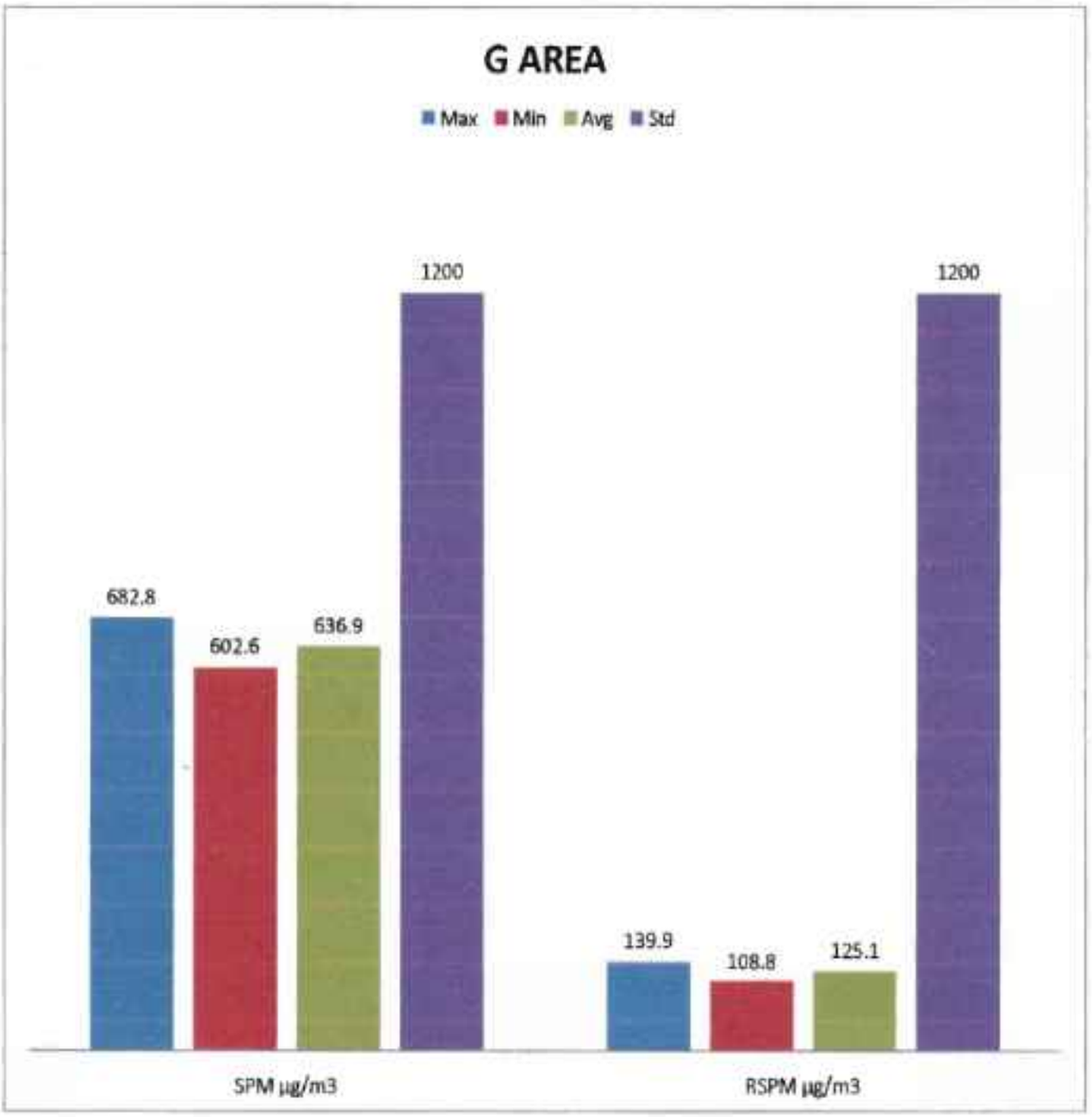
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.4 G Area(F4)

The pollution level in G Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **682.8** µg/m³ whereas minimum concentration was observed **602.6** µg/m³ and RSPM concentration ranges between **108.8** µg/m³ to **125.1** µg/m³ during the month



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/94
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **G Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	G Area	620.5	130.0
2.	02-12-2024	G Area	623.8	129.2
3.	03-12-2024	G Area	602.6	110.9
4.	04-12-2024	G Area	642.4	131.4
5.	05-12-2024	G Area	664.8	130.4
6.	06-12-2024	G Area	661.3	133.4
7.	07-12-2024	G Area	624.2	125.0
8.	08-12-2024	G Area	638.6	130.0
9.	09-12-2024	G Area	639.2	117.3
10.	10-12-2024	G Area	603.9	108.8
11.	11-12-2024	G Area	636.1	124.8
12.	12-12-2024	G Area	630.2	118.1
13.	13-12-2024	G Area	660.7	121.9
14.	14-12-2024	G Area	634.4	116.5
15.	15-12-2024	G Area	682.8	138.1
16.	16-12-2024	G Area	671.6	131.2
17.	17-12-2024	G Area	630.8	120.9
18.	18-12-2024	G Area	675.6	128.6
19.	19-12-2024	G Area	654.0	132.1
20.	20-12-2024	G Area	607.2	121.6
21.	21-12-2024	G Area	609.5	120.1
22.	22-12-2024	G Area	612.9	124.8
23.	23-12-2024	G Area	605.0	126.8
24.	24-12-2024	G Area	671.9	139.9
25.	25-12-2024	G Area	647.7	119.3
26.	26-12-2024	G Area	636.8	123.6
27.	27-12-2024	G Area	626.5	116.7
28.	28-12-2024	G Area	644.0	124.6
29.	29-12-2024	G Area	648.9	135.5
30.	30-12-2024	G Area	617.7	129.7
31.	31-12-2024	G Area	619.2	116.8
Average			**636.9**	**125.1**

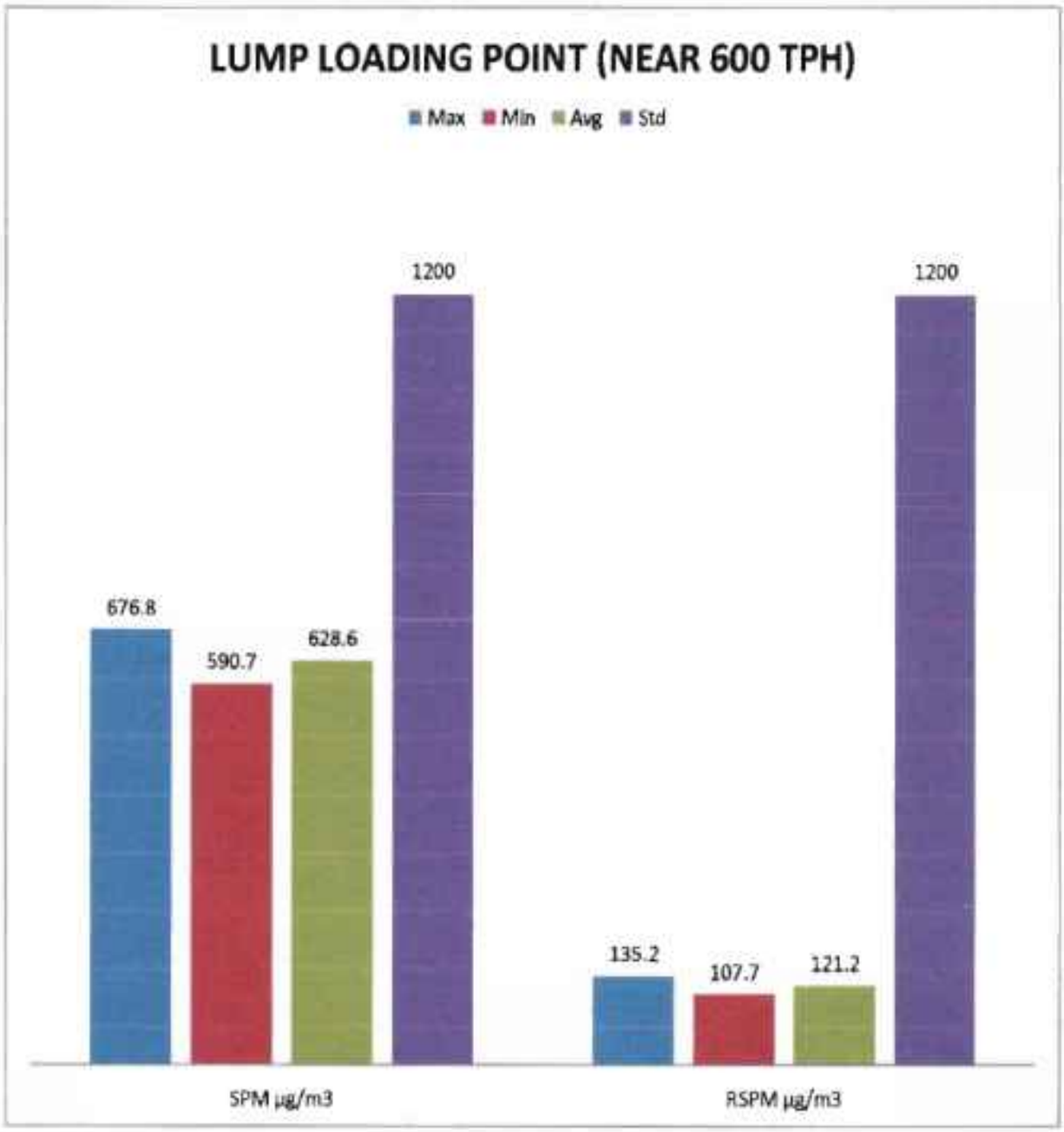
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.5 Lump Loading Point (Near 600 TPH) (F5)

The pollution level in Lump Loading Point (Near 600 TPH) for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **676.8** µg/m³ whereas minimum concentration was observed **590.7** µg/m³ and RSPM concentration ranges between **107.7** µg/m³ to **135.2** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/95
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Lump Loading Point (Near 600 TPH)**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	Lump Loading Point (Near 600 TPH)	591.5	109.8
2.	02-12-2024	Lump Loading Point (Near 600 TPH)	593.2	108.2
3.	03-12-2024	Lump Loading Point (Near 600 TPH)	662.7	119.6
4.	04-12-2024	Lump Loading Point (Near 600 TPH)	640.7	118.4
5.	05-12-2024	Lump Loading Point (Near 600 TPH)	598.9	124.9
6.	06-12-2024	Lump Loading Point (Near 600 TPH)	611.3	110.1
7.	07-12-2024	Lump Loading Point (Near 600 TPH)	628.3	122.0
8.	08-12-2024	Lump Loading Point (Near 600 TPH)	628.4	123.3
9.	09-12-2024	Lump Loading Point (Near 600 TPH)	627.8	123.6
10.	10-12-2024	Lump Loading Point (Near 600 TPH)	649.8	118.4
11.	11-12-2024	Lump Loading Point (Near 600 TPH)	652.6	129.9
12.	12-12-2024	Lump Loading Point (Near 600 TPH)	606.8	122.5
13.	13-12-2024	Lump Loading Point (Near 600 TPH)	660.0	133.1
14.	14-12-2024	Lump Loading Point (Near 600 TPH)	632.3	116.7
15.	15-12-2024	Lump Loading Point (Near 600 TPH)	600.2	110.0
16.	16-12-2024	Lump Loading Point (Near 600 TPH)	613.6	121.6
17.	17-12-2024	Lump Loading Point (Near 600 TPH)	595.1	107.7
18.	18-12-2024	Lump Loading Point (Near 600 TPH)	676.8	135.2
19.	19-12-2024	Lump Loading Point (Near 600 TPH)	659.4	131.8
20.	20-12-2024	Lump Loading Point (Near 600 TPH)	603.9	114.7
21.	21-12-2024	Lump Loading Point (Near 600 TPH)	590.7	113.5
22.	22-12-2024	Lump Loading Point (Near 600 TPH)	640.0	127.7
23.	23-12-2024	Lump Loading Point (Near 600 TPH)	624.0	118.6
24.	24-12-2024	Lump Loading Point (Near 600 TPH)	611.8	110.5
25.	25-12-2024	Lump Loading Point (Near 600 TPH)	597.7	113.2
26.	26-12-2024	Lump Loading Point (Near 600 TPH)	602.3	115.1
27.	27-12-2024	Lump Loading Point (Near 600 TPH)	659.3	134.9
28.	28-12-2024	Lump Loading Point (Near 600 TPH)	643.9	124.5
29.	29-12-2024	Lump Loading Point (Near 600 TPH)	666.3	127.6
30.	30-12-2024	Lump Loading Point (Near 600 TPH)	652.2	134.5
31.	31-12-2024	Lump Loading Point (Near 600 TPH)	665.1	134.1
Average			**628.6**	**121.2**

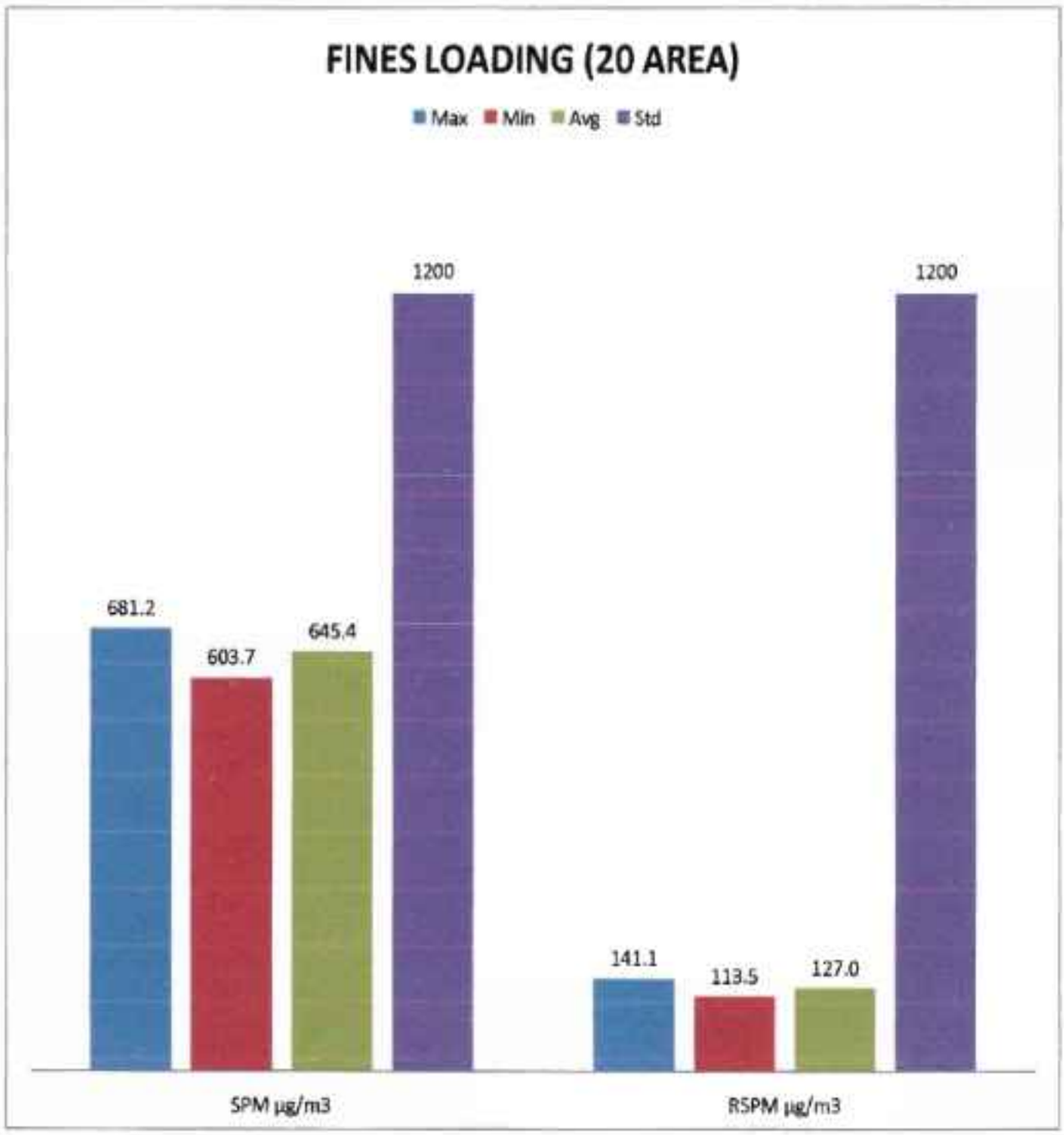
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.6 Fines Loading (20 area) (F6)

The pollution level in Fines Loading (20 area) for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **681.2** µg/m³ whereas minimum concentration was observed **603.7** µg/m³ and RSPM concentration ranges between **113.5** µg/m³ to **141.1** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/96
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Fines Loading (20 area)**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	Fines Loading (20 area)	647.0	123.0
2.	02-12-2024	Fines Loading (20 area)	623.6	113.9
3.	03-12-2024	Fines Loading (20 area)	660.2	138.4
4.	04-12-2024	Fines Loading (20 area)	607.9	115.9
5.	05-12-2024	Fines Loading (20 area)	625.7	131.1
6.	06-12-2024	Fines Loading (20 area)	603.7	119.9
7.	07-12-2024	Fines Loading (20 area)	632.1	127.6
8.	08-12-2024	Fines Loading (20 area)	610.3	123.0
9.	09-12-2024	Fines Loading (20 area)	646.5	123.6
10.	10-12-2024	Fines Loading (20 area)	650.4	133.9
11.	11-12-2024	Fines Loading (20 area)	674.1	138.5
12.	12-12-2024	Fines Loading (20 area)	656.3	134.6
13.	13-12-2024	Fines Loading (20 area)	679.5	129.4
14.	14-12-2024	Fines Loading (20 area)	663.2	127.2
15.	15-12-2024	Fines Loading (20 area)	668.3	130.0
16.	16-12-2024	Fines Loading (20 area)	611.9	113.5
17.	17-12-2024	Fines Loading (20 area)	681.2	141.1
18.	18-12-2024	Fines Loading (20 area)	627.2	119.6
19.	19-12-2024	Fines Loading (20 area)	613.6	124.5
20.	20-12-2024	Fines Loading (20 area)	662.3	135.5
21.	21-12-2024	Fines Loading (20 area)	656.6	126.0
22.	22-12-2024	Fines Loading (20 area)	644.6	132.7
23.	23-12-2024	Fines Loading (20 area)	610.2	120.6
24.	24-12-2024	Fines Loading (20 area)	635.9	126.6
25.	25-12-2024	Fines Loading (20 area)	634.1	129.8
26.	26-12-2024	Fines Loading (20 area)	680.7	127.5
27.	27-12-2024	Fines Loading (20 area)	644.2	119.2
28.	28-12-2024	Fines Loading (20 area)	665.4	136.6
29.	29-12-2024	Fines Loading (20 area)	642.9	116.5
30.	30-12-2024	Fines Loading (20 area)	677.0	127.1
31.	31-12-2024	Fines Loading (20 area)	670.7	130.2
Average			**645.4**	**127.0**

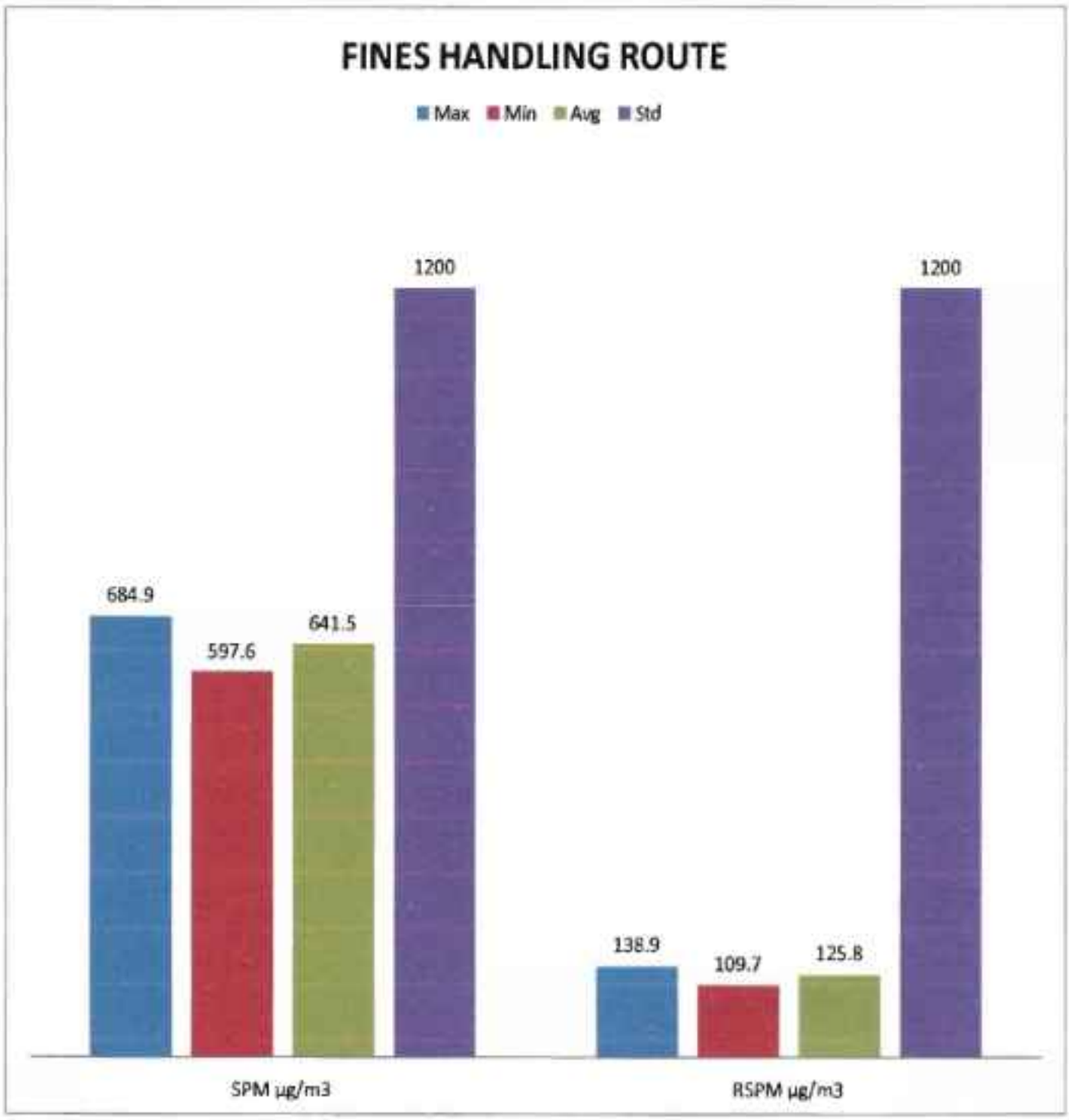
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.7 Fines Handling Route (F7)

The pollution level in Fines Handling Route for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **684.9** µg/m³ whereas minimum concentration was observed **597.6** µg/m³ and RSPM concentration ranges between **109.7** µg/m³ to **138.9** µg/m³ during the month.



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Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010501, GSTIN : 09AAACE6076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/97
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited,**
   Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Fines Handling Route**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	Fines Handling Route	647.9	126.2
2.	02-12-2024	Fines Handling Route	660.4	121.7
3.	03-12-2024	Fines Handling Route	624.3	130.2
4.	04-12-2024	Fines Handling Route	626.9	119.8
5.	05-12-2024	Fines Handling Route	597.6	114.7
6.	06-12-2024	Fines Handling Route	656.7	120.4
7.	07-12-2024	Fines Handling Route	661.6	138.8
8.	08-12-2024	Fines Handling Route	647.4	131.7
9.	09-12-2024	Fines Handling Route	602.5	113.6
10.	10-12-2024	Fines Handling Route	624.7	123.6
11.	11-12-2024	Fines Handling Route	649.5	122.7
12.	12-12-2024	Fines Handling Route	598.3	120.9
13.	13-12-2024	Fines Handling Route	610.4	127.4
14.	14-12-2024	Fines Handling Route	676.9	128.5
15.	15-12-2024	Fines Handling Route	663.0	121.8
16.	16-12-2024	Fines Handling Route	648.7	133.2
17.	17-12-2024	Fines Handling Route	599.1	109.7
18.	18-12-2024	Fines Handling Route	655.9	127.2
19.	19-12-2024	Fines Handling Route	629.8	117.1
20.	20-12-2024	Fines Handling Route	684.9	128.7
21.	21-12-2024	Fines Handling Route	646.8	120.2
22.	22-12-2024	Fines Handling Route	670.0	131.9
23.	23-12-2024	Fines Handling Route	647.1	127.5
24.	24-12-2024	Fines Handling Route	630.7	132.3
25.	25-12-2024	Fines Handling Route	607.9	125.6
26.	26-12-2024	Fines Handling Route	679.3	138.9
27.	27-12-2024	Fines Handling Route	613.9	125.7
28.	28-12-2024	Fines Handling Route	667.8	126.1
29.	29-12-2024	Fines Handling Route	677.7	130.1
30.	30-12-2024	Fines Handling Route	621.0	128.7
31.	31-12-2024	Fines Handling Route	657.1	136.1
Average			**641.5**	**125.8**

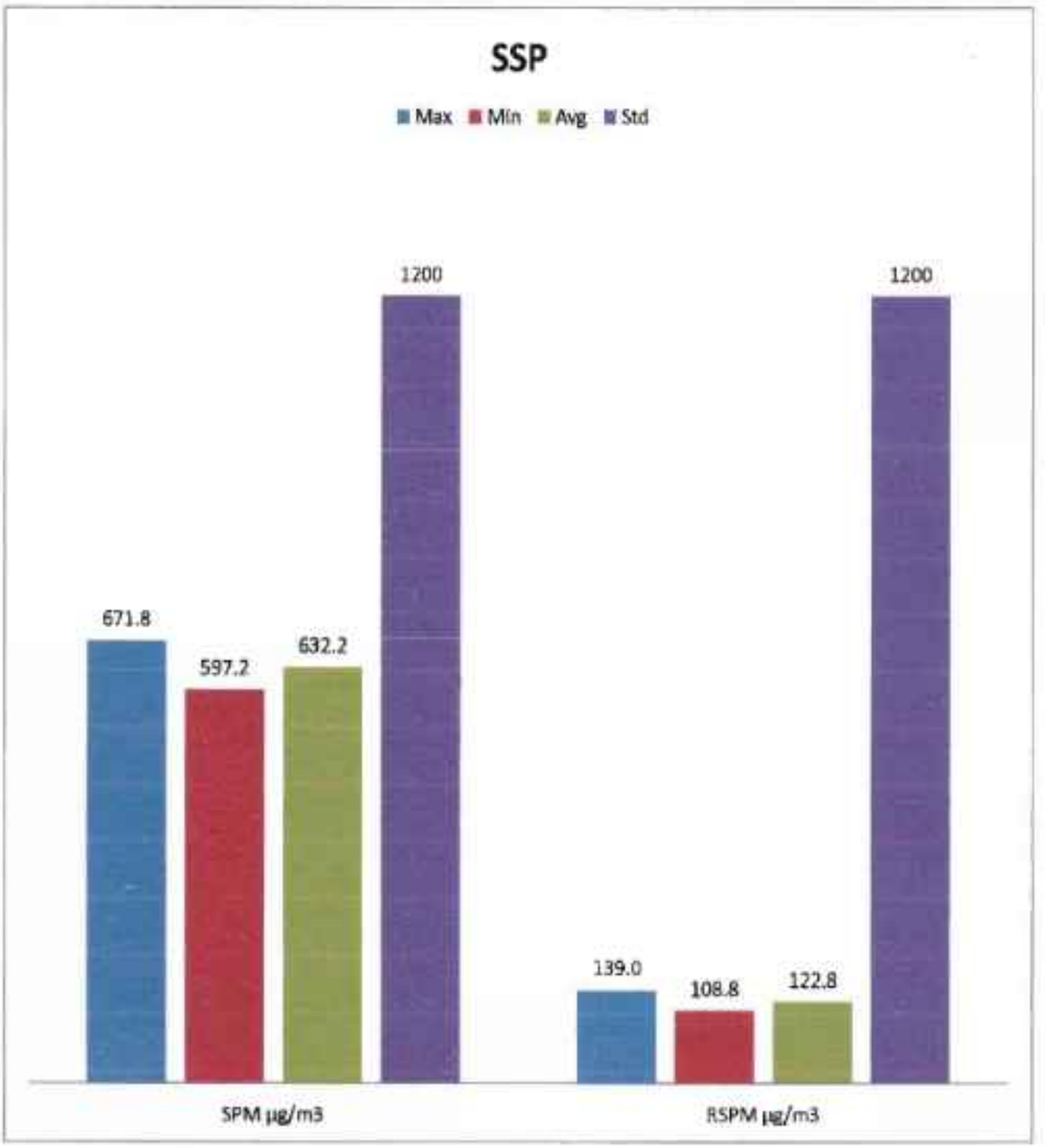
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.8 SSP (F8)

The pollution level in SSP Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **671.8** µg/m³ whereas minimum concentration was observed **597.2** µg/m³ and RSPM concentration ranges between **108.8** µg/m³ to **139.0** µg/m³ during the month.



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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/98
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **SSP**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	SSP	610.2	110.3
2.	02-12-2024	SSP	632.7	129.9
3.	03-12-2024	SSP	603.8	113.6
4.	04-12-2024	SSP	598.7	118.7
5.	05-12-2024	SSP	605.0	113.8
6.	06-12-2024	SSP	658.7	131.1
7.	07-12-2024	SSP	601.0	118.1
8.	08-12-2024	SSP	649.1	119.9
9.	09-12-2024	SSP	649.8	133.2
10.	10-12-2024	SSP	664.8	135.2
11.	11-12-2024	SSP	625.9	123.5
12.	12-12-2024	SSP	607.8	114.9
13.	13-12-2024	SSP	602.4	123.8
14.	14-12-2024	SSP	657.8	136.1
15.	15-12-2024	SSP	635.5	123.7
16.	16-12-2024	SSP	615.6	114.3
17.	17-12-2024	SSP	640.3	131.0
18.	18-12-2024	SSP	654.4	129.6
19.	19-12-2024	SSP	631.5	119.1
20.	20-12-2024	SSP	597.2	108.8
21.	21-12-2024	SSP	671.8	128.4
22.	22-12-2024	SSP	634.8	125.6
23.	23-12-2024	SSP	624.3	117.4
24.	24-12-2024	SSP	665.5	120.9
25.	25-12-2024	SSP	642.4	115.8
26.	26-12-2024	SSP	670.0	139.0
27.	27-12-2024	SSP	657.6	127.7
28.	28-12-2024	SSP	597.5	122.2
29.	29-12-2024	SSP	626.8	118.5
30.	30-12-2024	SSP	640.3	130.1
31.	31-12-2024	SSP	625.7	113.7
Average			**632.2**	**122.8**

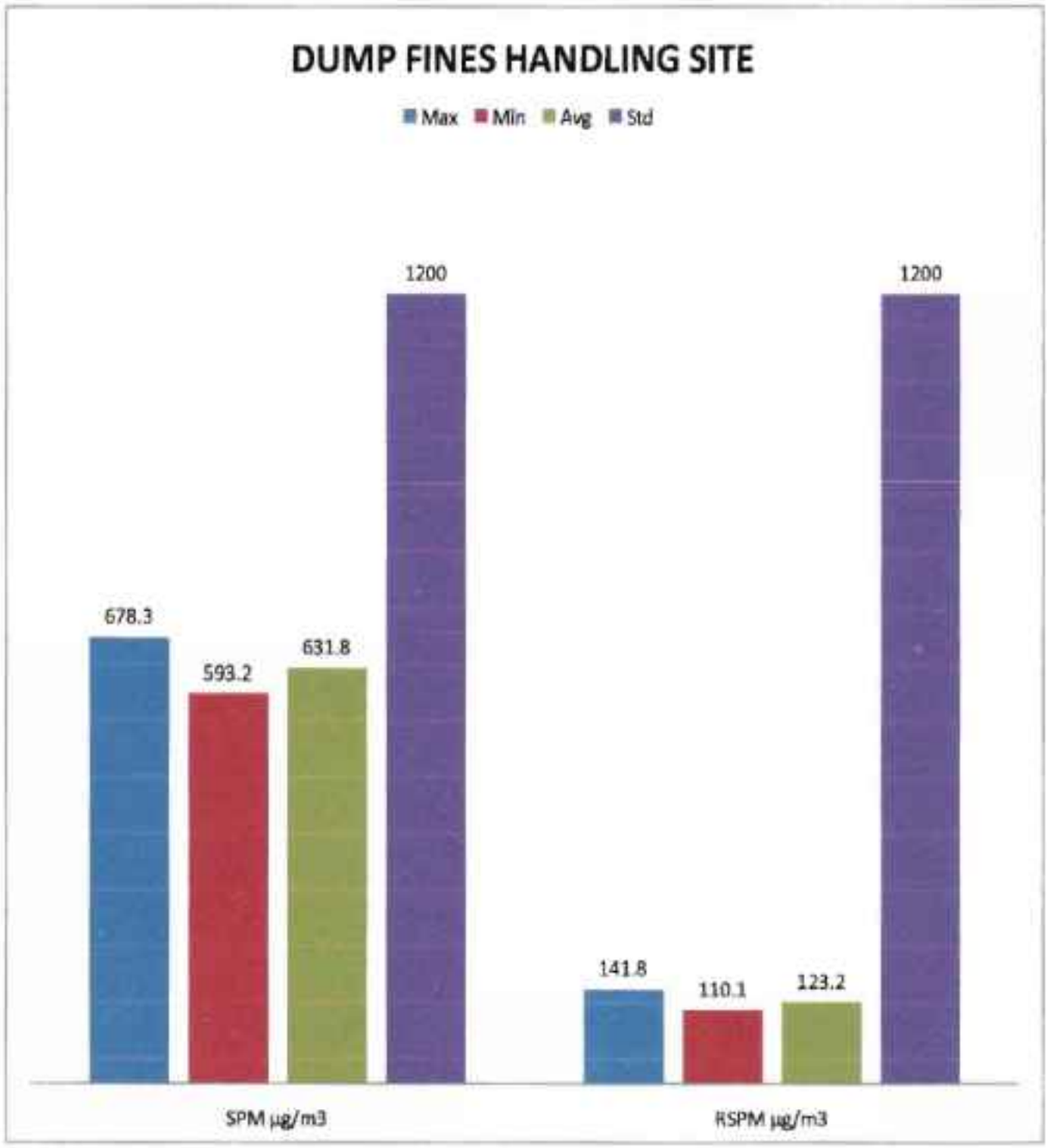
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.9 Dump Fines Handling Site (F9)

The pollution level in Dump Fines Handling Site for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **678.3** µg/m³ whereas minimum concentration was observed **593.2** µg/m³ and RSPM concentration ranges between **110.1** µg/m³ to **141.8** µg/m³ during the month.



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Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZJ

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/99
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Dump Fines Handling Site**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	Dump Fines Handling Site	642.6	119.8
2.	02-12-2024	Dump Fines Handling Site	628.5	130.6
3.	03-12-2024	Dump Fines Handling Site	664.7	137.9
4.	04-12-2024	Dump Fines Handling Site	593.2	113.2
5.	05-12-2024	Dump Fines Handling Site	647.9	116.6
6.	06-12-2024	Dump Fines Handling Site	602.9	113.7
7.	07-12-2024	Dump Fines Handling Site	623.4	118.1
8.	08-12-2024	Dump Fines Handling Site	618.5	115.8
9.	09-12-2024	Dump Fines Handling Site	594.8	111.4
10.	10-12-2024	Dump Fines Handling Site	616.3	117.2
11.	11-12-2024	Dump Fines Handling Site	668.8	124.5
12.	12-12-2024	Dump Fines Handling Site	639.9	127.3
13.	13-12-2024	Dump Fines Handling Site	646.7	118.6
14.	14-12-2024	Dump Fines Handling Site	645.7	122.2
15.	15-12-2024	Dump Fines Handling Site	648.9	135.8
16.	16-12-2024	Dump Fines Handling Site	670.9	138.8
17.	17-12-2024	Dump Fines Handling Site	606.3	114.4
18.	18-12-2024	Dump Fines Handling Site	601.5	112.5
19.	19-12-2024	Dump Fines Handling Site	634.1	122.6
20.	20-12-2024	Dump Fines Handling Site	632.1	119.1
21.	21-12-2024	Dump Fines Handling Site	612.5	124.4
22.	22-12-2024	Dump Fines Handling Site	595.3	121.2
23.	23-12-2024	Dump Fines Handling Site	650.5	136.6
24.	24-12-2024	Dump Fines Handling Site	640.9	120.9
25.	25-12-2024	Dump Fines Handling Site	613.2	121.2
26.	26-12-2024	Dump Fines Handling Site	678.3	141.8
27.	27-12-2024	Dump Fines Handling Site	612.5	119.0
28.	28-12-2024	Dump Fines Handling Site	677.5	140.8
29.	29-12-2024	Dump Fines Handling Site	609.8	110.1
30.	30-12-2024	Dump Fines Handling Site	622.9	125.7
31.	31-12-2024	Dump Fines Handling Site	645.5	128.8
Average			**631.8**	**123.2**

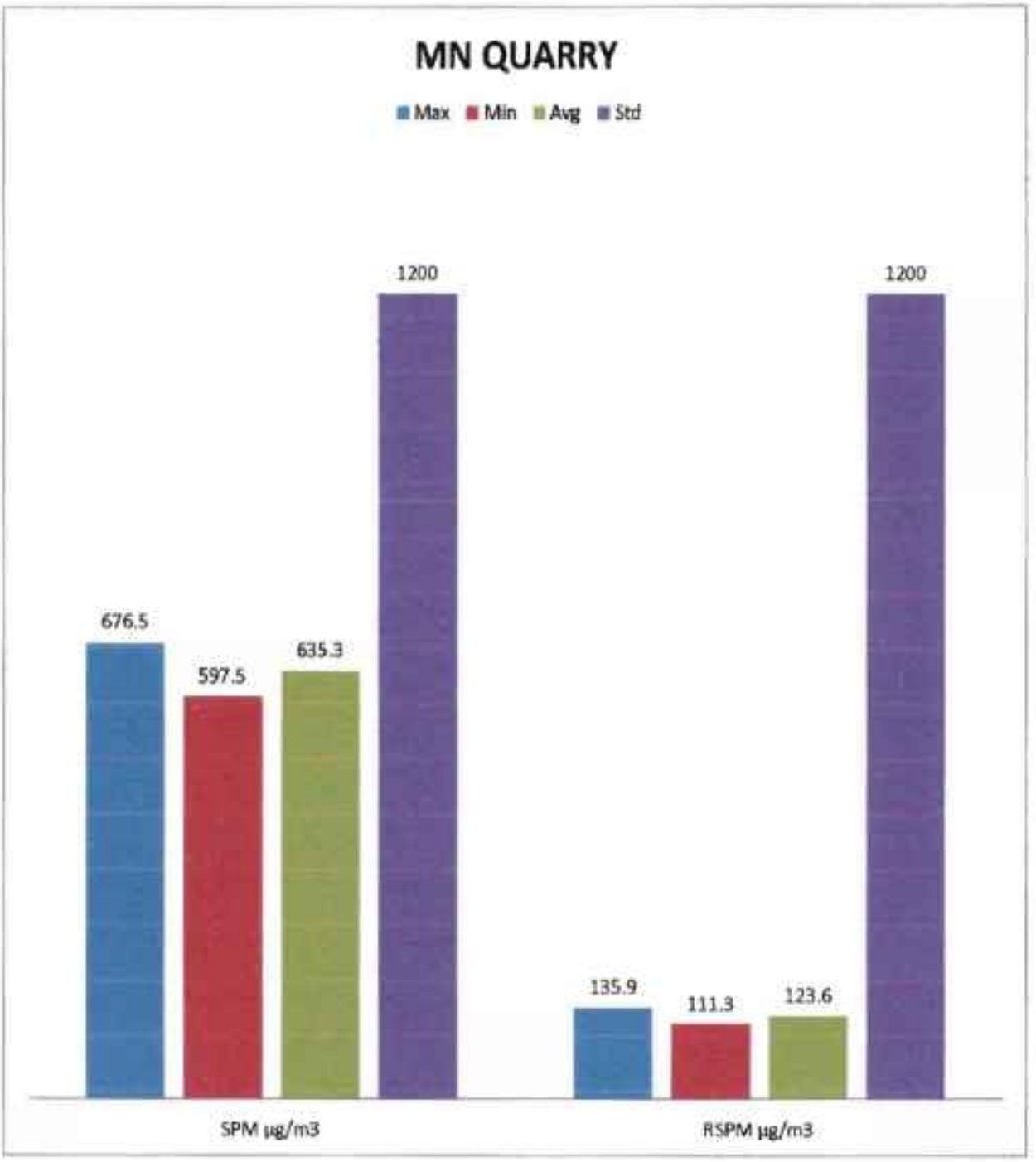
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.10 Mn Quarry (F5)

The pollution level in Mn Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **676.5** µg/m³ whereas minimum concentration was observed **597.5** µg/m³ and RSPM concentration ranges between **111.3** µg/m³ to **135.9** µg/m³ during the month.



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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/100
Test Report Issue date: 05.01.2025

FUGITIVE EMISSION MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Mn Quarry**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-12-2024	Mn Quarry	647.4	118.3
2.	02-12-2024	Mn Quarry	616.8	113.3
3.	03-12-2024	Mn Quarry	668.2	132.3
4.	04-12-2024	Mn Quarry	663.0	124.6
5.	05-12-2024	Mn Quarry	614.7	126.0
6.	06-12-2024	Mn Quarry	625.4	131.0
7.	07-12-2024	Mn Quarry	619.9	126.2
8.	08-12-2024	Mn Quarry	667.6	127.3
9.	09-12-2024	Mn Quarry	661.1	124.8
10.	10-12-2024	Mn Quarry	615.5	129.1
11.	11-12-2024	Mn Quarry	676.5	133.2
12.	12-12-2024	Mn Quarry	652.7	133.8
13.	13-12-2024	Mn Quarry	617.2	115.8
14.	14-12-2024	Mn Quarry	659.4	118.8
15.	15-12-2024	Mn Quarry	601.4	111.3
16.	16-12-2024	Mn Quarry	601.5	111.3
17.	17-12-2024	Mn Quarry	597.5	118.1
18.	18-12-2024	Mn Quarry	618.6	118.2
19.	19-12-2024	Mn Quarry	632.3	117.3
20.	20-12-2024	Mn Quarry	623.1	112.2
21.	21-12-2024	Mn Quarry	659.9	121.6
22.	22-12-2024	Mn Quarry	626.7	123.6
23.	23-12-2024	Mn Quarry	600.9	116.0
24.	24-12-2024	Mn Quarry	645.9	128.6
25.	25-12-2024	Mn Quarry	612.1	126.8
26.	26-12-2024	Mn Quarry	603.9	113.6
27.	27-12-2024	Mn Quarry	673.6	133.0
28.	28-12-2024	Mn Quarry	627.0	130.7
29.	29-12-2024	Mn Quarry	621.6	128.4
30.	30-12-2024	Mn Quarry	673.7	130.8
31.	31-12-2024	Mn Quarry	670.1	135.9
Average			**635.3**	**123.6**

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.3 Surface/Effluent/Drinking Water Quality:

As per the guideline of CPCB, the following criteria shall be taken into consideration for use of the surface water bodies. Reports below shows the surface water quality analysis results at identified locations near the ML area.

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	• Total Coliforms Organism MPN/100ml shall be 50 or less • pH between 6.5 and8.5 • Dissolved Oxygen 6mg/l or more • Biochemical Oxygen Demand 5 days 20C 2mg/l or less
Outdoor bathing (Organized)	B	• Total Coliforms Organism MPN/100ml shall be 500 or less • pH between 6.5 and8.5 • Dissolved Oxygen 5mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Drinking water source after conventional treatment and disinfection	C	• Total Coliforms Organism MPN/100ml shall be 5000 or less • pH between 6 to9 • Dissolved Oxygen 4mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Propagation of Wild life and Fisheries	D	• pH between 6.5 to8.5 • Dissolved Oxygen 4mg/l or more • Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	• pH between 6.0 to8.5 • Electrical Conductivity at 25C micro mhos/cmMax.2250 • Sodium absorption Ratio Max.26 • Boron Max.2mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

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2.3.1 Surface Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Bolani Ore Mines (SAIL)	ULR No.	TC127512400001038F
		Test Report No.	ECO/LAB/SW/0341/1038/12/2024
		Issue Date of Test Report	28.12.2024
Type of Sample	Surface Water		
Sample Registration No.	0341	Name of Location	Karo Near Lease Boundary at Limture Village
Sampling Method	APHA 24th Ed. 2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	21.12.2024	Time of Sample Collection	-
Date of Sample Receipt	23.12.2024	Time of Sample Receipt	10:15 AM
Start Date of Analysis	23.12.2024	End Date of Analysis	28.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 51%	Sample ID Code	ECO/LAB/1038/12/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is 2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	35.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	32.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	3.1	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	24.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.08	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO3-E	5-100	<5.0	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.05	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.04	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	231224N-E-006		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	23/12/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Karo Near Lease Boundry at Limtur Village)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	23/12/2024		
Period of Analysis	23/12/2024 To 28/12/2024		
Date of Reporting	28/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.28	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5500 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.004	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by

Authorised Signatory

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001039F
		Test Report No.	ECO/LAB/SW/0341/1039/12/2024
		Issue Date of Test Report	28.12.2024
Type of Sample	Surface Water		
Sample Registration No.	0341	Name of Location	Jhikaria Nalla before Joining Karo River
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	21.12.2024	Time of Sample Collection	-
Date of Sample Receipt	23.12.2024	Time of Sample Receipt	10:15 AM
Start Date of Analysis	23.12.2024	End Date of Analysis	28.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 51%	Sample ID Code	ECO/LAB/1039/12/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	38.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	36.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	2.4	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	20.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.16	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO_3-E	5-100	9.50	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.07	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.05	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters.

Note:

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2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	231224N-E-003		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	23/12/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Jhinkaria Nallah)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	23/12/2024		
Period of Analysis	23/12/2024 To 28/12/2024		
Date of Reporting	28/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.18	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5520 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.006	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by
Idma Laboratories Ltd. Divya Jain Asst. Tech. Manager Panchkula 24

Authorised Signatory
28/12/24
Idma Laboratories Ltd. Kamar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001040F
		Test Report No.	ECO/LAB/SW/0341/1040/12/2024
		Issue Date of Test Report	28.12.2024
Type of Sample	Surface Water		
Sample Registration No.	0341	Name of Location	Panpash Nallah
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	21.12.2024	Time of Sample Collection	-
Date of Sample Receipt	23.12.2024	Time of Sample Receipt	10:15 AM
Start Date of Analysis	23.12.2024	End Date of Analysis	28.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 51%	Sample ID Code	ECO/LAB/1040/12/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	38.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	44.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	6.2	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	34.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.18	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO3-E	5-100	7.65	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.09	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.05	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	231224N-E-004		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	23/12/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc. Panposhi Nallah)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	23/12/2024		
Period of Analysis	23/12/2024 To 28/12/2024		
Date of Reporting	28/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.24	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5500 B 24th Edition, 2023
4	Total Residual Chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.001	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer

End of Report

Tested by

Authorised signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZJ

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001041F
		Test Report No.	ECO/LAB/SW/0341/1041/12/2024
		Issue Date of Test Report	28.12.2024
Type of Sample	Surface Water		
Sample Registration No.	0341	Name of Location	Karo River Intake
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	21.12.2024	Time of Sample Collection	-
Date of Sample Receipt	23.12.2024	Time of Sample Receipt	10:15 AM
Start Date of Analysis	23.12.2024	End Date of Analysis	28.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 51%	Sample ID Code	ECO/LAB/1041/12/2024

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	26.5	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	40.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	3.9	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	24.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO_3-E	5-100	5.80	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.09	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	231224N-E-005		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	23/12/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc. Karo River Intake)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	23/12/2024		
Period of Analysis	23/12/2024 To 28/12/2024		
Date of Reporting	28/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.33	APHA 4500H+B 24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5500 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.003	APHA 3120 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Authorised Signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZJ

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.3.2 Effluent Waste Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No	TC127512400001036F
		Test Report No.	ECO/LAB/WW/0341/1036/12/2024
		Issue Date of Test Report	28.12.2024
Type of Sample	Waste Water		
Sample Registration No.	0341	Name of Location	Oil Catch Pit Water Bottom Garbage
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	21.12.2024	Time of Sample Collection	-
Date of Sample Receipt	23.12.2024	Time of Sample Receipt	10:15 AM
Start Date of Analysis	23.12.2024	End Date of Analysis	28.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 51%	Sample ID Code	ECO/LAB/1036/12/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.92	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	43.5	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. : 2017,5220 A+C	1 -1000	32.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. : 2017,5210 A+B	1 -1000	3.4	30.0
5.	Oil & Grease as O&G	mg/l	APHA, 23rd Ed. : 2017,5520 A+D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.22	2.0
7.	Nitrate nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3-E	5-100	5.70	-
8.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017,3114 A+B	0.01-2	0.19	-
9.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3500 A+B	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017,3500 Fe-B	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S^{2-} F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.002	2.0

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	231224N-E-008		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Waste Water		
Customer's Description of Sample#	Waste Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	23/12/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Oil Catchpit Water Bottom Garage)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	23/12/2024		
Period of Analysis	23/12/2024 To 28/12/2024		
Date of Reporting	28/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Waste Water)	-	-	-
1	Total Residual Chlorine	mg/L	0.13	APHA4500Cl B24th Edition, 2023
2	Cyanide as CN-	mg/L	<0.05	APHA4500CN-C&E 24th Edition, 2023
3	Total Iron	mg/L	0.014	CPCB Guide Manual:Water & waste water Analysis

Represents details provided by the customer.

End of Report

Reviewed by

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised Signatory

Idma Laboratories Ltd. Kanar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No	TC127512400001037F
		Test Report No.	ECO/LAB/WW/0341/1037/12/2024
		Issue Date of Test Report	28.12.2024
Type of Sample	Waste Water		
Sample Registration No.	0341	Name of Location	Oil Catch pit water G-Area
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	21.12.2024	Time of Sample Collection	-
Date of Sample Receipt	23.12.2024	Time of Sample Receipt	10:15 AM
Start Date of Analysis	23.12.2024	End Date of Analysis	28.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 51%	Sample ID Code	ECO/LAB/1037/12/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.58	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	24.5	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. : 2017,5220 A+C	1 -1000	36.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. : 2017,5210 A+B	1 -1000	3.7	30.0
5.	Oil & Grease as O&G	mg/l	APHA, 23rd Ed. : 2017,5520 A+D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.21	2.0
7.	Nitrate nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3-E	5-100	6.40	-
8.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017,3114 A+B	0.01-2	0.19	-
9.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3500 A+B	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017,3500 Fe-B	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S^{2-} F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.002	2.0

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	231224N-E-007		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Waste Water		
Customer's Description of Sample#	Waste Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	23/12/2024		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Oil Catchpit Water G-Area)		
Quantity#	01 Ltr.		
Date of Receipt of Sample	23/12/2024		
Period of Analysis	23/12/2024 To 29/12/2024		
Date of Reporting	29/12/2024		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Waste Water)	-	-	-
1	Total Residual Chlorine	mg/L	<0.1	APHA4500Cl B24th Edition, 2023
2	Cyanide as CN-	mg/L	<0.01	APHA4500CN-C&E 24th Edition, 2023
3	Total Iron	mg/L	0.009	CPCB Guide Manual:Water & waste water Analysis

Represents details provided by the customer

End of Report

Reviewed By

Authorised signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

Disclaimer :

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ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZJ

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.3.3 Drinking Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001034F
		Test Report No.	ECO/LAB/DW/0341/1034/12/2024
		Issue Date of Test Report	28.12.2024
Type of Sample	Drinking Water		
Sample Registration No.	0341	Name of Location	Mount Club Tap Water
Sampling Method	APHA, 23rd Ed :2017,1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	21.12.2024	Time of Sample Collection	-
Date of Sample Receipt	23.12.2024	Time of Sample Receipt	10:15 AM
Start Date of Analysis	23.12.2024	End Date of Analysis	28.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 51%	Sample ID Code	ECO/LAB/1034/12/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	5.94	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5.0	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.09	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO$_3^-$E	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.08	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	0.05	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per IS 10500:2012(Reaff:2018).

Note-

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL - Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	231224N-E-001		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Type of Sample#	Drinking Water		
Customer's Description of Sample#	Drinking Water		
Quantity#	01 Ltr.		
Packing, Markings, Seal & Quantity#	Plastic Bottle. (Loc.Mount Club Tap Water)		
Mode of Collection of Sample	By Hand		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Date of Receipt of Sample	23/12/2024		
Period of Analysis	23/12/2024 To 28/12/2024		
Visual Observation	N/A		
Date of Reporting	28/12/2024		
Testing Protocol	IS: 10500:2012		

RESULTS

S.No.	Test Parameter	Units	Results	Limit of IS: 10500-2012		Test Method
				Requirement (Acceptable Limit)	Permissible Limit in absence of alternate	
	Chemical Testing (Water)	-	-	-	-	-
1	Cyanide as CN	mg/L	<0.05	Max. 0.05	No Relaxation	APHA 4500CN-C&F 24th Edition, 2023
2	Oil & Grease	mg/L	<2.5	-	-	APHA 5520 B 24th Edition, 2023
3	Total Residual chlorine	mg/L	<0.1	-	-	APHA 4500Cl B 24th Edition, 2023
4	Total Iron	mg/L	0.002	Max. 1.0	No Relaxation	APHA 3120 B 24th Edition, 2023
5	Lead as Pb	mg/L	<0.0005	Max. 0.01	No Relaxation	APHA 3120 B 24th Edition, 2023

Opinion :

Represents details provided by the customer.

End of Report

Reviewed by

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512400001035F
		Test Report No.	ECO/LAB/DW/0341/1035/12/2024
		Issue Date of Test Report	28.12.2024
Type of Sample	Drinking Water		
Sample Registration No.	0341	Name of Location	Karo Guest House Tap Water
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	21.12.2024	Time of Sample Collection	-
Date of Sample Receipt	23.12.2024	Time of Sample Receipt	10:15 AM
Start Date of Analysis	23.12.2024	End Date of Analysis	28.12.2024
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 51%	Sample ID Code	ECO/LAB/1035/12/2024

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.98	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5.0	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.08	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO$_3^-$E	5-100	<5.0	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02 50	0.07	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per **IS 10500:2012(Reaff:2018).**

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
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4. BDL- Below Detection Limit

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	231224N-E-002		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, Contract Cell, P.O. Bolani, Distt. Keonjhar, Odisha-758037 Odisha		
Type of Sample#	Drinking Water		
Customer's Description of Sample#	Drinking Water		
Quantity#	01 Ltr.		
Packing, Markings, Seal & Quantity#	Plastic Bottle. (Loc. Karo Guest House Tap Water)		
Mode of Collection of Sample	By Hand		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Date of Receipt of Sample	23/12/2024		
Period of Analysis	23/12/2024 To 28/12/2024		
Visual Observation	N/A		
Date of Reporting	28/12/2024		
Testing Protocol	IS 10500:2012		

RESULTS

S.No.	Test Parameter	Units	Results	Limit of IS: 10500-2012		Test Method
				Requirement (Acceptable Limit)	Permissible Limit in absence of alternate	
	Chemical Testing (Water)	-	-	-	-	-
1	Cyanide as CN	mg/L	<0.05	Max. 0.05	No Relaxation	APHA 4500CN-C&F 24th Edition, 2023
2	Oil & Grease	mg/L	<2.5	-	-	APHA 5520 B 24th Edition, 2023
3	Total Residual chlorine	mg/L	0.12	-	-	APHA 4500Cl B 24th Edition, 2023
4	Total Iron	mg/L	<0.0005	Max. 1.0	No Relaxation	APHA 3120 B 24th Edition, 2023
5	Lead as Pb	mg/L	<0.0005	Max. 0.01	No Relaxation	APHA 3120 B 24th Edition, 2023

Opinion :

Represents details provided by the customer.

End of Report

Authorised signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

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2.4 Surface Flow Rate (Nallah/Stream):

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/SWF/10
Test Report Issue date: 05.01.2025

SURFACE FLOW RATE MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : Flow Meter
3. Sampling Location : **Karo River Limtur Villg, Jhikaria Nallah , Panposh Nallah**
4. Sample collected by : EMPL representative in presence of Client's representative.

Location Name	Station Code	Result in (m/sec)
Karo River Limtur Village	SWFM1	0.56
Jhikaria nallah	SWFM2	0.30
Panposh Nallah	SWFM3	0.35

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

2.5 Meteorology

Summarized meteorological data such as temperature, relative humidity, rainfall, and wind speed and wind direction are given in **Table No. 2.5.2.** During the month of 'December, 2024'the temperature varied from 7.7°C to 33.5°C & Relative Humidity varied from 30.3% to 98.6%. The maximum wind speed recorded during the month was 13 m/s and the overall average wind speed is calculated to be 2.09m/s, 36.16% of the time the wind remained calm (<0.5 m/s). The predominant wind direction as observed to be from North (N) direction during the month. The total rainfall observed during the month was 1.2 & 2 out of 31 were rainy days. Max. And Min. Value of temperature, relative humidity, rainfall, wind speed and wind direction on each day basis for December, 2024 are given below.

Table No. 2.5.2: Results of Site Specific Meteorological Data

Parameters		December, 2024
Temperature (°C)	Maximum	33.5
	Minimum	7.7
	Average	20.4
Relative Humidity (%)	Maximum	98.6
	Minimum	30.3
	Average	75.1
Wind Speed(m/s)	Maximum	13
	Average	2.09
Wind Direction (%)	N	23.25
	NNE	1.88
	NE	2.42
	ENE	5.11
	E	5.37
	ESE	4.57
	SE	3.75
	SSE	1.74
	S	7.52
	SSW	11.42
	SW	17.88
	WSW	6.3
	W	2.28
	WNW	2.96
	NW	2.55
	NNW	0.94
	CALM	36.16
Rainfall(mm)	Monthly Total	31
	No. of rainy days	1.2

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AWS/09
Test Report Issue date: 05.01.2025

METEROLOGICAL MONITORING REPORT FOR DECEMBER 2024

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist- Keonjhar , Odisha**
2. Monitoring Instruments : Automatic Weather Station (AWS)
3. Sampling Location : **DAV Public School**

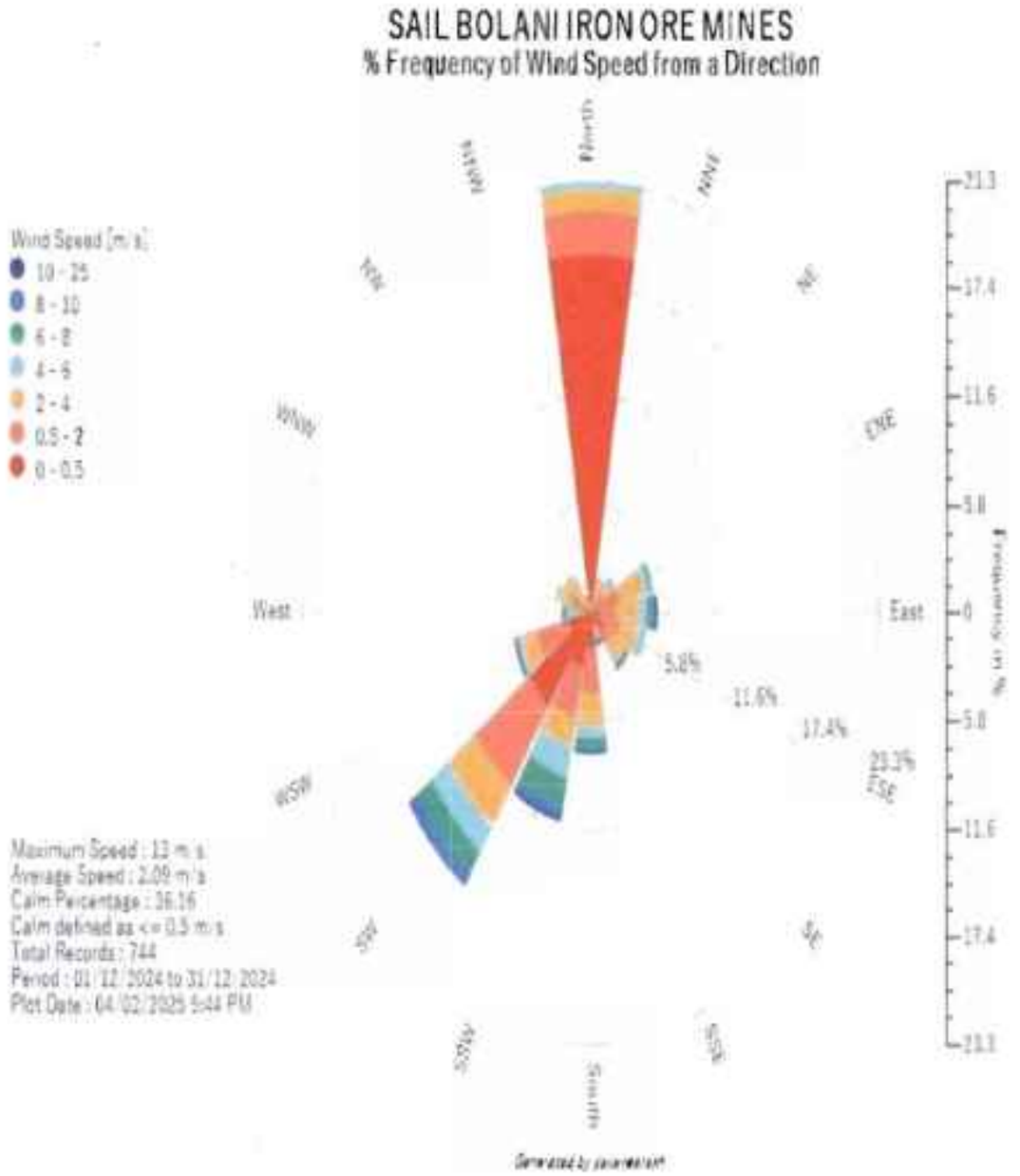
Date	Temperature (°C)		Relative Humidity (%)		Wind Speed (m/s)		Rainfall (mm)
	Max.	Min.	Max.	Min.	Max.	Min.	
01.12.2024	24.2	17.9	98.5	64.2	4.25	0	1
02.12.2024	25.6	19.2	98.5	59.8	4.25	0	0
03.12.2024	28.7	19.1	98.5	52	3.75	0	0
04.12.2024	32.3	17	98.5	37.9	5.50	0	0
05.12.2024	31	14.9	98.4	32.7	7.75	0	0
06.12.2024	30.7	15.8	98.4	39.2	9.00	0	0
07.12.2024	28.3	13.5	98.4	42.4	8.00	0	0
08.12.2024	27.4	14.9	98.5	53.7	3.75	0	0
09.12.2024	28.4	17.9	98.6	63.3	9.50	0	0
10.12.2024	27.6	15.1	98.5	42.6	6.75	0	0
11.12.2024	26.8	11.9	98.3	46.8	8.50	0	0
12.12.2024	28.4	10.7	98.2	34.1	10.50	0	0.2
13.12.2024	27.2	9.9	98.2	39	6.75	0	0
14.12.2024	26.7	9.1	98.1	37.4	7.25	0	0
15.12.2024	25.5	7.9	98.1	37.9	6.75	0	0
16.12.2024	25.2	7.7	98	34.9	8.50	0	0
17.12.2024	29	8.6	98	43	4.75	0	0
18.12.2024	27.3	16.7	85	55.7	3.50	0	0
19.12.2024	28.3	16.3	84.7	40.9	6.75	0	0
20.12.2024	29.4	14	89.2	35.3	7.25	0	0
21.12.2024	30.6	13.6	89.8	39	5.25	0	0
22.12.2024	32	14.2	89.1	35.4	4.50	0	0
23.12.2024	32.5	14.3	88.7	32.1	4.75	0	0
24.12.2024	33.5	13.5	87.5	30.3	3.75	0	0
25.12.2024	33.4	13.1	85.9	31.6	8.25	0	0
26.12.2024	32.7	14.5	85.9	35.5	6.00	0	0
27.12.2024	29.6	15.4	98.3	43.8	5.75	0	0
28.12.2024	29.7	15	98.4	48.6	8.75	0	0
29.12.2024	29.9	17.6	98.4	51.2	13.00	0	0
30.12.2024	29.4	15.5	98.4	46.6	8.00	0	0
31.12.2024	28	14.2	98.4	46.4	9.75	0	0

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Figure No.2: Wind Rose (24 hrly) During the Month of December' 2024

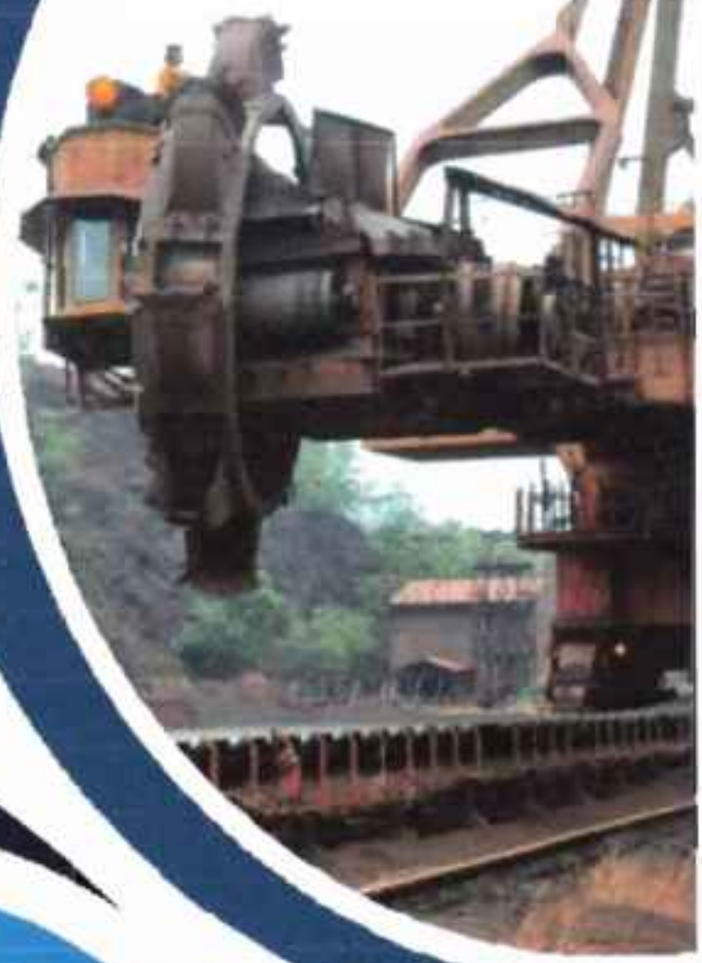


SAIL BOLANI
ORE MINES

ENVIRONMENTAL MONITORING

REPORT

JANUARY 2025



Presented By

Ecomen Mining Pvt.Ltd

1.0 PREAMBLE

Steel Authority of India Limited (***hereinafter termed as SAIL***), is a central public sector undertaking under the ownership of Ministry of Steel, Govt. of India has engaged M/s Ecomen Mining Pvt. Ltd., Lucknow, U.P. for carrying out various **Environmental Monitoring and Analysis Work** in its Bolani Ores Mines –RSP located in the district of Keonjhar.

M/s Ecomen Mining Pvt. Ltd. has obtained MoEF & CC Recognition, NABL Accreditation and SPCB, Odisha empanelment for its laboratory division and also a NABET Accredited consultant to carry out EIA/EMP Report for various sectors like Mining, Mineral Beneficiation, Coal Washery, Thermal Power Plant, Metallurgical Industry and Infrastructure & Building Projects etc.

Work Order issued by Bolani Ores Mines-RSP-SAIL vide No-CC/REV/284/2023-24 dated.11.01.2024 for Environmental Monitoring & Analysis Work includes monitoring & analysis of Air Environment, Water Environment, Land Environment such as Ambient Air Quality, Work Zone Air Quality, Water Quality, Waste Water Quality, Vehicular Emission and Soil Quality. This report presents the Environmental monitoring data collected from the core and buffer zone of Bolani Ores Mines in respect of following Environmental attributes during '**January-2025**' in the given frequency. Further, in compliance of condition no 6 (vi) of the EC Grant order vide J/11015/418/2008-IA.II(M) dated. 21.01.2012 and condition no 7 A(iii) of EC Grant order vide J/11015/396/2008-IA.II(M) dated. 21.01.2012the analysis of air quality monitoring data is done in this report with the objective to see the effectiveness of the mitigative measures already implemented.

Scope of the Work

The scope of work as per the work order for FY-2024-25 is as follows:

Table No. 1.1: Scope of Work

Sl. No.	Particulates	Frequency of monitoring	No. of Stations
1.	Sampling & Analyses for Ambient Air Quality(AAQ) for 5 Parameters i.e. PM 10, PM 2.5, SO_2,NO_x & CO	Daily	04
2.	Sampling & Analyses for Ambient Air Quality (AAQ) for 2 Parameters i.e. PM 10, PM 2.5	Daily	02
3.	Sampling & Analyses of Fugitive dust/Emission (SPM & RSPM)	Daily	10
4.	Sampling & Analyses of Surface/ effluent/ drinking water Quality for 21 parameter	Monthly	08
5.	Sampling and Analyses of ground water quality for 21 parameters	Quarterly	03
6.	Sampling and Analyses of Soil Samples for specified 9 parameters	Yearly	06
7.	Monitoring of weather/meteorological Parameters and continuous generation of data daily round the year by	Daily	01

	establishing online station round the clock throughout the Year		
8.	Smoke Density Monitoring of Vehicular Exhaust	Annually	09
9.	Ground water level Monitoring	Quarterly	03
10.	Nallah/River Flow rate Monitoring	Monthly	03

2.0 DETAILS OF MONITORING/SAMPLING STATIONS:

To carry out the Environmental Data Generation program, ECOMEN in due consultation with SAIL has identified different locations to collect the samples for Air & Water Environment in and around the mining lease area. The details of stations identified are as follows. The details of locations identified for monitoring different environmental parameters are given in the subsequent sections.

2.1 Ambient Air Quality (A)

The prime objective of the ambient air quality study is to establish the existing ambient air quality in and around the mining lease area. The existing ambient air quality was monitored at six (6) locations. Out of six (06) locations, monitoring was carried out for Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$), Sulphur Dioxide (SO_2), Oxides of Nitrogen (NO_x) as (NO_2) and Carbon Monoxide (CO) at (4) Location and monitoring of Particulate Matter (PM_{10}) and Particulate Matter ($PM_{2.5}$) was carried out at the rest two (2) Locations as per the guidelines stipulated by Central Pollution Control Board. The locations are as given below.

Table No. 2.1: Details of AAQ Monitoring Stations

Sl. No.	Station Details	ML	Frequency	Station Code	GPS Coordinates	
					Latitude	Longitude
Ambient Air Quality (AAQ) for 5 Parameters i.e. PM_{10}, $PM_{2.5}$, SO_2,NOx & CO						
1	Bolani Village Community Center	6.90	Daily	A1	22°5'34.13"N	85°19'33.43"E
2	DAV Public School	6.90		A2	22°7'7.37"N	85°20'16.61"E
3	Main Gate	5.10		A3	22°6'18.18"N	85°19'47.27"E
4	Bolani Mines Office complex	5.10		A4	22°6'23.84"N	85°19'45.40"E
Ambient Air Quality (AAQ) for 2 Parameters i.e. PM $_{10}$, PM $_{2.5}$						
5	Limtur Village	6.90		A5	22°7'35.14"N	85°21'10.46"E
6	Karo Guest House	6.90		A6	22°05'36.38"N	85°20'32.38"E

2.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring (F)

To assess the level of fugitive dust due to mining and allied activities, ten (10) monitoring stations were selected within the lease considering the activity area. Fugitive emissions monitoring was carried out on Daily Basis. The locations are as given below.

Table No. 2.2: Details of Fugitive Emission Monitoring Stations

Sl. No.	Station Details	ML	Frequency	Station Code	GPS Coordinates	
					Latitude	Longitude
1	Panposh	5.10	Daily	F1	22°6'41.46"N	85°19'41.60"E
2	D Area	5.10		F2	22°07'19.78"N	85°20'5.70"E
3	F Area	5.10		F3	22°05'45.19"N	85°18'21.95"E
4	G Area	5.10		F4	22°06'3.88"N	85°18'8.22"E
5	Lump Loading Point (near 600TPH)	6.90		F5	22°06'18.79"N	85°19'54.78"E
6	Fines Loading Plant	6.90		F6	22°05'51.01"N	85°19'45.79"E
7	Dump Fines handling route	6.90		F7	22°5'39.31"N	85°19'26.29"E
8	SSP	5.10		F8	22°06'13.80"N	85°19'12.52"E
9	Dump Fines Handling Site	5.10		F9	22°06'09.94"N	85°19'30.61"E
10	Mn Quarry	6.90		F10	22°07'23.56"N	85°21'8.86"E

2.3 Surface/Effluent/Drinking Water Quality:

In order to assess the quality of surface/effluent/drinking water, Eight (8) locations were identified in and around the ML area. Out of eight (8) locations, surface water was taken from four (4) locations, drinking water was taken from two (2) locations and effluent water was taken from two (2) locations. One grab sample was collected from each location in the month and was analyzed for 21 parameters as stipulated in the scope of work. The details of the locations are as follows:

Table No. 2.3: Details of Surface/Effluent/Drinking Water Quality Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
Surface Water Quality				
Panposh Nallah	Monthly Once	SWQ-1	22°6'31.68"N	85°19'34.41"E
Karo Near Lease Boundary		SWQ-2	22°7'26.27" N	85°21'52.95"E

Karo River Intake		SWQ-3	22°5.13.02' N	85°19'57.88"E
Jhikaria nallah before joining Karo		SWQ-4	22°5'22.50" N	85°19'10.05"E
Drinking Water Quality				
Mount Club Tap Water	Monthly Once	DW-1	22°6'56.24" N	85°19'58.21"E
Karo Guest House Tap Water		DW-2	22°5'36.68" N	85°20'32.09"E
Effluent Waste Water				
Oil Catch Pit Water Bottom Garage	Monthly Once	EWW-1	22°6'27.11" N	85°19'37.62"E
Oil Catch pit water G-Area		EWW-2	22°6'1.83"N	85°18'24.16"E

2.4 Ground Water Quality (GWQ)

In order to assess the quality of ground water, three (3) locations were identified in and around the mining lease area. One grab sample is collected from each location quarterly and analyzed for 21 parameters as stipulated in the scope of work. The details of the locations are as follows:

Table No. 2.4: Details of Ground Water Quality Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
Ground Water Quality				
Bolani Village-Well water	Quarterly	GWQ-1	22° 05' 27.20"N	85° 19'27.13"E
Bolani Gouda Basti-Well water		GWQ-2	22° 05'40.97"N	85° 20'2.45"E
Balagoda Village-Well water		GWQ-3	22° 05'57.02"N	85° 20'27.41"E

2.5 Weather/Meteorology

An Automatic Weather Monitoring Station (AWS) is installed at DAV Public School (22°7'7.85"N; 85°20'16.83"E) to collect the meteorological data on daily basis continuously. The parameters monitored at the meteorological station were Temperature, Relative Humidity, Wind Speed, Wind Direction and Rainfall. These parameters were recorded at weather monitoring station using the respective sensors.

Table No. 2.5: Details of Meteorological Monitoring Stations

Station Details	Frequency	Station Code	GPS Coordinates	
			Latitude	Longitude
DAV Public School	Daily Basis	M	22°7'7.85"N	85°20'16.83"E

Figure No.1: Location of Monitoring Station with ML Boundary

3.0 RESULTS AND DISCUSSION

3.1 Ambient Air Quality Monitoring

The Summarized results of AAQ for the month of January-2025 are given in the **Table below**

Table No. 3.1 (a): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	PM_{10}			$PM_{2.5}$		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Bolani Village Community center	A1	71.7	60.1	65.7	27.8	20.0	24.0
2.	Dav Public School	A2	67.0	55.5	62.3	26.5	19.3	23.0
3.	Main Gate	A3	75.5	65.3	71.0	30.9	23.0	27.4
4.	Bolani Mines Office Complex	A4	73.8	62.0	68.2	29.4	22.6	26.4
5.	Limtur Village	A5	58.30	50.20	53.35	18.70	12.30	15.39
6.	Karo Guest House	A6	63.80	55.30	59.70	21.70	15.30	18.40
CPCB Std.			100 µg/m³			60 µg/m³		

Table No. 3.1(b): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	SO_2			NO_x		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Bolani Village Community Center	A1	21.9	14.0	17.7	19.8	13.0	16.3
2.	Dav Public School	A2	23.8	16.3	20.1	21.6	15.1	18.4
3.	Main Gate	A3	23.7	15.1	19.6	20.7	14.2	17.7
4.	Bolani Mines Office Complex	A4	25.0	17.2	21.3	22.6	16.0	19.5
CPCB Std.			80 µg/m³			80 µg/m³		

BDL of $SO_2 \leq 4$ µg/m³, BDL of $NOx \leq 9$ µg/m³(No_x as No_2)

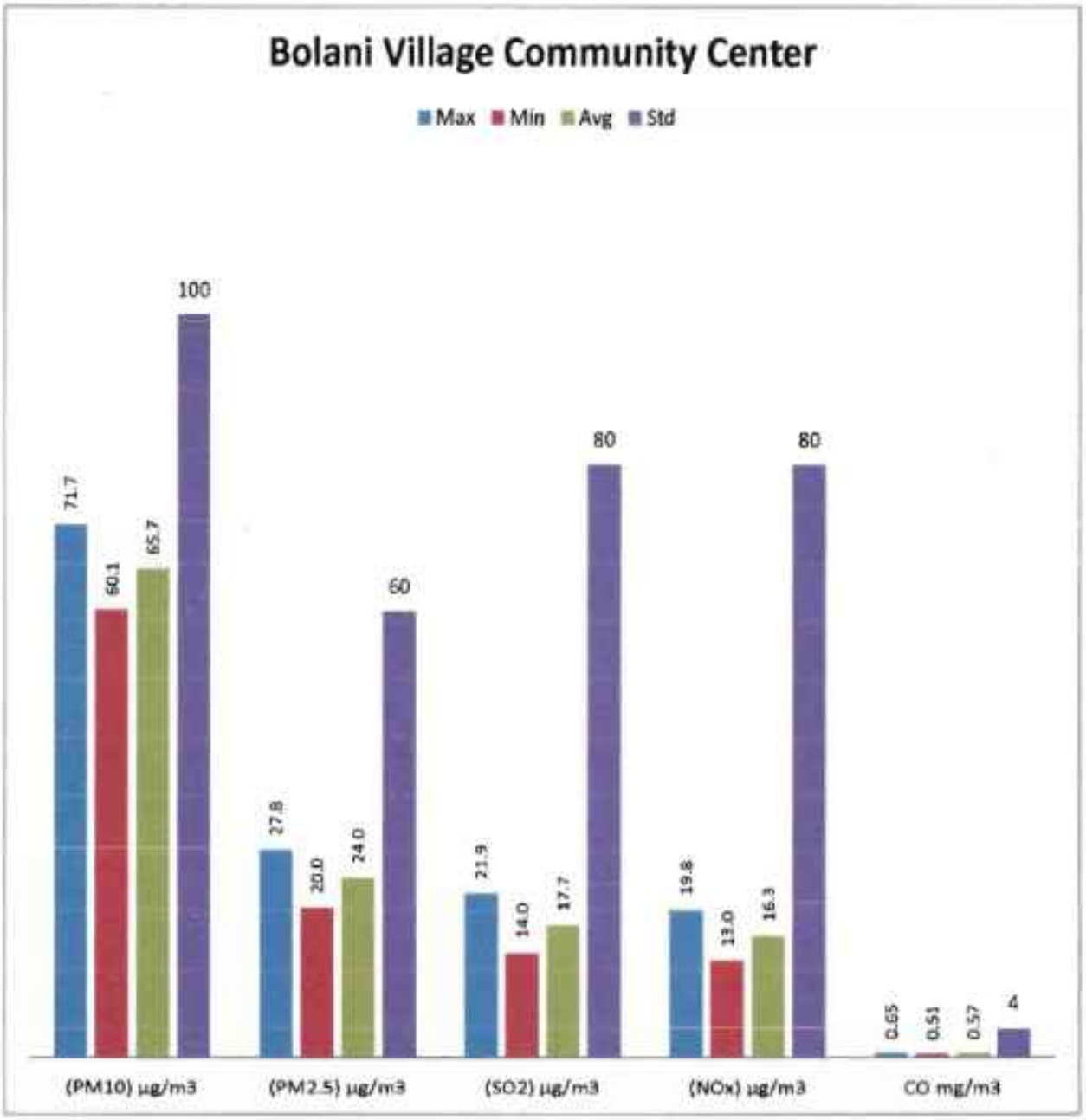
Table No. 3.1(c): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	CO		
			Max.	Min.	Avg.
1.	Bolani Village Community Center	A1	0.65	0.51	0.57
2.	Dav Public School	A2	0.68	0.54	0.61
3.	Main Gate	A3	0.67	0.52	0.60
4.	Bolani Mines Office Complex	A4	0.70	0.55	0.64
CPCB Std.			4 mg/m3		

Note: BDL value for CO-0.11 mg/m³

3.1.1 Bolani village Community Center (A1):

The pollution level in Bolani village Community Center for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **71.7** µg/m³ whereas minimum concentration was observed **60.1** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **20.0** µg/m³ to **27.8** µg/m³, SO_2 concentration ranges between **14.0** µg/m³ to **21.9** µg/m³, NO_x as (NO_2) concentration ranges between **13.0** µg/m³ to **19.8** µg/m³ and CO concentration ranges between **0.51** mg/m³ to **0.65** mg/m³ was observed during the month



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ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/73
Test Report Issue date: 05.02.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-1: Bolani village Community Center**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1	01.01.2025	71.4	24.2	21.9	16.9	0.62
2	02.01.2025	64.6	20.5	16.3	18.9	0.57
3	03.01.2025	64.7	26.0	16.1	14.9	0.52
4	04.01.2025	70.5	20.5	21.6	17.0	0.52
5	05.01.2025	65.2	25.9	15.6	17.8	0.55
6	06.01.2025	66.0	21.0	21.0	15.4	0.56
7	07.01.2025	67.6	20.6	19.1	19.6	0.63
8	08.01.2025	62.0	26.6	18.5	15.9	0.62
9	09.01.2025	63.0	26.5	18.0	17.1	0.64
10	10.01.2025	67.0	24.2	14.1	13.4	0.60
11	11.01.2025	63.1	25.4	20.1	13.5	0.56
12	12.01.2025	60.1	24.6	14.4	18.0	0.56
13	13.01.2025	67.9	24.9	15.6	19.3	0.64
14	14.01.2025	63.2	20.0	20.8	16.5	0.64
15	15.01.2025	60.5	25.7	17.0	18.8	0.53
16	16.01.2025	70.5	27.8	19.2	19.0	0.65
17	17.01.2025	71.7	24.5	21.1	13.9	0.56
18	18.01.2025	68.5	23.8	21.9	13.8	0.53
19	19.01.2025	68.3	25.0	15.1	19.5	0.53
20	20.01.2025	66.6	26.8	15.3	16.0	0.56
21	21.01.2025	60.4	23.8	15.4	15.1	0.61
22	22.01.2025	71.7	26.4	18.0	15.7	0.54
23	23.01.2025	67.6	24.3	14.8	13.7	0.51
24	24.01.2025	63.2	20.4	16.0	13.0	0.51
25	25.01.2025	66.0	26.5	21.0	14.5	0.53
26	26.01.2025	69.7	20.4	14.0	14.5	0.58
27	27.01.2025	64.8	25.3	19.2	13.7	0.51
28	28.01.2025	60.1	25.4	17.2	19.8	0.52
29	29.01.2025	64.2	22.9	17.6	18.4	0.53
30	30.01.2025	67.2	22.4	17.6	15.6	0.57
31	31.01.2025	60.1	22.5	14.3	16.8	0.58
Average		**65.7**	**24.0**	**17.7**	**16.3**	**0.57**

Note- No_x is Given as No_2

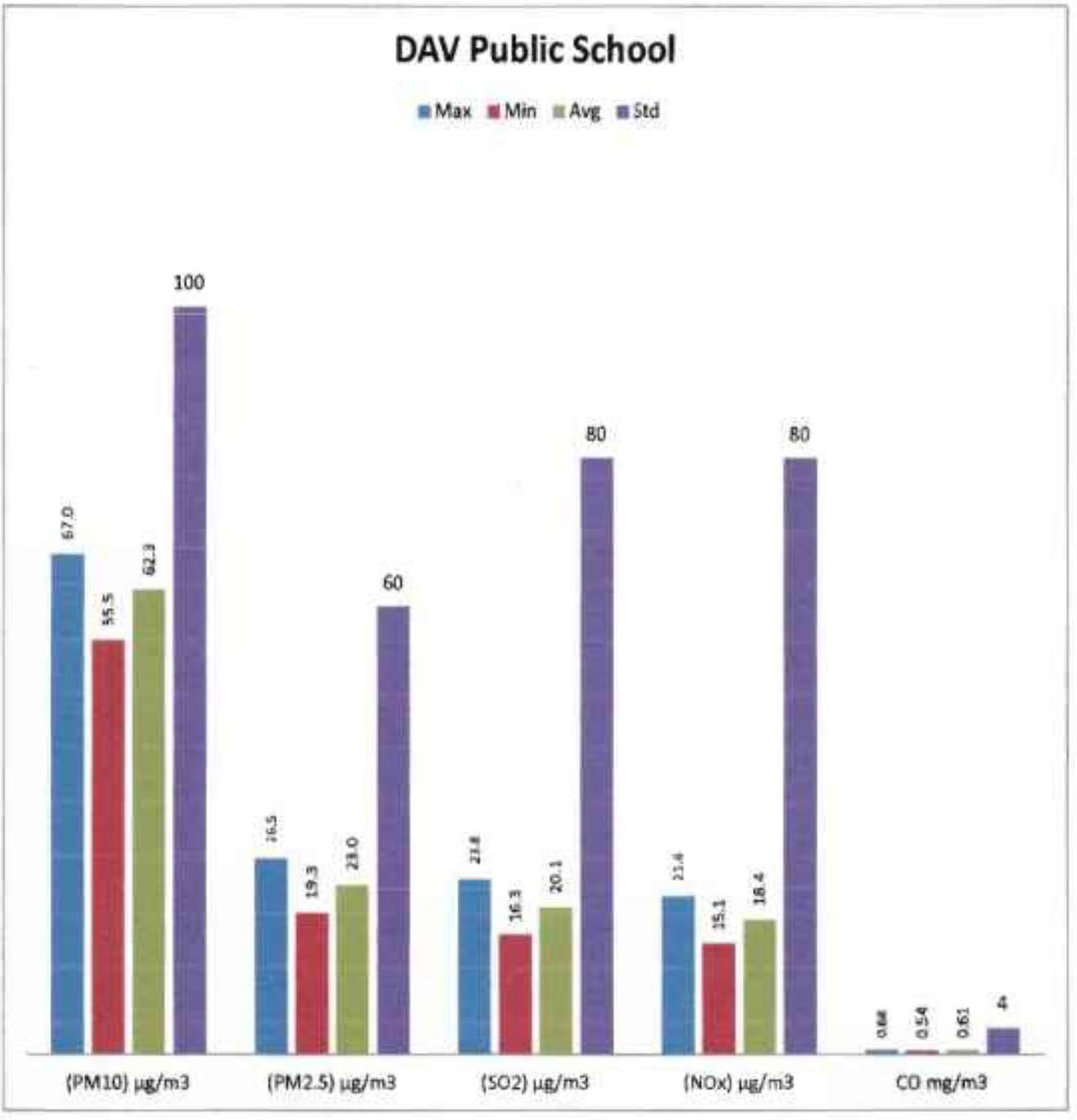
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.2 DAV Public School (A2):

The pollution level in DAV Public School for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **67.0** µg/m³ whereas minimum concentration was observed **55.5** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **19.3** µg/m³ to **26.5** µg/m³, SO_2 concentration ranges between **16.3** µg/m³to **23.8** µg/m³, NO_x as (NO_2) concentration ranges between **15.1** µg/m³ to **21.6** µg/m³ and CO concentration ranges between **0.54** mg/m³ to **0.68** mg/m³ was observed during the month



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ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/74
Test Report Issue date: 05.02.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited,**
   Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-2: DAV Public School**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1	01.01.2025	62.6	21.2	17.1	19.3	0.59
2	02.01.2025	55.8	20.7	16.4	17.5	0.54
3	03.01.2025	64.3	20.0	17.1	21.4	0.57
4	04.01.2025	67.0	25.1	23.3	19.3	0.58
5	05.01.2025	55.5	22.9	19.4	17.3	0.57
6	06.01.2025	65.5	19.6	22.6	21.0	0.68
7	07.01.2025	66.7	25.6	17.4	16.1	0.63
8	08.01.2025	59.7	26.3	23.6	19.0	0.64
9	09.01.2025	65.4	19.4	23.7	18.7	0.55
10	10.01.2025	58.2	20.6	20.3	16.3	0.66
11	11.01.2025	66.3	19.8	17.3	15.2	0.59
12	12.01.2025	58.3	26.0	21.3	21.6	0.59
13	13.01.2025	64.9	21.5	23.6	17.9	0.67
14	14.01.2025	60.3	24.0	16.3	15.5	0.60
15	15.01.2025	66.6	26.5	18.3	15.8	0.63
16	16.01.2025	57.5	24.7	18.4	16.9	0.54
17	17.01.2025	66.2	24.2	18.1	20.8	0.60
18	18.01.2025	58.9	22.4	23.8	20.4	0.67
19	19.01.2025	64.2	24.1	21.4	20.2	0.58
20	20.01.2025	65.0	21.0	22.8	18.5	0.60
21	21.01.2025	66.3	26.0	21.9	15.1	0.64
22	22.01.2025	64.6	22.3	16.6	18.2	0.65
23	23.01.2025	63.1	25.0	18.5	17.5	0.67
24	24.01.2025	57.4	25.0	22.3	17.2	0.64
25	25.01.2025	58.8	24.9	18.5	16.2	0.67
26	26.01.2025	65.3	20.1	20.0	19.5	0.65
27	27.01.2025	57.5	26.0	18.2	21.2	0.61
28	28.01.2025	59.3	21.6	19.6	18.8	0.56
29	29.01.2025	64.0	19.3	23.3	19.0	0.65
30	30.01.2025	63.6	22.7	21.7	21.5	0.61
31	31.01.2025	62.1	24.1	20.6	18.8	0.59
Average		**62.3**	**23.0**	**20.1**	**18.4**	**0.61**

Note- No_x is Given as No_2

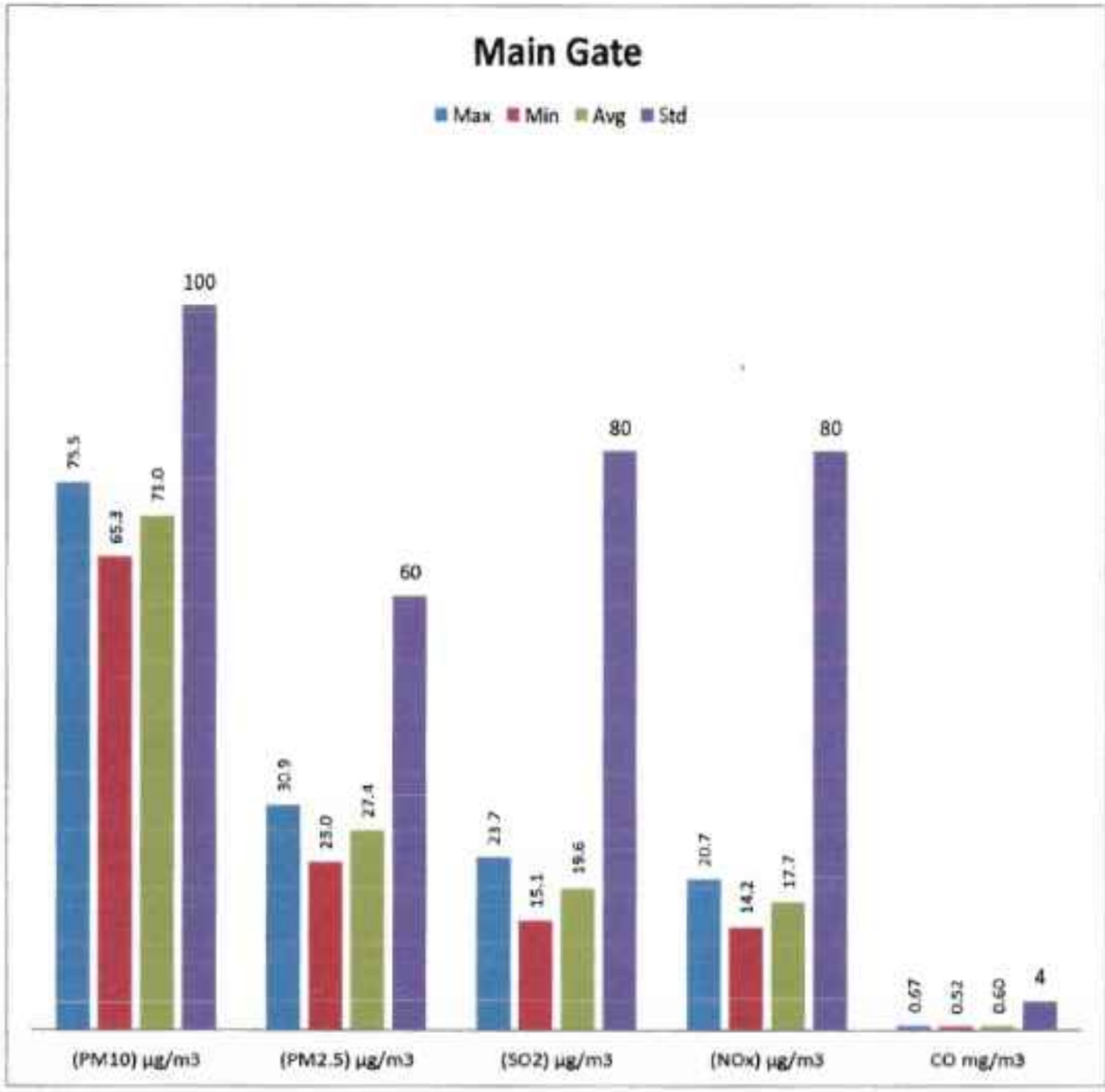
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.3 Main Gate (A3):

The pollution level in Main Gate for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **75.5** µg/m³ whereas minimum concentration was observed **65.3** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **23.0** µg/m³ to **30.9** µg/m³, SO_2 concentration ranges between **15.1** µg/m³to **23.7** µg/m³, NO_x as (NO_2) concentration ranges between **14.2** µg/m³ to **20.7** µg/m³ and CO concentration ranges between **0.52** mg/m³ to **0.67** mg/m³ was observed during the month



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/75
Test Report Issue date: 05.02.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-3: Main Gate**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1	01.01.2025	72.5	30.6	23.4	18.4	0.54
2	02.01.2025	70.8	23.1	20.5	20.1	0.65
3	03.01.2025	66.2	27.7	22.4	15.7	0.67
4	04.01.2025	67.9	24.7	15.2	14.3	0.59
5	05.01.2025	66.1	28.6	18.1	19.1	0.53
6	06.01.2025	73.4	28.6	18.3	17.5	0.55
7	07.01.2025	72.6	24.0	19.7	20.5	0.55
8	08.01.2025	72.4	24.8	15.9	17.4	0.64
9	09.01.2025	73.1	26.2	22.6	19.5	0.63
10	10.01.2025	68.1	25.2	20.0	17.0	0.58
11	11.01.2025	65.3	28.9	18.8	18.9	0.65
12	12.01.2025	75.0	28.4	21.2	16.9	0.66
13	13.01.2025	70.7	24.5	23.5	14.4	0.53
14	14.01.2025	67.0	27.5	21.9	18.0	0.64
15	15.01.2025	74.4	23.0	20.8	16.1	0.55
16	16.01.2025	74.6	30.1	22.2	18.6	0.65
17	17.01.2025	67.4	30.2	18.3	17.4	0.54
18	18.01.2025	73.6	23.8	15.7	19.1	0.58
19	19.01.2025	69.1	29.2	18.1	14.6	0.67
20	20.01.2025	74.2	29.5	15.1	16.6	0.62
21	21.01.2025	75.2	29.8	21.6	17.6	0.66
22	22.01.2025	69.0	25.0	23.7	19.1	0.63
23	23.01.2025	70.7	27.0	20.8	19.6	0.67
24	24.01.2025	67.0	27.6	15.5	19.7	0.60
25	25.01.2025	67.6	30.7	16.4	20.1	0.55
26	26.01.2025	73.3	26.5	15.3	14.3	0.53
27	27.01.2025	71.2	28.6	21.4	16.7	0.59
28	28.01.2025	75.5	29.2	20.1	20.7	0.58
29	29.01.2025	74.8	30.0	20.5	14.2	0.53
30	30.01.2025	72.4	30.9	22.5	18.2	0.52
31	31.01.2025	70.8	25.5	17.2	17.8	0.58
Average		**71.0**	**27.4**	**19.6**	**17.7**	**0.60**

Note- No, is Given as No_2

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/76
Test Report Issue date: 05.02.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-4: Bolani Mines Office Complex**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³	Sulphur Di-oxide (SO_2) µg/m³	Nitrogen Oxides (NO_x) µg/m³	Carbon mono-oxides as CO mg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-10)
Limits of Detection		10-1000	10-1000	5-200	5-200	0.1-100
Limit as per National Ambient Air Quality Standards		100	60	80	80	4
S. No.	Sampling Date	Results				
1	01.01.2025	62.0	27.3	17.7	17.6	0.67
2	02.01.2025	73.1	25.9	24.7	19.9	0.67
3	03.01.2025	69.1	28.6	17.7	19.9	0.70
4	04.01.2025	72.7	24.4	17.2	20.1	0.59
5	05.01.2025	64.0	29.1	24.8	19.7	0.69
6	06.01.2025	62.8	29.1	22.0	16.7	0.65
7	07.01.2025	68.1	29.1	17.2	16.5	0.70
8	08.01.2025	70.8	22.6	24.0	19.2	0.66
9	09.01.2025	73.8	23.6	22.9	18.4	0.58
10	10.01.2025	66.1	25.6	19.5	22.6	0.65
11	11.01.2025	62.6	26.7	23.8	16.0	0.57
12	12.01.2025	67.8	23.3	20.7	19.8	0.58
13	13.01.2025	68.8	25.7	22.9	22.0	0.58
14	14.01.2025	73.8	24.7	22.1	17.7	0.68
15	15.01.2025	67.4	27.6	23.8	19.1	0.55
16	16.01.2025	70.5	25.2	20.0	20.3	0.65
17	17.01.2025	66.2	27.0	24.8	22.1	0.54
18	18.01.2025	67.4	29.4	19.1	18.6	0.55
19	19.01.2025	63.3	26.5	21.2	21.0	0.61
20	20.01.2025	67.5	28.3	25.0	17.9	0.69
21	21.01.2025	70.7	27.2	21.9	21.6	0.65
22	22.01.2025	69.3	25.0	22.2	20.2	0.61
23	23.01.2025	68.4	29.4	18.5	19.7	0.64
24	24.01.2025	73.4	23.0	23.5	22.2	0.67
25	25.01.2025	67.7	26.3	20.4	22.3	0.70
26	26.01.2025	67.0	26.0	20.1	20.9	0.63
27	27.01.2025	63.1	24.8	24.5	21.2	0.64
28	28.01.2025	63.1	27.0	21.9	18.1	0.61
29	29.01.2025	73.0	25.6	19.7	17.2	0.70
30	30.01.2025	70.0	25.4	18.8	18.5	0.70
31	31.01.2025	72.2	28.7	17.3	17.9	0.63
Average		**68.2**	**26.4**	**21.3**	**19.5**	**0.64**

Note- No, is Given as NO_2

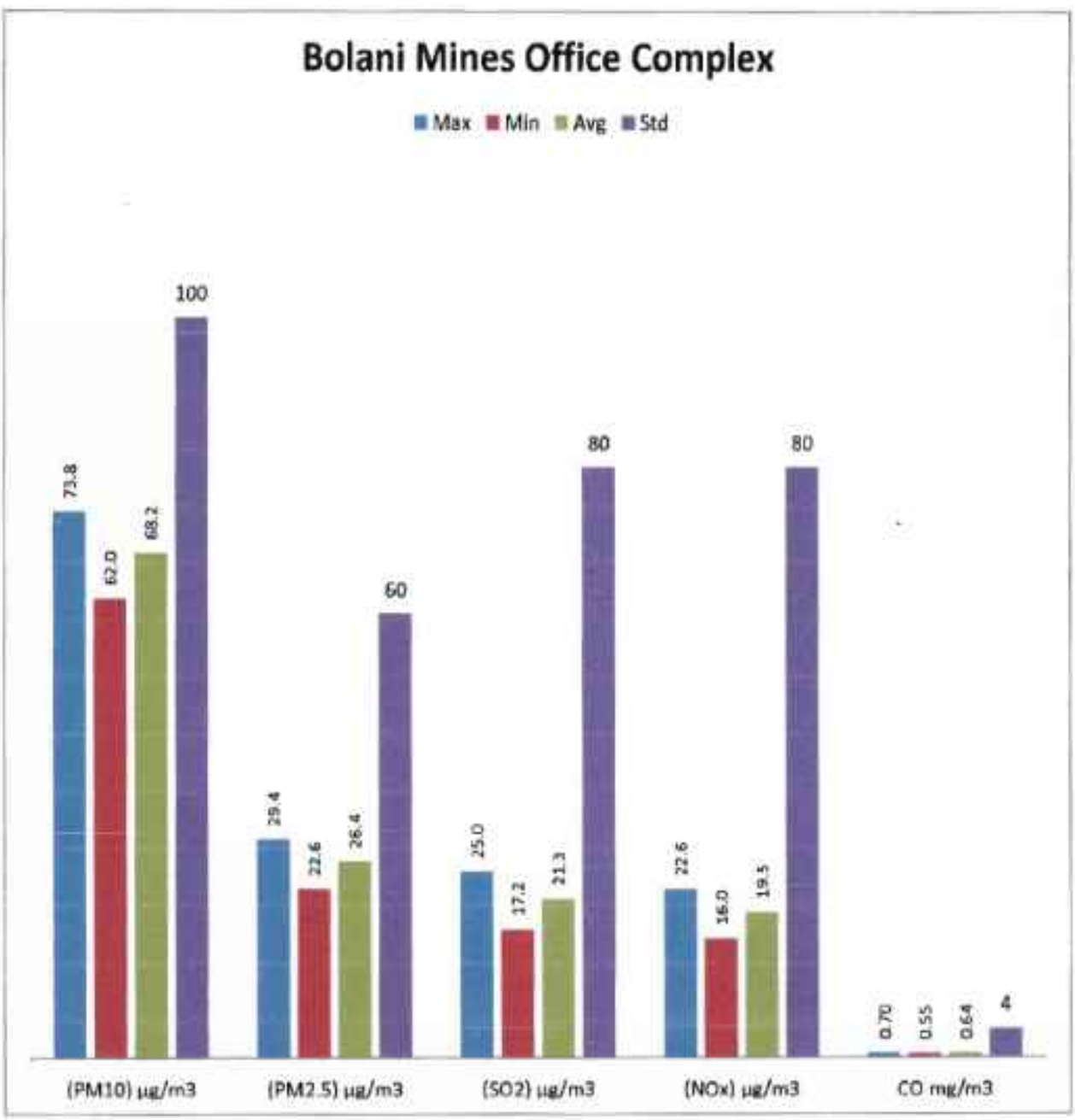
---End of Report---

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.4 Bolani Mines Office Complex (A4):

The pollution level in Bolani Mines Office Complex for the parameters PM_{10}, $PM_{2.5}$, SO_2, NO_x & CO is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **73.8** $\mu g/m^3$ whereas minimum concentration was observed **62.0** $\mu g/m^3$ during the month. $PM_{2.5}$ concentration ranges between **22.6** $\mu g/m^3$ to **29.4** $\mu g/m^3$, SO_2 concentration ranges between **17.2** $\mu g/m^3$to **25.0** $\mu g/m^3$, NO_x as (NO_2) concentration ranges between **16.0** $\mu g/m^3$ to **22.6** $\mu g/m^3$ and CO concentration ranges between **0.55** mg/m^3 to **0.70** mg/m^3 was observed during the month



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1969PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/77
Test Report Issue date: 05.02.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-5: Limtur Village**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)
Limits of Detection		10-1000	10-1000
Limit as per National Ambient Air Quality Standards		100	60
S. No.	Sampling Date	Result	
1	01.01.2025	50.5	17.0
2	02.01.2025	51.7	14.0
3	03.01.2025	51.2	14.1
4	04.01.2025	56.0	12.7
5	05.01.2025	52.4	14.8
6	06.01.2025	54.7	17.4
7	07.01.2025	50.7	16.9
8	08.01.2025	50.9	16.7
9	09.01.2025	55.2	13.0
10	10.01.2025	51.8	15.2
11	11.01.2025	56.5	17.4
12	12.01.2025	54.0	17.8
13	13.01.2025	54.4	15.2
14	14.01.2025	52.5	12.6
15	15.01.2025	57.8	18.2
16	16.01.2025	51.2	12.9
17	17.01.2025	54.6	17.4
18	18.01.2025	58.3	12.3
19	19.01.2025	52.6	16.3
20	20.01.2025	53.8	18.7
21	21.01.2025	51.6	14.5
22	22.01.2025	53.2	13.2
23	23.01.2025	51.1	18.5
24	24.01.2025	53.2	16.2
25	25.01.2025	50.9	15.3
26	26.01.2025	50.2	16.4
27	27.01.2025	51.1	15.4
28	28.01.2025	55.3	13.6
29	29.01.2025	52.5	12.8
30	30.01.2025	57.1	15.7
31	31.01.2025	56.8	15.0
Average		**53.4**	**15.4**

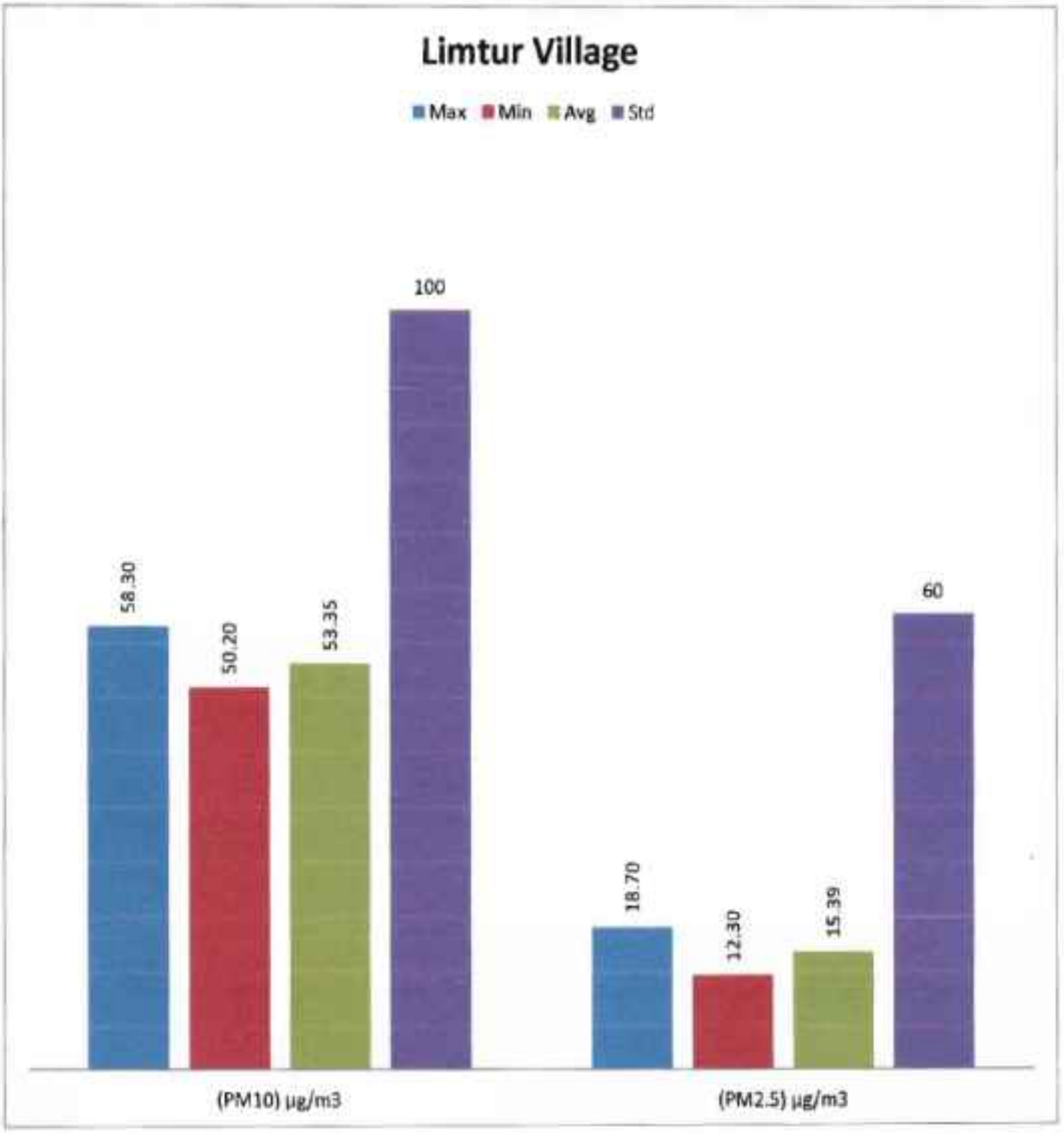
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.5 Limtur Village (A5):

The pollution level in Limtur Village for the parameters PM_{10} and $PM_{2.5}$ is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **58.30** µg/m³ whereas minimum concentration was observed **50.20** µg/m³ and $PM_{2.5}$ concentration ranges between **12.30** µg/m³ to **18.70** µg/m³ during the month.



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZJ

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Test Report No: ECO/BOM/AAQ/78
Test Report Issue date: 05.02.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer (NDIR)
3. Sampling Location : **AAQMS-6: Karo Guest House**
4. Sample collected by : EMPL representative in presence of Client's representative.

Parameters		Particulate Matter (PM_{10}) µg/m³	Particulate Matter ($PM_{2.5}$) µg/m³
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)
Limits of Detection		10-1000	10-1000
Limit as per National Ambient Air Quality Standards		100	60
S. No.	Sampling Date	Result	
1	01.01.2025	56.3	17.2
2	02.01.2025	57.5	15.7
3	03.01.2025	62.9	20.1
4	04.01.2025	58.1	21.6
5	05.01.2025	62.8	21.5
6	06.01.2025	61.7	19.5
7	07.01.2025	63.6	21.1
8	08.01.2025	61.9	17.2
9	09.01.2025	60.9	18.5
10	10.01.2025	59.7	16.1
11	11.01.2025	55.6	15.3
12	12.01.2025	57.1	18.4
13	13.01.2025	59.6	19.5
14	14.01.2025	59.0	20.8
15	15.01.2025	63.4	17.1
16	16.01.2025	58.9	20.6
17	17.01.2025	59.1	17.4
18	18.01.2025	55.3	20.0
19	19.01.2025	59.6	21.7
20	20.01.2025	57.3	16.0
21	21.01.2025	61.6	19.7
22	22.01.2025	63.8	16.1
23	23.01.2025	59.5	17.5
24	24.01.2025	55.7	16.5
25	25.01.2025	62.7	16.9
26	26.01.2025	55.3	18.8
27	27.01.2025	58.8	16.4
28	28.01.2025	59.2	17.3
29	29.01.2025	62.0	18.6
30	30.01.2025	63.5	21.0
31	31.01.2025	58.4	16.2
Average		**59.7**	**18.4**

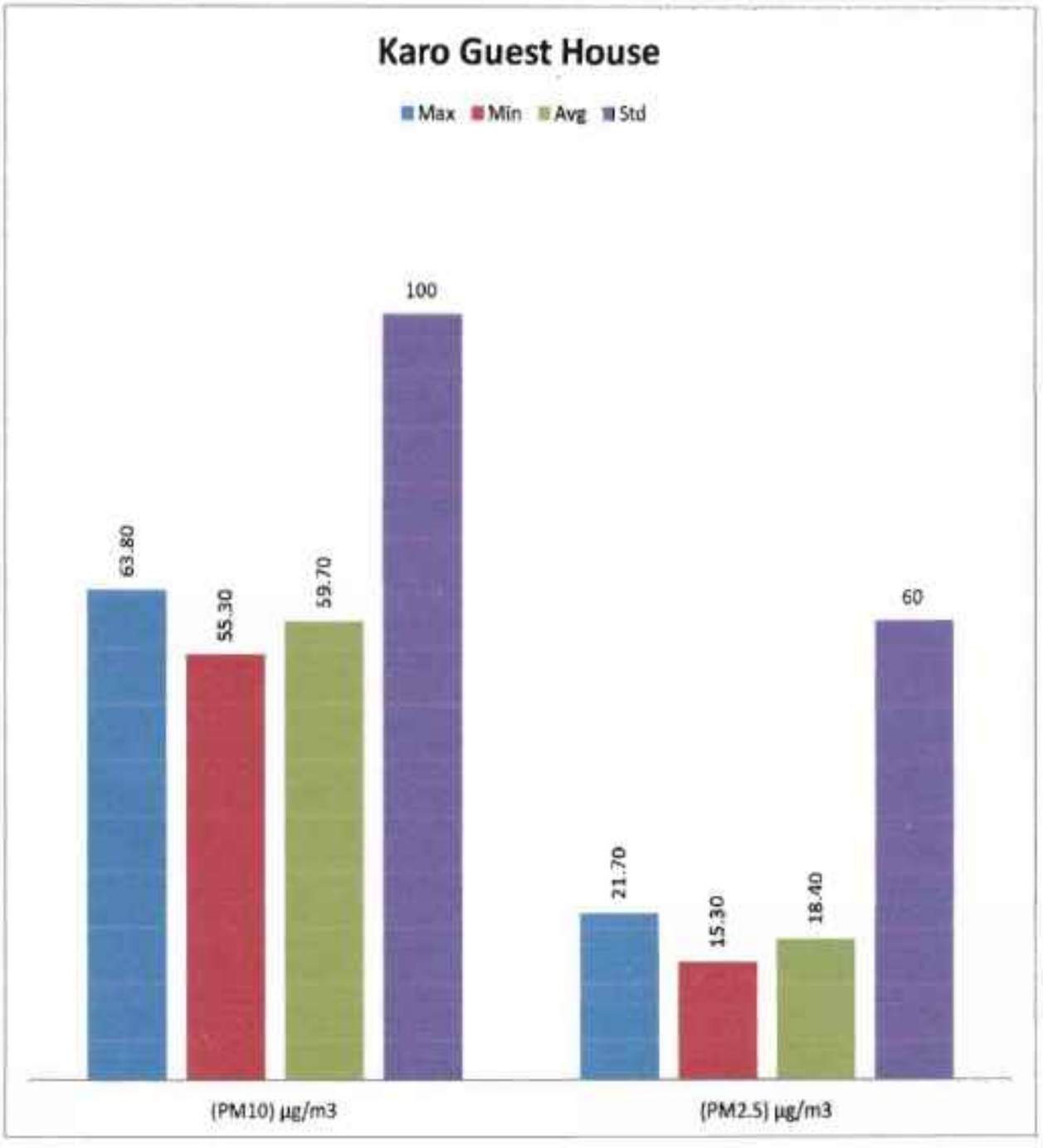
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.1.6 Karo Guest House (A6):

The pollution level in Karo Guest House for the parameters PM_{10} and $PM_{2.5}$ is within the stipulated norms of CPCB. The maximum concentration of PM_{10} was observed **63.80** µg/m³ whereas minimum concentration was observed **55.30** µg/m³ and $PM_{2.5}$ concentration ranges between **15.30** µg/m³ to **27.70** µg/m³ during the month.



3.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring:

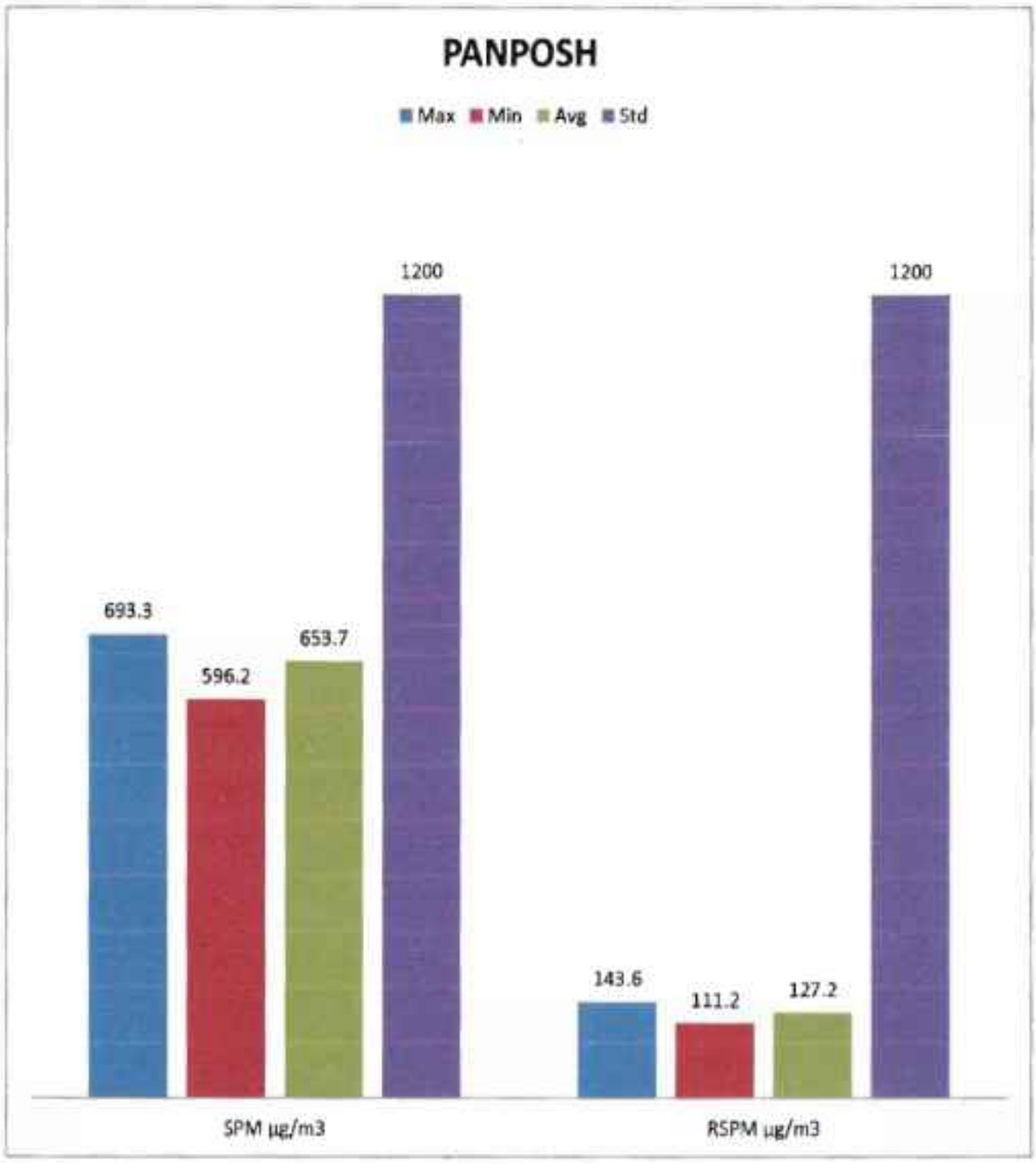
The Summarized results of Work Zone Air Quality/Fugitive Dust Emission for the month of January-2025 are given in the **Table below**

Table No. 3.2: Summarized Results of Work Zone Air Quality/Fugitive Dust Emission

Sl. No.	Location Name	Station Code	SPM µg/m3			RSPM µg/m3		
			Max.	Min.	Avg.	Max.	Min	Avg.
1.	Panposh	F1	693.3	596.2	653.7	143.6	111.2	127.2
2.	D Area	F2	685.9	597.2	639.0	139.9	109.5	123.2
3.	F Area	F3	692.4	600.6	649.4	141.6	111.9	126.0
4.	G Area	F4	679.8	596.3	628.7	133.4	109.9	121.9
5.	Lump Loading Point (near 600TPH)	F5	692.7	598.6	649.8	137.4	108.6	125.4
6.	Fines Loading Plant	F6	694.7	595.5	654.4	142.7	113.3	126.4
7.	Dump Fines handling route	F7	690.1	595.5	645.6	141.1	117.5	127.8
8.	SSP	F8	693.6	595.1	643.5	141.6	109.0	123.9
9.	Dump Fines Handling Site	F9	691.5	595.2	643.2	137.2	112.1	126.5
10.	Mn Quarry	F10	695.3	599.3	659.1	145.4	108.2	127.7
As Per CTO Std.			**1200 µg/m³**					

3.2.1 Panposh (F1):

The pollution level in Panposh Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **693.3** µg/m³ whereas minimum concentration was observed **596.2** µg/m³ and RSPM concentration ranges between **111.2** µg/m³ to **143.6** µg/m³ during the month.



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

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Test Report No: ECO/BOM/FUG/101
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited,**
   Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Panposh**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	Panposh	661.4	136.9
2.	02-01-2025	Panposh	664.8	121.9
3.	03-01-2025	Panposh	655.4	135.1
4.	04-01-2025	Panposh	660.9	119.2
5.	05-01-2025	Panposh	625.2	114.8
6.	06-01-2025	Panposh	623.1	125.3
7.	07-01-2025	Panposh	675.3	128.3
8.	08-01-2025	Panposh	645.7	117.2
9.	09-01-2025	Panposh	668.4	138.8
10.	10-01-2025	Panposh	692.8	139.4
11.	11-01-2025	Panposh	657.3	121.2
12.	12-01-2025	Panposh	683.3	128.7
13.	13-01-2025	Panposh	671.6	122.0
14.	14-01-2025	Panposh	606.9	111.2
15.	15-01-2025	Panposh	638.1	118.4
16.	16-01-2025	Panposh	657.7	125.4
17.	17-01-2025	Panposh	621.1	125.9
18.	18-01-2025	Panposh	621.5	127.6
19.	19-01-2025	Panposh	689.3	127.0
20.	20-01-2025	Panposh	686.2	143.6
21.	21-01-2025	Panposh	693.3	143.5
22.	22-01-2025	Panposh	596.2	122.6
23.	23-01-2025	Panposh	619.4	127.1
24.	24-01-2025	Panposh	680.9	138.2
25.	25-01-2025	Panposh	599.0	118.4
26.	26-01-2025	Panposh	649.4	128.9
27.	27-01-2025	Panposh	669.7	131.9
28.	28-01-2025	Panposh	680.6	125.2
29.	29-01-2025	Panposh	615.5	126.9
30.	30-01-2025	Panposh	671.1	127.4
31.	31-01-2025	Panposh	683.5	126.6
Average			**653.7**	**127.2**

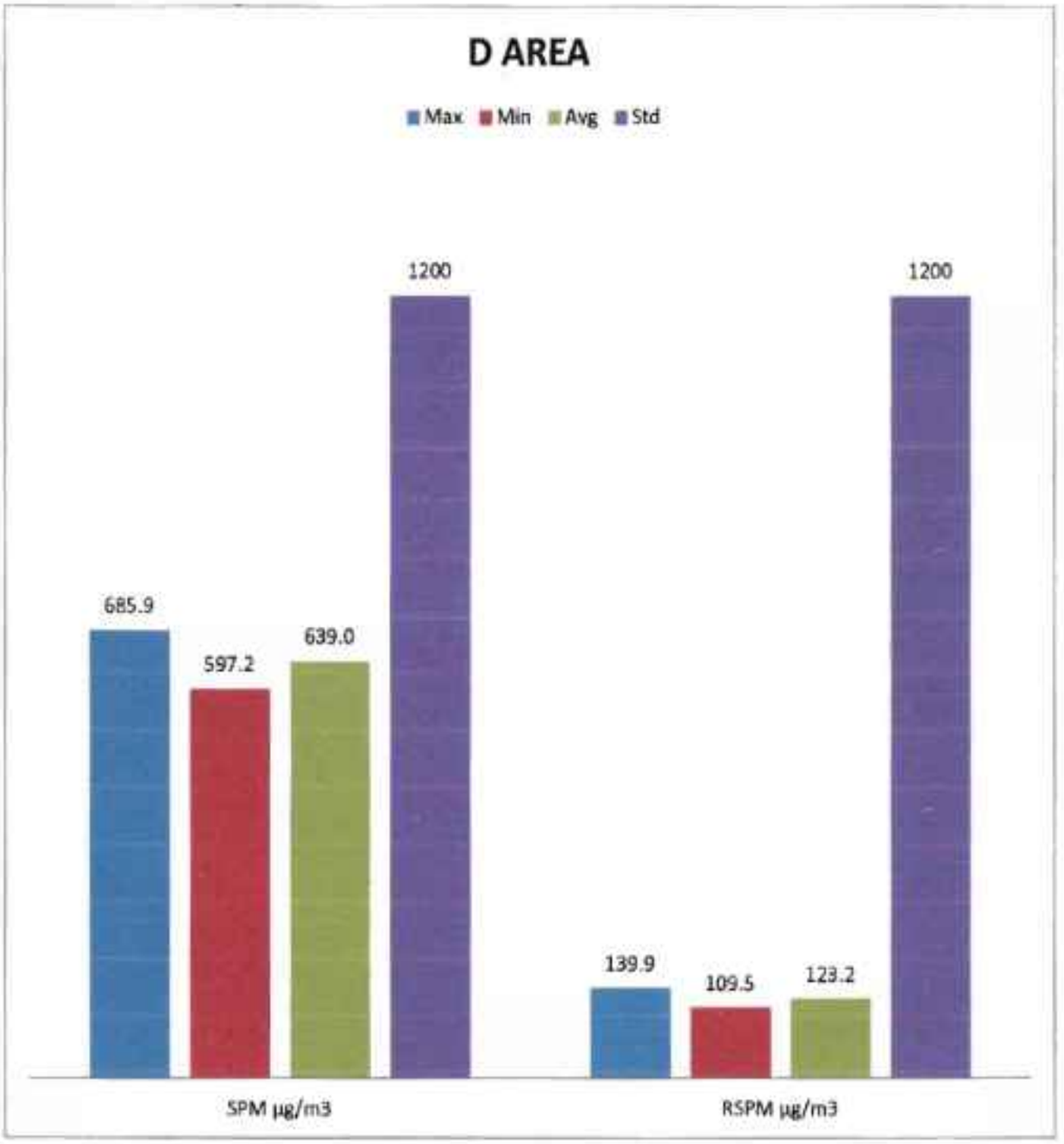
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.2 D Area(F2)

The pollution level in D Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **685.9** µg/m³ whereas minimum concentration was observed **597.2** µg/m³ and RSPM concentration ranges between **109.5** µg/m³ to **139.9** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746252
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

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Test Report No: ECO/BOM/FUG/102
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **D Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	D Area	685.9	130.1
2.	02-01-2025	D Area	679.4	126.5
3.	03-01-2025	D Area	681.2	131.9
4.	04-01-2025	D Area	607.2	113.7
5.	05-01-2025	D Area	606.1	124.8
6.	06-01-2025	D Area	597.2	122.6
7.	07-01-2025	D Area	630.2	118.3
8.	08-01-2025	D Area	641.6	128.4
9.	09-01-2025	D Area	667.8	135.9
10.	10-01-2025	D Area	643.7	120.8
11.	11-01-2025	D Area	606.5	111.5
12.	12-01-2025	D Area	665.9	122.3
13.	13-01-2025	D Area	613.4	117.7
14.	14-01-2025	D Area	633.8	128.7
15.	15-01-2025	D Area	667.5	139.9
16.	16-01-2025	D Area	652.3	125.8
17.	17-01-2025	D Area	597.2	109.5
18.	18-01-2025	D Area	661.9	120.4
19.	19-01-2025	D Area	681.1	131.0
20.	20-01-2025	D Area	616.5	115.9
21.	21-01-2025	D Area	632.9	128.9
22.	22-01-2025	D Area	644.6	126.5
23.	23-01-2025	D Area	597.3	110.4
24.	24-01-2025	D Area	611.9	117.0
25.	25-01-2025	D Area	673.4	131.5
26.	26-01-2025	D Area	652.8	123.9
27.	27-01-2025	D Area	616.7	112.0
28.	28-01-2025	D Area	655.6	122.4
29.	29-01-2025	D Area	674.4	128.1
30.	30-01-2025	D Area	611.2	119.8
31.	31-01.2025	D Area	602.1	122.0
Average			**639.0**	**123.2**

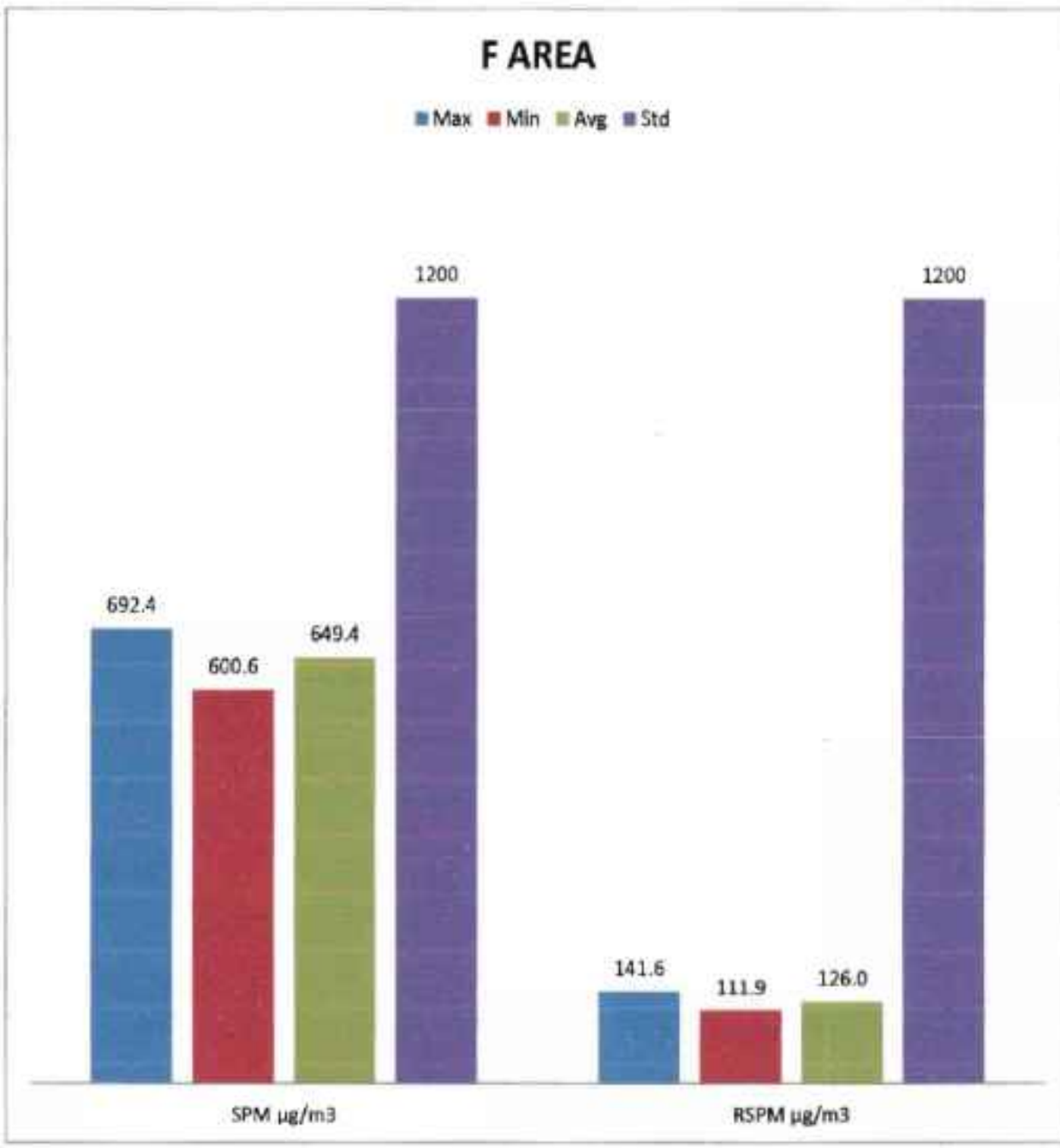
---End of Report---

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.3 F Area(F3)

The pollution level in F Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **692.4** µg/m³ whereas minimum concentration was observed **600.6** µg/m³ and RSPM concentration ranges between **111.9** µg/m³ to **141.6** µg/m³ during the month



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE5076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/103
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **F Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	F Area	642.9	127.8
2.	02-01-2025	F Area	621.7	118.4
3.	03-01-2025	F Area	660.0	130.8
4.	04-01-2025	F Area	646.3	123.7
5.	05-01-2025	F Area	622.4	112.9
6.	06-01-2025	F Area	615.5	114.6
7.	07-01-2025	F Area	679.4	123.5
8.	08-01-2025	F Area	676.2	134.8
9.	09-01-2025	F Area	664.4	139.3
10.	10-01-2025	F Area	681.4	137.1
11.	11-01-2025	F Area	666.7	126.8
12.	12-01-2025	F Area	656.1	124.4
13.	13-01-2025	F Area	617.3	120.3
14.	14-01-2025	F Area	685.4	125.1
15.	15-01-2025	F Area	606.5	120.8
16.	16-01-2025	F Area	606.2	122.1
17.	17-01-2025	F Area	684.7	135.3
18.	18-01-2025	F Area	692.4	140.0
19.	19-01-2025	F Area	691.1	141.6
20.	20-01-2025	F Area	681.7	129.1
21.	21-01-2025	F Area	679.3	124.9
22.	22-01-2025	F Area	604.8	122.7
23.	23-01-2025	F Area	682.0	132.3
24.	24-01-2025	F Area	641.4	117.2
25.	25-01-2025	F Area	619.4	121.9
26.	26-01-2025	F Area	635.7	117.2
27.	27-01-2025	F Area	671.4	131.2
28.	28-01-2025	F Area	606.8	111.9
29.	29-01-2025	F Area	600.6	117.3
30.	30-01-2025	F Area	613.3	123.8
31.	31-01-2025	F Area	679.9	136.5
Average			**649.5**	**126.0**

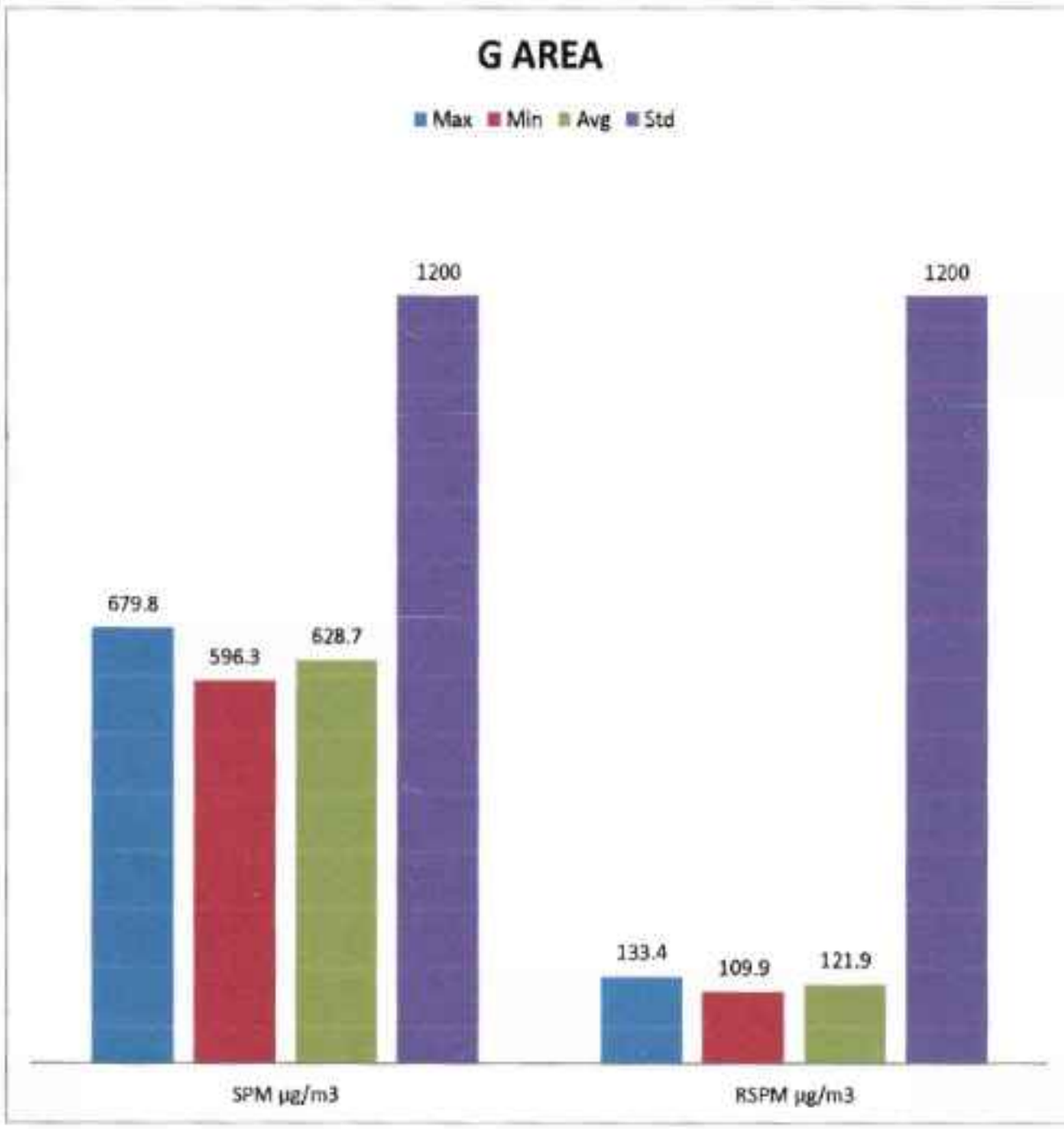
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.4 G Area(F4)

The pollution level in G Area Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **679.8** µg/m³ whereas minimum concentration was observed **596.3** µg/m³ and RSPM concentration ranges between **109.9** µg/m³ to **133.4** µg/m³ during the month



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZJ

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/104
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines, At/P.O: Bolani, Dist. Keonjhar, Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **G Area**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	G Area	666.7	122.4
2.	02-01-2025	G Area	666.9	131.3
3.	03-01-2025	G Area	678.4	133.4
4.	04-01-2025	G Area	678.2	124.6
5.	05-01-2025	G Area	596.3	123.5
6.	06-01-2025	G Area	614.9	114.5
7.	07-01-2025	G Area	661.0	124.6
8.	08-01-2025	G Area	614.8	121.1
9.	09-01-2025	G Area	643.3	130.0
10.	10-01-2025	G Area	598.9	118.7
11.	11-01-2025	G Area	623.1	125.3
12.	12-01-2025	G Area	608.3	121.7
13.	13-01-2025	G Area	616.6	122.1
14.	14-01-2025	G Area	601.8	113.2
15.	15-01-2025	G Area	619.2	126.1
16.	16-01-2025	G Area	610.9	118.6
17.	17-01-2025	G Area	606.3	111.8
18.	18-01-2025	G Area	612.0	119.2
19.	19-01-2025	G Area	603.6	109.9
20.	20-01-2025	G Area	666.9	130.5
21.	21-01-2025	G Area	616.2	123.6
22.	22-01-2025	G Area	601.6	121.1
23.	23-01-2025	G Area	612.6	124.9
24.	24-01-2025	G Area	653.0	120.8
25.	25-01-2025	G Area	610.7	119.3
26.	26-01-2025	G Area	624.4	117.8
27.	27-01-2025	G Area	607.0	114.0
28.	28-01-2025	G Area	598.6	115.2
29.	29-01-2025	G Area	647.4	122.5
30.	30-01-2025	G Area	679.8	128.9
31.	31-01-2025	G Area	651.6	126.9
Average			**628.7**	**121.9**

----End of Report----

Verified By

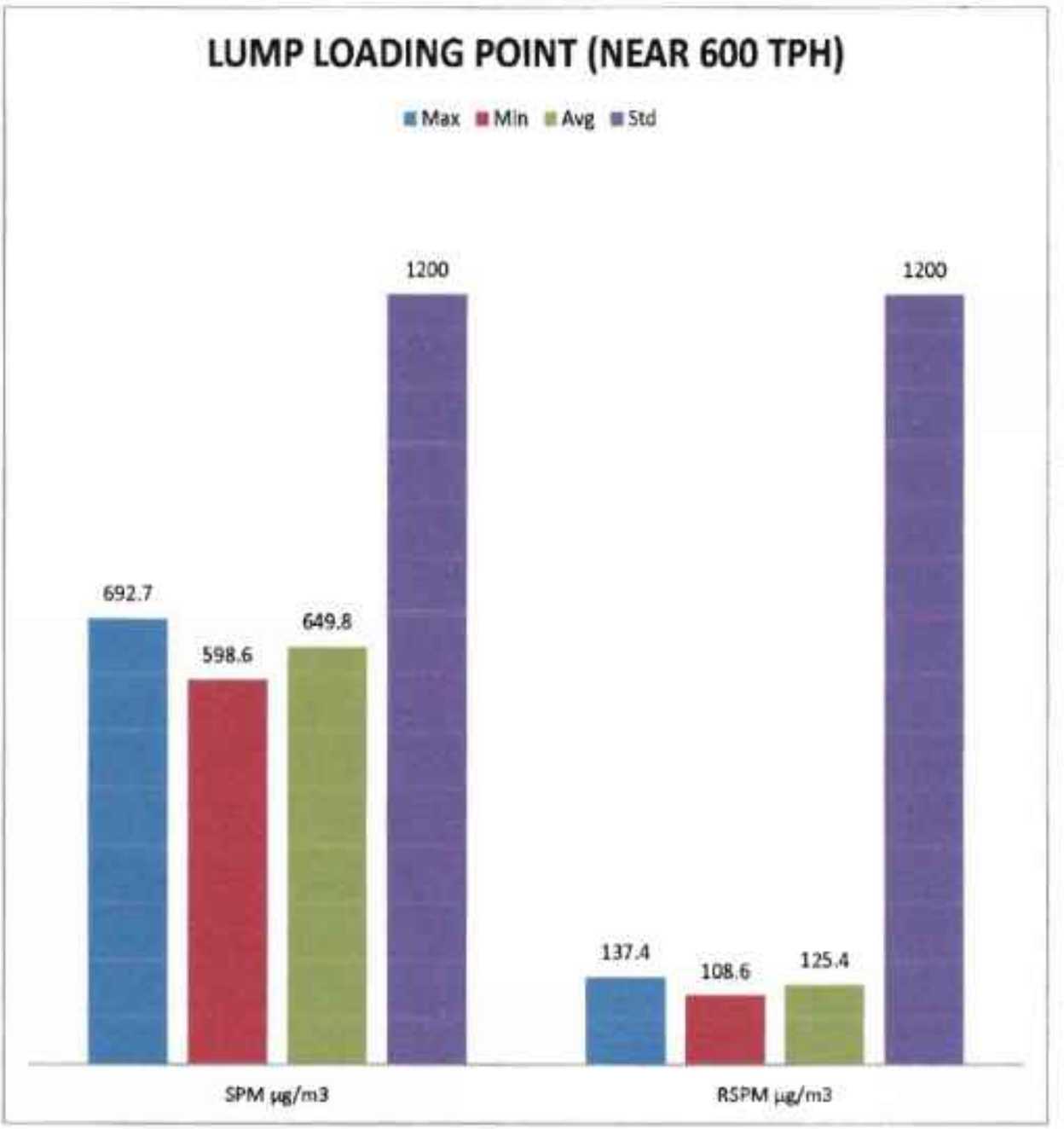
Technical Manager

Authorized By

Quality Manager

3.2.5 Lump Loading Point (Near 600 TPH) (F5)

The pollution level in Lump Loading Point (Near 600 TPH) for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **692.7** µg/m³ whereas minimum concentration was observed **598.6** µg/m³ and RSPM concentration ranges between **108.6** µg/m³ to **137.4** µg/m³ during the month.



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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/105
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Lump Loading Point (Near 600 TPH)**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	Lump Loading Point (Near 600 TPH)	682.0	128.8
2.	02-01-2025	Lump Loading Point (Near 600 TPH)	666.5	130.7
3.	03-01-2025	Lump Loading Point (Near 600 TPH)	621.8	129.3
4.	04-01-2025	Lump Loading Point (Near 600 TPH)	653.9	128.7
5.	05-01-2025	Lump Loading Point (Near 600 TPH)	649.2	131.6
6.	06-01-2025	Lump Loading Point (Near 600 TPH)	623.4	118.1
7.	07-01-2025	Lump Loading Point (Near 600 TPH)	673.6	133.6
8.	08-01-2025	Lump Loading Point (Near 600 TPH)	667.5	130.3
9.	09-01-2025	Lump Loading Point (Near 600 TPH)	638.9	118.9
10.	10-01-2025	Lump Loading Point (Near 600 TPH)	663.3	122.7
11.	11-01-2025	Lump Loading Point (Near 600 TPH)	675.8	127.9
12.	12-01-2025	Lump Loading Point (Near 600 TPH)	692.1	129.5
13.	13-01-2025	Lump Loading Point (Near 600 TPH)	622.4	114.0
14.	14-01-2025	Lump Loading Point (Near 600 TPH)	619.5	127.5
15.	15-01-2025	Lump Loading Point (Near 600 TPH)	692.7	133.4
16.	16-01-2025	Lump Loading Point (Near 600 TPH)	663.9	137.4
17.	17-01-2025	Lump Loading Point (Near 600 TPH)	688.4	130.1
18.	18-01-2025	Lump Loading Point (Near 600 TPH)	639.5	126.6
19.	19-01-2025	Lump Loading Point (Near 600 TPH)	618.3	114.8
20.	20-01-2025	Lump Loading Point (Near 600 TPH)	615.2	115.4
21.	21-01-2025	Lump Loading Point (Near 600 TPH)	598.6	108.6
22.	22-01-2025	Lump Loading Point (Near 600 TPH)	681.3	128.4
23.	23-01-2025	Lump Loading Point (Near 600 TPH)	626.5	123.6
24.	24-01-2025	Lump Loading Point (Near 600 TPH)	682.8	124.2
25.	25-01-2025	Lump Loading Point (Near 600 TPH)	650.3	121.7
26.	26-01-2025	Lump Loading Point (Near 600 TPH)	642.0	131.8
27.	27-01-2025	Lump Loading Point (Near 600 TPH)	602.7	124.4
28.	28-01-2025	Lump Loading Point (Near 600 TPH)	670.5	125.1
29.	29-01-2025	Lump Loading Point (Near 600 TPH)	632.7	126.8
30.	30-01-2025	Lump Loading Point (Near 600 TPH)	618.7	122.5
31.	31-01-2025	Lump Loading Point (Near 600 TPH)	670.1	122.1
Average			**649.8**	**125.4**

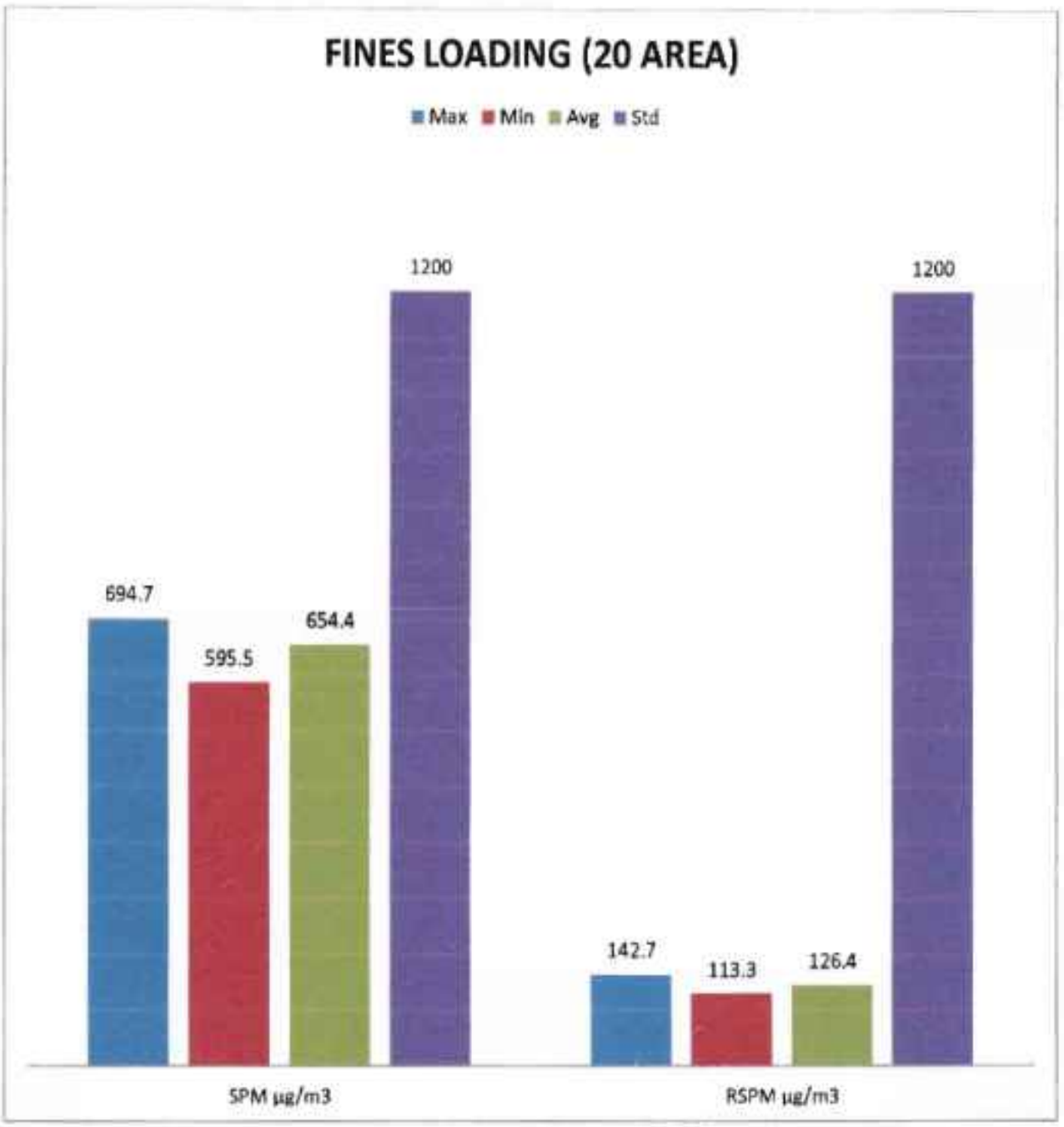
---End of Report---

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.6 Fines Loading (20 area) (F6)

The pollution level in Fines Loading (20 area) for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **694.7** µg/m³ whereas minimum concentration was observed **595.5** µg/m³ and RSPM concentration ranges between **113.3** µg/m³ to **142.7** µg/m³ during the month.



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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/106
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Fines Loading (20 area)**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	Fines Loading (20 area)	671.2	121.7
2.	02-01-2025	Fines Loading (20 area)	625.8	121.3
3.	03-01-2025	Fines Loading (20 area)	681.1	142.7
4.	04-01-2025	Fines Loading (20 area)	673.7	125.8
5.	05-01-2025	Fines Loading (20 area)	660.9	133.7
6.	06-01-2025	Fines Loading (20 area)	681.8	124.0
7.	07-01-2025	Fines Loading (20 area)	633.8	123.5
8.	08-01-2025	Fines Loading (20 area)	633.4	123.3
9.	09-01-2025	Fines Loading (20 area)	691.1	126.5
10.	10-01-2025	Fines Loading (20 area)	676.1	126.1
11.	11-01-2025	Fines Loading (20 area)	680.7	126.7
12.	12-01-2025	Fines Loading (20 area)	637.0	121.1
13.	13-01-2025	Fines Loading (20 area)	609.0	127.4
14.	14-01-2025	Fines Loading (20 area)	595.5	116.5
15.	15-01-2025	Fines Loading (20 area)	694.7	129.2
16.	16-01-2025	Fines Loading (20 area)	659.5	134.6
17.	17-01-2025	Fines Loading (20 area)	678.3	131.2
18.	18-01-2025	Fines Loading (20 area)	619.6	119.6
19.	19-01-2025	Fines Loading (20 area)	680.6	130.5
20.	20-01-2025	Fines Loading (20 area)	627.9	120.9
21.	21-01-2025	Fines Loading (20 area)	639.8	128.2
22.	22-01-2025	Fines Loading (20 area)	692.9	136.8
23.	23-01-2025	Fines Loading (20 area)	621.7	127.2
24.	24-01-2025	Fines Loading (20 area)	683.9	129.7
25.	25-01-2025	Fines Loading (20 area)	640.3	132.2
26.	26-01-2025	Fines Loading (20 area)	683.1	131.8
27.	27-01-2025	Fines Loading (20 area)	601.2	120.1
28.	28-01-2025	Fines Loading (20 area)	679.8	132.8
29.	29-01-2025	Fines Loading (20 area)	656.4	118.5
30.	30-01-2025	Fines Loading (20 area)	653.0	122.3
31.	31-01-2025	Fines Loading (20 area)	622.4	113.3
Average			**654.4**	**126.4**

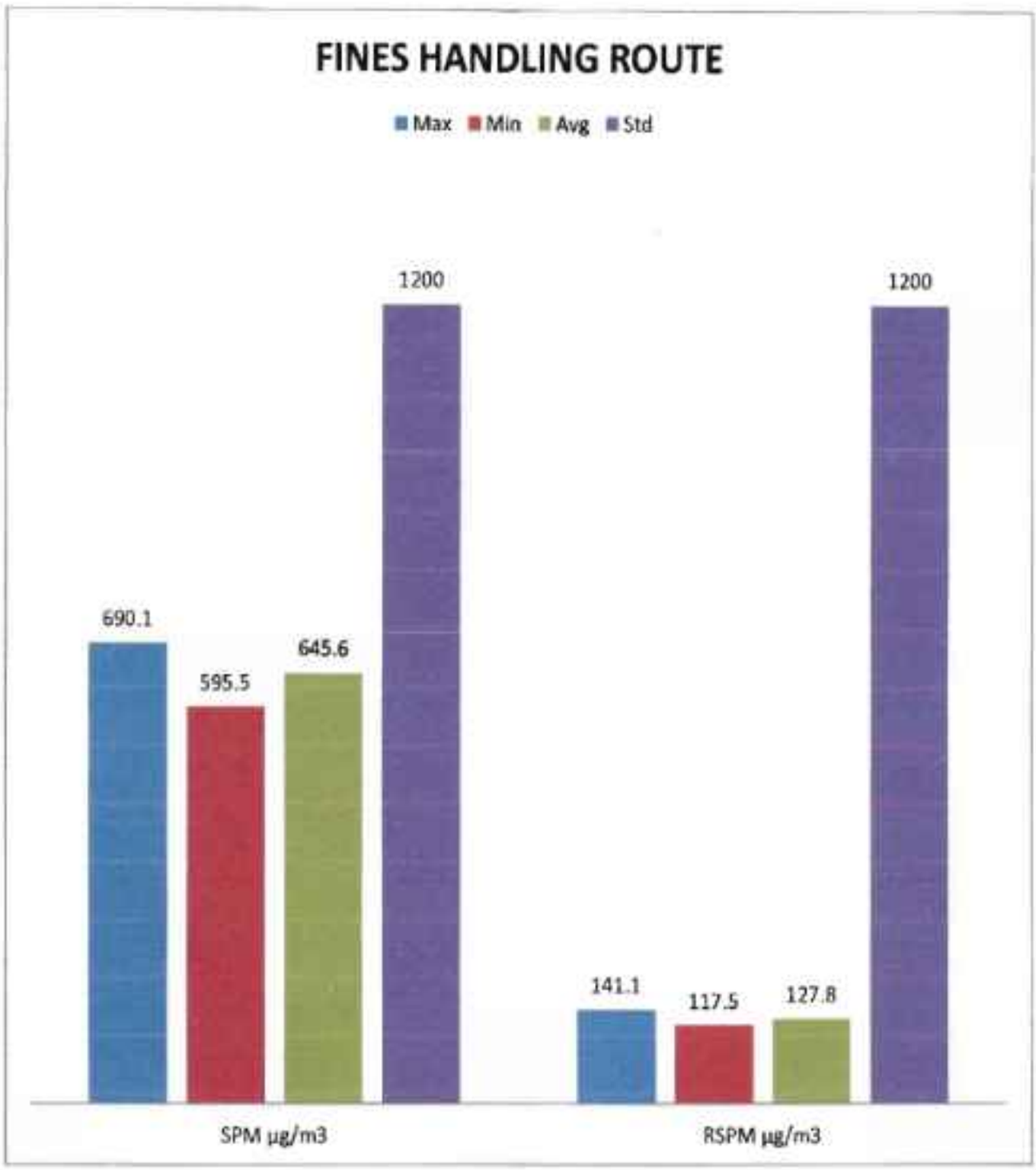
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.7 Fines Handling Route (F7)

The pollution level in Fines Handling Route for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **690.1** µg/m³ whereas minimum concentration was observed **595.5** µg/m³ and RSPM concentration ranges between **117.5** µg/m³ to **141.1** µg/m³ during the month.



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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/107
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Fines Handling Route**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	Fines Handling Route	628.4	120.0
2.	02-01-2025	Fines Handling Route	612.1	126.1
3.	03-01-2025	Fines Handling Route	607.1	120.7
4.	04-01-2025	Fines Handling Route	650.1	117.5
5.	05-01-2025	Fines Handling Route	641.0	128.3
6.	06-01-2025	Fines Handling Route	595.5	119.5
7.	07-01-2025	Fines Handling Route	684.6	128.2
8.	08-01-2025	Fines Handling Route	620.5	125.5
9.	09-01-2025	Fines Handling Route	689.3	139.3
10.	10-01-2025	Fines Handling Route	611.4	126.1
11.	11-01-2025	Fines Handling Route	647.2	130.9
12.	12-01-2025	Fines Handling Route	677.0	136.1
13.	13-01-2025	Fines Handling Route	626.2	125.6
14.	14-01-2025	Fines Handling Route	620.0	120.7
15.	15-01-2025	Fines Handling Route	681.1	125.6
16.	16-01-2025	Fines Handling Route	653.9	136.8
17.	17-01-2025	Fines Handling Route	668.5	136.8
18.	18-01-2025	Fines Handling Route	608.1	125.4
19.	19-01-2025	Fines Handling Route	646.0	126.4
20.	20-01-2025	Fines Handling Route	601.8	117.7
21.	21-01-2025	Fines Handling Route	650.9	119.5
22.	22-01-2025	Fines Handling Route	659.1	124.5
23.	23-01-2025	Fines Handling Route	619.5	125.9
24.	24-01-2025	Fines Handling Route	648.7	123.2
25.	25-01-2025	Fines Handling Route	690.1	139.3
26.	26-01-2025	Fines Handling Route	652.6	124.9
27.	27-01-2025	Fines Handling Route	654.9	122.4
28.	28-01-2025	Fines Handling Route	673.8	141.1
29.	29-01-2025	Fines Handling Route	683.2	136.6
30.	30-01-2025	Fines Handling Route	638.4	133.9
31.	31-01-2025	Fines Handling Route	672.0	137.0
Average			**645.6**	**127.8**

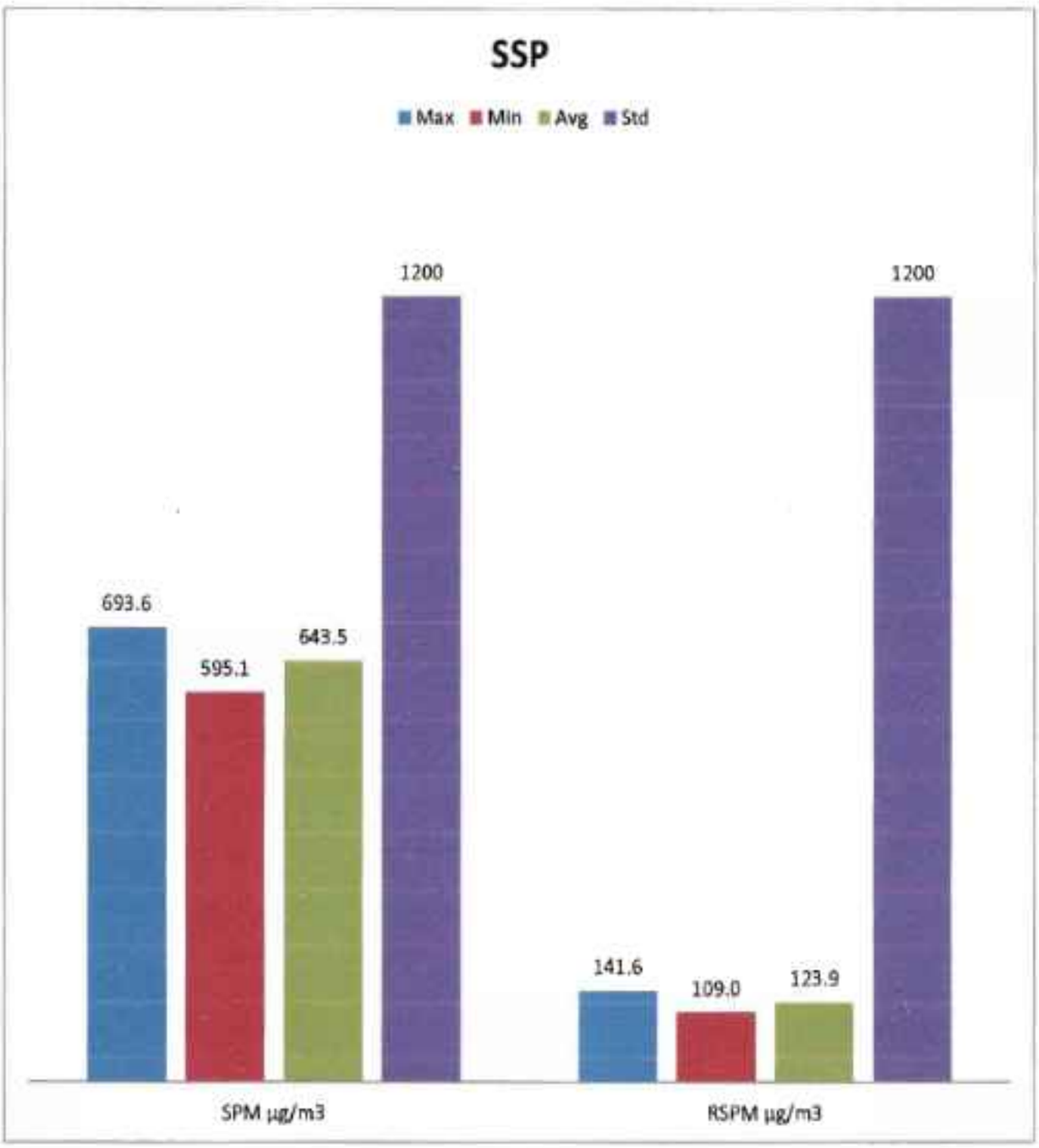
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.8 SSP (F8)

The pollution level in SSP Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **693.6** µg/m³ whereas minimum concentration was observed **595.1** µg/m³ and RSPM concentration ranges between **109.0** µg/m³ to **141.6** µg/m³ during the month.



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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/108
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **SSP**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	SSP	658.7	125.6
2.	02-01-2025	SSP	655.3	127.7
3.	03-01-2025	SSP	672.7	126.5
4.	04-01-2025	SSP	662.8	130.9
5.	05-01-2025	SSP	635.4	114.8
6.	06-01-2025	SSP	659.5	119.0
7.	07-01-2025	SSP	674.7	135.2
8.	08-01-2025	SSP	648.8	121.3
9.	09-01-2025	SSP	651.2	131.1
10.	10-01-2025	SSP	677.5	122.0
11.	11-01-2025	SSP	663.3	123.4
12.	12-01-2025	SSP	693.6	134.3
13.	13-01-2025	SSP	663.0	137.7
14.	14-01-2025	SSP	692.6	126.5
15.	15-01-2025	SSP	630.7	125.1
16.	16-01-2025	SSP	603.5	109.0
17.	17-01-2025	SSP	635.5	115.6
18.	18-01-2025	SSP	614.9	116.2
19.	19-01-2025	SSP	627.8	122.8
20.	20-01-2025	SSP	608.7	127.0
21.	21-01-2025	SSP	608.3	123.5
22.	22-01-2025	SSP	613.8	118.8
23.	23-01-2025	SSP	595.1	121.6
24.	24-01-2025	SSP	690.4	126.0
25.	25-01-2025	SSP	627.8	126.4
26.	26-01-2025	SSP	691.3	141.6
27.	27-01-2025	SSP	630.7	130.4
28.	28-01-2025	SSP	620.2	116.0
29.	29-01-2025	SSP	605.7	112.2
30.	30-01-2025	SSP	607.7	115.1
31.	31-01-2025	SSP	628.6	118.2
Average			**643.6**	**123.9**

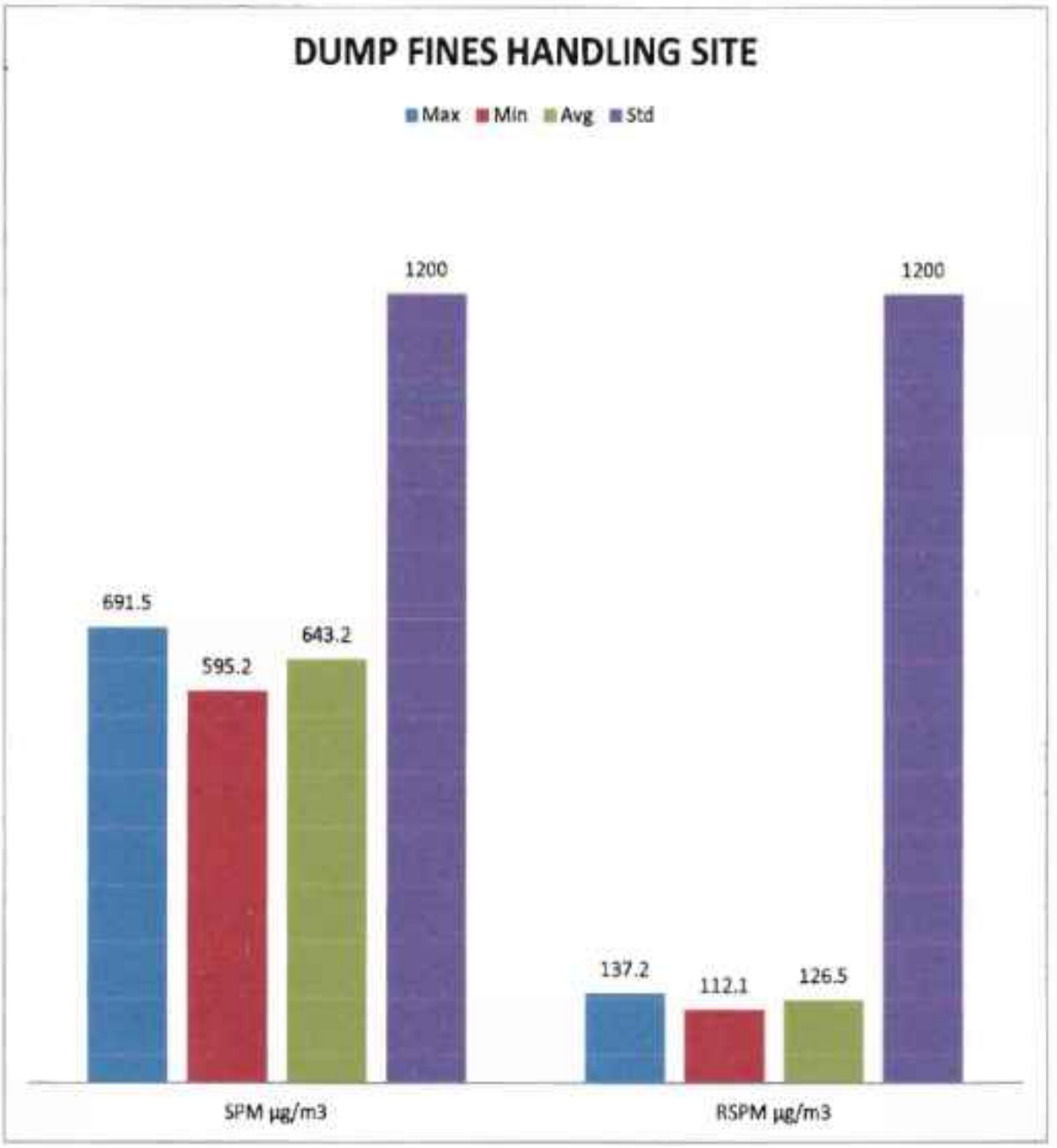
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.9 Dump Fines Handling Site (F9)

The pollution level in Dump Fines Handling Site for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **691.5** $\mu g/m^3$ whereas minimum concentration was observed **595.2** $\mu g/m^3$ and RSPM concentration ranges between **112.1** $\mu g/m^3$ to **137.2** $\mu g/m^3$ during the month.



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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE5076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/109
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Dump Fines Handling Site**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	Dump Fines Handling Site	656.4	134.7
2.	02-01-2025	Dump Fines Handling Site	691.5	129.6
3.	03-01-2025	Dump Fines Handling Site	595.2	112.1
4.	04-01-2025	Dump Fines Handling Site	666.6	129.9
5.	05-01-2025	Dump Fines Handling Site	650.9	127.6
6.	06-01-2025	Dump Fines Handling Site	608.1	114.2
7.	07-01-2025	Dump Fines Handling Site	633.5	124.0
8.	08-01-2025	Dump Fines Handling Site	624.1	120.5
9.	09-01-2025	Dump Fines Handling Site	637.6	125.3
10.	10-01-2025	Dump Fines Handling Site	609.9	127.4
11.	11-01-2025	Dump Fines Handling Site	597.3	118.3
12.	12-01-2025	Dump Fines Handling Site	683.5	124.1
13.	13-01-2025	Dump Fines Handling Site	689.7	132.2
14.	14-01-2025	Dump Fines Handling Site	636.1	130.8
15.	15-01-2025	Dump Fines Handling Site	676.2	134.1
16.	16-01-2025	Dump Fines Handling Site	627.0	128.0
17.	17-01-2025	Dump Fines Handling Site	684.9	134.2
18.	18-01-2025	Dump Fines Handling Site	624.2	128.4
19.	19-01-2025	Dump Fines Handling Site	626.6	130.9
20.	20-01-2025	Dump Fines Handling Site	654.1	132.3
21.	21-01-2025	Dump Fines Handling Site	624.8	118.4
22.	22-01-2025	Dump Fines Handling Site	667.8	137.2
23.	23-01-2025	Dump Fines Handling Site	652.9	125.3
24.	24-01-2025	Dump Fines Handling Site	639.2	131.6
25.	25-01-2025	Dump Fines Handling Site	598.7	113.5
26.	26-01-2025	Dump Fines Handling Site	689.0	136.9
27.	27-01-2025	Dump Fines Handling Site	608.3	127.3
28.	28-01-2025	Dump Fines Handling Site	685.7	124.6
29.	29-01-2025	Dump Fines Handling Site	602.8	115.1
30.	30-01-2025	Dump Fines Handling Site	636.6	126.1
31.	31-01-2025	Dump Fines Handling Site	661.5	128.3
Average			**643.3**	**126.5**

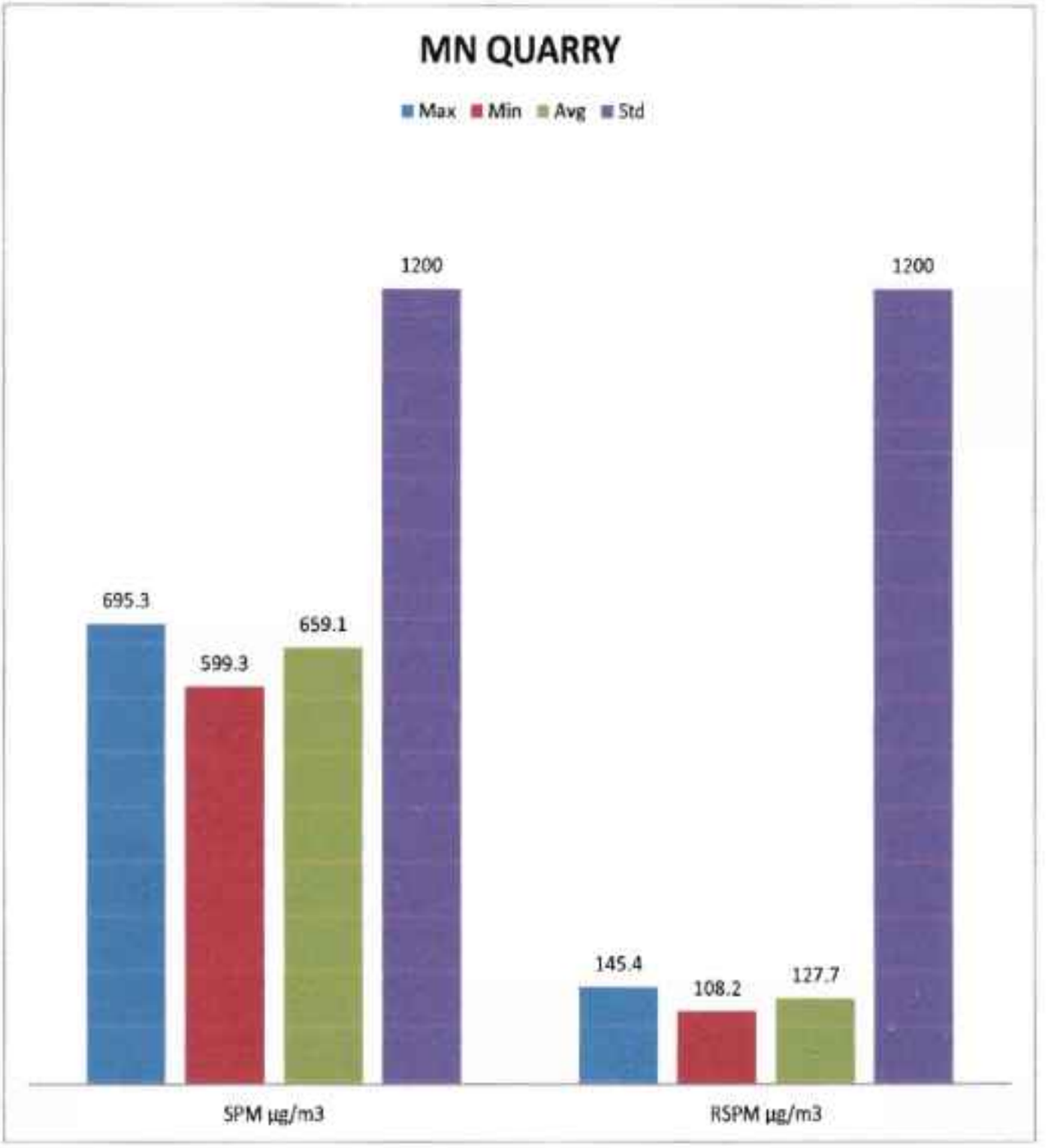
----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.2.10 Mn Quarry (F5)

The pollution level in Mn Quarry for the parameters SPM and RSPM is within the stipulated norms of CPCB. The maximum concentration of SPM was observed **659.3** µg/m³ whereas minimum concentration was observed **599.3** µg/m³ and RSPM concentration ranges between **108.2** µg/m³ to **145.4** µg/m³ during the month.



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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/110
Test Report Issue date: 05.02.2025

FUGITIVE EMISSION MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : RDS (APM 460 BL)
3. Sampling Location : **Mn Quarry**
4. Sample collected by : EMPL representative in presence of Client's representative.

Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-01-2025	Mn Quarry	686.1	137.9
2.	02-01-2025	Mn Quarry	674.2	137.2
3.	03-01-2025	Mn Quarry	668.8	126.8
4.	04-01-2025	Mn Quarry	695.3	126.1
5.	05-01-2025	Mn Quarry	651.3	122.8
6.	06-01-2025	Mn Quarry	685.6	142.9
7.	07-01-2025	Mn Quarry	627.8	118.4
8.	08-01-2025	Mn Quarry	680.9	137.5
9.	09-01-2025	Mn Quarry	684.8	129.8
10.	10-01-2025	Mn Quarry	674.9	134.9
11.	11-01-2025	Mn Quarry	623.2	129.2
12.	12-01-2025	Mn Quarry	689.3	136.2
13.	13-01-2025	Mn Quarry	642.1	118.8
14.	14-01-2025	Mn Quarry	657.8	120.4
15.	15-01-2025	Mn Quarry	695.2	145.4
16.	16-01-2025	Mn Quarry	678.6	130.5
17.	17-01-2025	Mn Quarry	668.0	138.4
18.	18-01-2025	Mn Quarry	661.7	121.9
19.	19-01-2025	Mn Quarry	646.5	124.8
20.	20-01-2025	Mn Quarry	672.1	127.1
21.	21-01-2025	Mn Quarry	609.3	120.2
22.	22-01-2025	Mn Quarry	599.3	108.2
23.	23-01-2025	Mn Quarry	680.3	129.6
24.	24-01-2025	Mn Quarry	619.5	118.0
25.	25-01-2025	Mn Quarry	614.5	116.3
26.	26-01-2025	Mn Quarry	673.1	135.8
27.	27-01-2025	Mn Quarry	668.8	124.3
28.	28-01-2025	Mn Quarry	669.4	124.3
29.	29-01-2025	Mn Quarry	623.4	115.0
30.	30-01-2025	Mn Quarry	692.6	139.0
31.	31-01-2025	Mn Quarry	616.3	120.8
Average			**659.1**	**127.7**

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

3.3 Surface/Effluent/Drinking Water Quality:

As per the guideline of CPCB, the following criteria shall be taken into consideration for use of the surface water bodies. Reports below shows the surface water quality analysis results at identified locations near the ML area.

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	• Total Coliforms Organism MPN/100ml shall be 50 or less • pH between 6.5 and8.5 • Dissolved Oxygen 6mg/l or more • Biochemical Oxygen Demand 5 days 20C 2mg/l or less
Outdoor bathing (Organized)	B	• Total Coliforms Organism MPN/100ml shall be 500 or less • pH between 6.5 and8.5 • Dissolved Oxygen 5mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Drinking water source after conventional treatment and disinfection	C	• Total Coliforms Organism MPN/100ml shall be 5000 or less • pH between 6 to9 • Dissolved Oxygen 4mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Propagation of Wild life and Fisheries	D	• pH between 6.5 to8.5 • Dissolved Oxygen 4mg/l or more • Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	• pH between 6.0 to8.5 • Electrical Conductivity at 25C micro mhos/cmMax.2250 • Sodium absorption Ratio Max.26 • Boron Max.2mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.3.1 Surface Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512500000334F
		Test Report No.	ECO/LAB/SW/0050/0334/01/2025
		Issue Date of Test Report	13.01.2025
Type of Sample	Surface Water		
Sample Registration No.	0050	Name of Location	Karo Near Lease Boundary at Limture Village
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	03.01.2025	Time of Sample Collection	-
Date of Sample Receipt	06.01.2025	Time of Sample Receipt	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52%	Sample ID Code	ECO/LAB/0334/01/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	35.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	36.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	3.5	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	28.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.09	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO_3-E	5-100	<5.0	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.05	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.06	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	040125N-E-008		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	03/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc. Karo Near Lease Boundry at Limtur Village.		
Quantity#	1 Ltr.		
Date of Receipt of Sample	04/01/2025		
Period of Analysis	04/01/2025 To 10/01/2025		
Date of Reporting	10/01/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.24	APHA 4500H+B 24th Edition, 2023
2	Cyanide CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.6	APHA 5520 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.003	APHA 3125 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised Signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512500000335F
		Test Report No.	ECO/LAB/SW/0050/0335/01/2025
		Issue Date of Test Report	13.01.2025
Type of Sample	Surface Water		
Sample Registration No.	0050	Name of Location	Jhikaria Nalia before Joining Karo River
Sampling Method	APHA 24th Ed. 2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	03.01.2025	Time of Sample Collection	-
Date of Sample Receipt	06.01.2025	Time of Sample Receipt	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52%	Sample ID Code	ECO/LAB/0335/01/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	44.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	40.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	2.7	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	24.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.19	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO_3-E	5-100	10.50	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.07	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02 50	0.08	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	040125N-E-003		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	03/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc. Jhinkaria Nallah Before Joining Kam)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	04/01/2025		
Period of Analysis	04/01/2025 To 10/01/2025		
Date of Reporting	10/01/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.25	APHA 4500H+B 24th Edition, 2023
2	Cyanide CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5500 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.002	APHA 3125 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed by
Dipti Jain
Asst. Tech. Manager
Idma Laboratories Ltd.
Panchkula

Authorised signatory
Kartar Singh
Tech. Mgr.
Idma Laboratories Ltd.
Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512500000336F
		Test Report No.	ECO/LAB/SW/0050/0336/01/2025
		Issue Date of Test Report	13.01.2025
Type of Sample	Surface Water		
Sample Registration No.	0050	Name of Location	Pangaih Nallah
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	03.01.2025	Time of Sample Collection	-
Date of Sample Receipt	06.01.2025	Time of Sample Receipt	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52%	Sample ID Code	ECO/LAB/0336/01/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	34.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	38.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	6.2	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	38.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.20	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO3-E	5-100	8.45	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.11	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	0.06	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters

Note:

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2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	040125N-E-004		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	03/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc. Panposh Nallah)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	04/01/2025		
Period of Analysis	04/01/2025 To 10/01/2025		
Date of Reporting	10/01/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.25	APHA 4500H+B 24rd Edition, 2023
2	Cyanide CN	mg/L	<0.05	APHA 4500CN-C&F 24rd Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5500 B 24rd Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24rd Edition, 2023
5	Total Iron	mg/L	0.003	APHA 3125 B 24rd Edition, 2023

Represents details provided by the customer.

End of Report

Reviewed By

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised Signatory

Idma Laboratories Ltd. Kanar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512500000337F
		Test Report No.	ECO/LAB/SW/0050/0337/01/2025
		Issue Date of Test Report	13.01.2025
Type of Sample	Surface Water		
Sample Registration No.	0050	Name of Location	Karo River Intake
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	03.01.2025	Time of Sample Collection	-
Date of Sample Receipt	06.01.2025	Time of Sample Receipt	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52%	Sample ID Code	ECO/LAB/0337/01/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. :2017,2540-D	5 -5000	28.0	-
2.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. :2017,5220 A+C	1 -1000	46.0	-
3.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. :2017,5210 A+B	1 -1000	4.2	3.0
4.	Chloride as Cl	mg/l	APHA, 24th Ed. :2023,4500 Cl A+B	5-1000	28.0	600
5.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.13	1.5
6.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. :2017,4500NO3-E	5-100	6.20	50
7.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3114 C	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.10	3.0
10.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S2- F	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.02	-

Statement of Conformity: The above tested parameters confirm as per IS-2296 Class-C limits for above tested parameters

Note:

1. Test results relate to the items sampled & tested
2. Test report shall not be reproduced except in full without approval of the laboratory
3. The test samples will be disposed of after one Month from the date of issue of test report
4. BDL - Below Detection Limit

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	040125N-E-005		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Cres Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Surface Water		
Customer's Description of Sample#	Surface Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	03/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Karo River Intake)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	04/01/2025		
Period of Analysis	04/01/2025 To 10/01/2025		
Date of Reporting	10/01/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	Chemical Testing (Water)	-	-	-
1	pH	-	7.27	APHA 4500H+B 24th Edition, 2023
2	Cyanide CN	mg/L	<0.05	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	APHA 5500 B 24th Edition, 2023
4	Total Residual chlorine	mg/L	<0.1	APHA 4500Cl B 24th Edition, 2023
5	Total Iron	mg/L	0.007	APHA 3125 B 24th Edition, 2023

Represents details provided by the customer.

End of Report

Dipti Jain
Asst. Tech Manager
Idma Laboratories Ltd
Panchkula

Authorised Signatory
Kartar Singh
Tech. Mgr.
Idma Laboratories Ltd.
Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE5076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.3.2 Effluent Waste Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Bolani Ore Mines (SAIL)	ULR No	TC127512500006332F
		Test Report No.	ECO/LAB/WW/0050/0332/01/2025
		Issue Date of Test Report	13.01.2025
Type of Sample	Waste Water		
Sample Registration No.	0050	Name of Location	Oil Catch Pit Water Bottom Garbage
Sampling Method	APHA 24th Ed. 2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	03.01.2025	Time of Sample Collection	-
Date of Sample Receipt	06.01.2025	Time of Sample Receipt	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52%	Sample ID Code	ECO/LAB/0332/01/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.98	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	46.5	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. : 2017,5220 A+C	1 -1000	40.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. : 2017,5210 A+B	1 -1000	3.8	30.0
5.	Oil & Grease as O&G	mg/l	APHA, 23rd Ed. : 2017,5520 A+D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.26	2.0
7.	Nitrate nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3-E	5-100	5.90	-
8.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017,3114 A+B	0.01-2	0.16	-
9.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3500 A+B	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017,3500 Fe-B	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S^{2-} F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.002	2.0

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	040125N-E-005		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Waste Water		
Customer's Description of Sample#	Waste Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	03/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Oil Catchpit Water Bottom Garage)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	04/01/2025		
Period of Analysis	04/01/2025 To 10/01/2025		
Date of Reporting	10/01/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Waste Water)	-	-	-
1	Total Residual Chlorine	mg/L	0.14	APHA4500Cl B 24th Edition, 2023
2	Cyanide as CN-	mg/L	<0.05	APHA4500CN-C&E 24th Edition, 2023
3	Total Iron	mg/L	0.012	CPCB Guide Manual:Water & waste water Analysis

Represents details provided by the customer.

End of Report

Reviewed by
Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised signatory
Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No	TC127512500000333F
		Test Report No.	ECO/LAB/WW/0050/0333/01/2025
		Issue Date of Test Report	13.01.2025
Type of Sample	Waste Water		
Sample Registration No.	0050	Name of Location	Oil Catch pit water G-Area
Sampling Method	APHA 24th Ed.:2023, 1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	03.01.2025	Time of Sample Collection	-
Date of Sample Receipt	06.01.2025	Time of Sample Receipt	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52%	Sample ID Code	ECO/LAB/0333/01/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.72	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	28.5	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA, 23rd Ed. : 2017,5220 A+C	1 -1000	48.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA, 23rd Ed. : 2017,5210 A+B	1 -1000	3.9	30.0
5.	Oil & Grease as O&G	mg/l	APHA, 23rd Ed. : 2017,5520 A+D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.25	2.0
7.	Nitrate nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3-E	5-100	7.15	-
8.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017,3114 A+B	0.01-2	0.21	-
9.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017,3500 A+B	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017,3500 Fe-B	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017,5530 A+C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017,4500 S^{2-} F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017,3112 A+B	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017,3111 A+B	0.02-10	<0.002	2.0

Statement of Conformity: The above tested parameters confirm as per GSR 422 (E) limits for above tested parameters.

Note:

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2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	040125N-E-007		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	Waste Water		
Customer's Description of Sample#	Waste Water		
Mode of Collection of Sample	By Hand		
Date of Sampling	03/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Plastic Bottle. (Loc.Oil Catchpit Water G-Area)		
Quantity#	1 Ltr.		
Date of Receipt of Sample	04/01/2025		
Period of Analysis	04/01/2025 To 10/01/2025		
Date of Reporting	10/01/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Waste Water)	-	-	-
1	Total Residual Chlorine	mg/L	0.13	APHA4500Cl B24th Edition, 2023
2	Cyanide as CN	mg/L	<0.05	APHA4500CN-C&E 24th Edition, 2023
3	Total Iron	mg/L	0.022	CPCB Guide Manual Water & waste water Analysis

Represents details provided by the customer.

End of Report

Authorised Signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE5076H1ZI

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2.3.3 Drinking Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	ULR No.	TC127512500000330F
		Test Report No.	ECO/LAB/DW/0050/0330/01/2025
		Issue Date of Test Report	13.01.2025
Type of Sample	Drinking Water		
Sample Registration No.	0050	Name of Location	Mount Club Tap Water
Sampling Method	APHA, 23rd Ed. 2017,1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	03.01.2025	Time of Sample Collection	-
Date of Sample Receipt	06.01.2025	Time of Sample Receipt	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52%	Sample ID Code	ECO/LAB/0330/01/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.10	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5.0	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.10	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO3 E	5-100	<5.0	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.08	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05 5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	0.07	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per **IS 10500:2012(Reaff:2018).**

Note-

1. Test results relate to the items sampled & tested
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	040125N-E-001		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Type of Sample#	Drinking Water		
Customer's Description of Sample#	Drinking Water		
Quantity#	1 Ltr.		
Packing, Markings, Seal & Quantity#	Plastic Bottle. (Loc.Mount Club Tap Water)		
Mode of Collection of Sample	By Hand		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Date of Receipt of Sample	04/01/2025		
Period of Analysis	04/01/2025 To 10/01/2025		
Visual Observation	N/A		
Date of Reporting	10/01/2025		
Testing Protocol	IS 10500		

RESULTS

S.No.	Test Parameter	Units	Results	Limit of IS: 10500-2012		Test Method
				Requirement (Acceptable Limit)	Permissible Limit in absence of alternate	
	Chemical Testing (Water)	-	-	-	-	-
1	Total Residual Chlorine	mg/L	0.12	-	-	APHA 4500Cl B 24th Edition, 2023
2	Cyanide CN	mg/L	<0.05	Max. 0.05	No Relaxation	APHA 4500CN-C&F 24th Edition, 2023
3	Oil & Grease	mg/L	<2.5	-	-	APHA 5500 B 24th Edition, 2023
4	Total Iron	mg/L	0.004	Max. 1.0	No Relaxation	APHA 3120 B 24th Edition, 2023
5	Lead as Pb	mg/L	<0.0005	Max. 0.01	No Relaxation	APHA 3120 B 24th Edition, 2023

Opinion :

Represents details provided by the customer.

End of Report

Reviewed

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised Signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	Bolani Ore Mines (SAIL)	ULR No.	TC127512500000331F
		Test Report No.	ECO/LAB/DW/0050/0331/01/2025
		Issue Date of Test Report	13.01.2025
Type of Sample	Drinking Water		
Sample Registration No.	0050	Name of Location	Karo Guest House Tap Water
Sampling Method	APHA, 23rd Ed :2017,1060 A+B	Sample Collected By	EMPL Representative
Date of Sample Collection	03.01.2025	Time of Sample Collection	-
Date of Sample Receipt	06.01.2025	Time of Sample Receipt	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52%	Sample ID Code	ECO/LAB/0331/01/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA, 23rd Ed. : 2017,4500H+A+B	2 - 12	6.92	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 23rd Ed. : 2017,2540-D	5 -5000	<5.0	-	-
3.	Fluoride as F	mg/l	APHA, 23rd Ed. : 2017,4500-C	0.05 -10	0.06	1	1.5
4.	Nitrate Nitrogen	mg/l	APHA, 23rd Ed. : 2017,4500NO_3 E	5-100	<5.0	45	No Relax
5.	Arsenic as As	mg/l	APHA, 23rd Ed. : 2017, 3114 A+B	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA, 23rd Ed. : 2017, 3500 A+B	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	APHA, 23rd Ed. : 2017, 3500 Fe-B	0.02-50	0.09	0.3	No Relax
8.	Copper as Cu	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 23rd Ed. : 2017, 5530 A+C	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	APHA, 23rd Ed. : 2017, 4500 S^{2-} F	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA, 23rd Ed. : 2017, 3112 A+B	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA, 23rd Ed. : 2017, 3111 A+B	0.02-10	<0.02	0.02	No Relax

Statement of Conformity: The above tested parameters confirm as per **IS 10500:2012(Reaff:2018).**

Note:

1. Test results relate to the items sampled & tested
2. Test report shall not be reproduced except in full without approval of the laboratory
3. The test samples will be disposed of after one Month from the date of issue of test report.
4. BDL- Below Detection Limit

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TEST REPORT

Lab No.	040125N-E-002		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Type of Sample#	Drinking Water		
Customer's Description of Sample#	Drinking Water		
Quantity#	1 Ltr.		
Packing, Markings, Seal & Quantity#	Plastic Bottle. (Loc. Karo Guest House Tap Water)		
Mode of Collection of Sample	By Hand		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Date of Receipt of Sample	04/01/2025		
Period of Analysis	04/01/2025 To 10/01/2025		
Visual Observation	N/A		
Date of Reporting	10/01/2025		
Testing Protocol	IS 10500		

RESULTS

S.No.	Test Parameter	Units	Results	Limit of IS: 10500-2012		Test Method
				Requirement (Acceptable Limit)	Permissible Limit in absence of alternate	
	Chemical Testing (Water)	-	-	-	-	-
1	Total Residual Chlorine	mg/L	<0.01	-	-	APHA 4500Cl B 24rd Edition, 2023
2	Cyanide CN	mg/L	<0.05	Max. 0.05	No Relaxation	APHA 4500CN-C&F 24rd Edition, 2023
3	Oil & Grease	mg/L	<2.5	-	-	APHA 5500 B 24rd Edition, 2023
4	Total Iron	mg/L	0.004	Max. 1.0	No Relaxation	APHA 3125 B 24rd Edition, 2023
5	Lead as Pb	mg/L	0.001	Max. 0.01	No Relaxation	APHA 3125 B 24rd Edition, 2023

Opinion :

Represents details provided by the customer.

End of Report

Reviewed By

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised Signatory

10/01/25

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

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2.4 Surface Flow Rate (Nallah/Stream):

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/SWF/11
Test Report Issue date: 05.02.2025

SURFACE FLOW RATE MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist. Keonjhar , Odisha**
2. Monitoring Instruments : Flow Meter
3. Sampling Location : **Karo River Limtur Villg, Jhikaria Nallah , Panposh Nallah**
4. Sample collected by : EMPL representative in presence of Client's representative.

Location Name	Station Code	Result in (m/sec)
Karo River Limtur Village	SWFM1	0.60
Jhikaria nallah	SWFM2	0.32
Panposh Nallah	SWFM3	0.38

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

2.5 Meteorology

Summarized meteorological data such as temperature, relative humidity, rainfall, and wind speed and wind direction are given in **Table No. 2.5.2.** During the month of 'JANUARY 2025'the temperature varied from 7.8°C to 32.6°C & Relative Humidity varied from 70.0% to 98.4%. The maximum wind speed recorded during the month was 11 m/s and the overall average wind speed is calculated to be 3.33 m/s, 10.16% of the time the wind remained calm (<0.5 m/s). The predominant wind direction as observed to be from South South West (SSW) direction during the month. The total rainfall observed during the month was 0 & 0 out of 16 were rainy days. Max. And Min. Value of temperature, relative humidity, rainfall, wind speed and wind direction on each day basis for JANUARY 2025 are given below.

Table No. 2.4.2: Results of Site Specific Meteorological Data

Parameters		January, 2025
Temperature (°C)	Maximum	32.6
	Minimum	7.8
	Average	19.6
Relative Humidity (%)	Maximum	98.4
	Minimum	70.0
	Average	28.2
Wind Speed(m/s)	Maximum	11
	Average	3.33
Wind Direction (%)	N	7.54
	NNE	2.08
	NE	1.3
	ENE	1.3
	E	3.64
	ESE	10.68
	SE	11.97
	SSE	12.76
	S	10.41
	SSW	14.32
	SW	10.66
	WSW	3.12
	W	5.2
	WNW	0.52
	NW	1.56
	NNW	2.86
	CALM	10.16
Rainfall(mm)	Monthly Total	0
	No. of rainy days	0

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Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AWS/09
Test Report Issue date: 05.02.2025

METEROLOGICAL MONITORING REPORT FOR JANUARY 2025

1. Name of Industry : **Steel Authority of India limited, Bolani Ores Mines ,At/P.O: Bolani , Dist- Keonjhar , Odisha**
2. Monitoring Instruments : Automatic Weather Station (AWS)
3. Sampling Location : **DAV Public School**

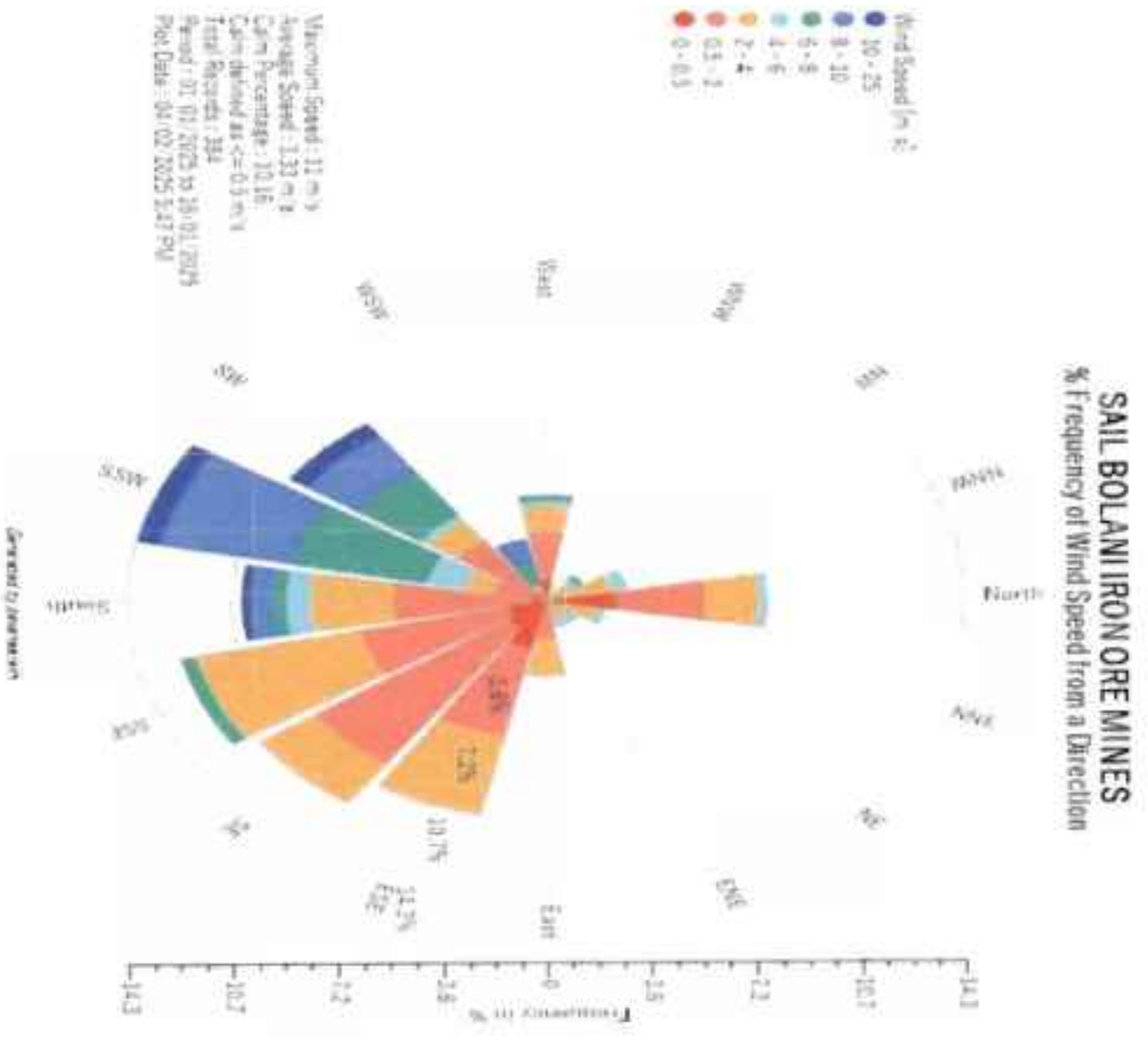
Date	Temperature (°C)		Relative Humidity (%)		Wind Speed (m/s)		Rainfall (mm)
	Max.	Min.	Max.	Min.	Max.	Min.	
01.01.2025	26.5	10	98.3	35	11.00	0	0
02.01.2025	27.8	8.7	98.1	32.8	9.50	0	0
03.01.2025	32.3	10.9	98.1	31.7	9.25	0	0
04.01.2025	31.7	12.1	98.2	35.8	10.00	0	0
05.01.2025	32.6	13.4	98.2	33.8	8.50	0	0
06.01.2025	31.9	15.9	98.3	35.7	10.50	0	0
07.01.2025	28.4	15.9	98.4	38.4	11.00	0	0
08.01.2025	26.5	9.3	97.3	31.2	10.75	0	0
09.01.2025	26.7	7.8	98	40.2	9.25	0	0
10.01.2025	32.3	8.8	98.1	31.7	9.25	0	0
11.01.2025	31.9	14.4	98.3	35.7	10.50	0	0
12.01.2025	30.2	15.9	98.4	42.7	9.75	0	0
13.01.2025	28.3	13.6	98.3	44.5	8.00	0	0
14.01.2025	28.6	9.4	98.1	31.2	9.75	0	0
15.01.2025	30.9	9.8	98.1	28.2	10.50	0	0
16.01.2025	31.1	11.8	98.3	32.9	8.50	0	0

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Figure No.2: Wind Rose (24 hrly) During the Month of JANUARY 2025



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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

2.6 Soil Quality Analysis

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	Test Report No.	ECO/LAB/SS/0050/033S/01/2025
		Issue Date of Test Report	13.01.2025

Type of Sample	Soil sample		
Sample Registration No.	0050	Name of Location	D-Area Plantation
Sampling Method	IS -2720	Sample Collected By	EMPL Representative
Date of Sample Collection	02.01.2025	Time of Sample Collection	-
Date of Sample Received	02.01.2025	Time of Sample Received	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C Humidity: 52 %	Sample Quantity	As per Requirement
		Sample ID Code	ECO/LAB/033S/01/2025

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH	-	IS:2720(Part-26) 1987, (Reaff: 2016)	7.51
2.	Electrical Conductivity	µmhos/cm	IS 14767 : 2000(Reaff: 2016)	144.0
3.	Total Soluble Solid	mg/kg	SOP No:S-10 Issue No.2, Date- 12-04-2021	172.0
4.	Nitrogen (N)	mg/kg	SOP No:S-14 Issue No.2, Date- 12-04-2021	168.0
5.	Av. Phosphorous (P_2O_5)	kg/ha	SOP No:S-07 Issue No.2, Date- 12-04-2021	28.0
6.	Av. Potassium (K_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	87.5
7.	Av. Sodium (Na_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	176.0
8.	Av. Calcium as Ca	mg/kg	IS 2720 Part 23:1976(Reaff:2015)	892.0
9.	Av .Magnesium as Mg	mg/kg	SOP No:S-27 Issue No.2, Date- 12-04-2021	388.0
10.	Chloride (Cl)	mg/kg	SOP No:S-04 Issue No.2, Date- 12-04-2021	40.0
11.	Copper (Cu)	mg/kg	SOP No:S-31 Issue No.2, Date- 12-04-2021	0.51
12.	Zinc (Zn)	mg/kg	SOP No:S-32 Issue No.2, Date- 12-04-2021	11.20
13.	Iron (Fe)	mg/kg	SOP No:S-33 Issue No.2, Date- 12-04-2021	21.79
14.	Manganese (Mn)	mg/kg	SOP No:S-36 Issue No.2, Date- 12-04-2021	0.19
15.	Organic Carbon	%	SOP No:S-17 Issue No.2, Date- 12-04-2021	0.35
16.	Sodium Absorption ratio (SAR)	-	-	0.51
17.	Grain Size Distribution			
a	Textural Class	-	SOP No:S-03 Issue No.2, Date- 12-04-2021	Sandy Loam
b	Sand	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	56.0
c	Silt	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	34.0
d	Clay	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	10.0

Opinion/Observation:

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TC-8207

TEST REPORT

Lab No.	150225L-ED-028		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	SOIL		
Customer's Description of Sample#	SOIL		
Mode of Collection of Sample	By Hand		
Date of Sampling	02/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Polythene Pouch. (Loc. D Area Plantation)		
Quantity#	1 Kg		
Date of Receipt of Sample	15/02/2025		
Period of Analysis	15/02/2025 To 21/02/2025		
Date of Reporting	21/02/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Soil)	-	-	-
1	Sulphur (Available)	mg/kg	10.2	Manual for Soil Testing , Govt. of India Jan.2011
2	Nitrogen	mg/kg	356.5	Manual for Soil Testing , Govt. of India Jan.2011

Represents details provided by the customer.

End of Report

Reviewed by

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised Signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

Email : commercial@idmalab.co.in

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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE5076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	Test Report No.	ECO/LAB/SS/0050/0339/01/2025
		Issue Date of Test Report	13.01.2025

Type of Sample	Soil sample		
Sample Registration No.	0050	Name of Location	D-Area OB Dump
Sampling Method	IS -2720	Sample Collected By	EMPL Representative
Date of Sample Collection	02.01.2025	Time of Sample Collection	-
Date of Sample Received	02.01.2025	Time of Sample Received	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52 %	Sample ID Code	ECO/LAB/0339/01/2025

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH	-	IS:2720(Part-26) 1987, (Reaff: 2016)	5.79
2.	Electrical Conductivity	µmhos/cm	IS 14767 : 2000(Reaff: 2016)	98.0
3.	Total Soluble Solid	mg/kg	SOP No:S-10 Issue No.2, Date- 12-04-2021	116.0
4.	Nitrogen (N)	mg/kg	SOP No:S-14 Issue No.2, Date- 12-04-2021	132.0
5.	Av. Phosphorous (P_2O_5)	kg/ha	SOP No:S-07 Issue No.2, Date- 12-04-2021	38.0
6.	Av. Potassium (K_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	144.0
7.	Av. Sodium (Na_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	264.0
8.	Av. Calcium as Ca	mg/kg	IS 2720:Part 23 1976(Reaff:2015)	1246.0
9.	Av. Magnesium as Mg	mg/kg	SOP No:S-27 Issue No.2, Date- 12-04-2021	352.0
10.	Chloride (Cl)	mg/kg	SOP No:S-04 Issue No.2, Date- 12-04-2021	56.0
11.	Copper (Cu)	mg/kg	SOP No:S-31 Issue No.2, Date- 12-04-2021	2.95
12.	Zinc (Zn)	mg/kg	SOP No:S-32 Issue No.2, Date- 12-04-2021	1.44
13.	Iron (Fe)	mg/kg	SOP No:S-33 Issue No.2, Date- 12-04-2021	76.0
14.	Manganese (Mn)	mg/kg	SOP No:S-36 Issue No.2, Date- 12-04-2021	51.0
15.	Organic Carbon	%	SOP No:S-17 Issue No.2, Date- 12-04-2021	0.54
16.	Sodium Absorption ratio (SAR)	-	-	0.71
17.	Grain Size Distribution			
a	Textural Class	-	SOP No:S-03 Issue No.2, Date- 12-04-2021	Sandy Loam
b	Sand	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	52.0
c	Silt	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	26.0
d	Clay	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	22.0

Opinion/Observation:

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TC-8207

TEST REPORT

Lab No.	150225L-ED-029		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	SOIL		
Customer's Description of Sample#	SOIL		
Mode of Collection of Sample	By Hand		
Date of Sampling	02/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Polythene Pouch. (Loc. D Area OB Dump)		
Quantity#	1 Kg		
Date of Receipt of Sample	15/02/2025		
Period of Analysis	15/02/2025 To 21/02/2025		
Date of Reporting	21/02/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Soil)	-	-	-
1	Sulphur (Available)	mg/kg	11.7	Manual for Soil Testing , Govt. of India. Jan.2011
2	Nitrogen	mg/kg	362.2	Manual for Soil Testing , Govt. of India Jan.2011

Represents details provided by the customer.

End of Report

Authorised Signatory

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	Test Report No.	ECO/LAB/SS/0050/0340/01/2025
		Issue Date of Test Report	13.01.2025

Type of Sample	Soil sample		
Sample Registration No.	0050	Name of Location	DAV School from Plantation
Sampling Method	IS -2720	Sample Collected By	EMPL Representative
Date of Sample Collection	02.01.2025	Time of Sample Collection	-
Date of Sample Received	02.01.2025	Time of Sample Received	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C Humidity: 52 %	Sample Quantity	As per Requirement
		Sample ID Code	ECO/LAB/0340/01/2025

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH	-	IS:2720(Part-26) 1987, (Reaff. 2016)	7.45
2.	Electrical Conductivity	µmhos/cm	IS 14767 : 2000(Reaff: 2016)	140.0
3.	Total Soluble Solid	mg/kg	SOP No:S-10 Issue No.2, Date- 12-04-2021	176.0
4.	Nitrogen (N)	mg/kg	SOP No:S-14 Issue No.2, Date- 12-04-2021	180.0
5.	Av. Phosphorous (P_2O_5)	kg/ha	SOP No:S-07 Issue No.2, Date- 12-04-2021	30.0
6.	Av. Potassium (K_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	98.0
7.	Av. Sodium (Na_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	204.0
8.	Av. Calcium as Ca	mg/kg	IS 2720:Part 23:1976(Reaff:2015)	972.0
9.	Av .Magnesium as Mg	mg/kg	SOP No:S-27 Issue No.2, Date- 12-04-2021	480.0
10.	Chloride (Cl)	mg/kg	SOP No:S-04 Issue No.2, Date- 12-04-2021	44.0
11.	Copper (Cu)	mg/kg	SOP No:S-31 Issue No.2, Date- 12-04-2021	0.59
12.	Zinc (Zn)	mg/kg	SOP No:S-32 Issue No.2, Date- 12-04-2021	9.45
13.	Iron (Fe)	mg/kg	SOP No:S-33 Issue No.2, Date- 12-04-2021	24.8
14.	Manganese (Mn)	mg/kg	SOP No:S-36 Issue No.2, Date- 12-04-2021	0.19
15.	Organic Carbon	%	SOP No:S-17 Issue No.2, Date- 12-04-2021	0.36
16.	Sodium Absorption ratio (SAR)	-	-	0.51
17.	Grain Size Distribution			
a	Textural Class	-	SOP No:S-03 Issue No.2, Date- 12-04-2021	Sandy Loam
b	Sand	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	57.0
c	Silt	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	29.0
d	Clay	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	14.0

Opinion/Observation:

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TC-8207

TEST REPORT

Lab No.	150225L-ED-031		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	SOIL		
Customer's Description of Sample#	SOIL		
Mode of Collection of Sample	By Hand		
Date of Sampling	02/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Polythene Pouch. (Loc.DAV School Front Plantation)		
Quantity#	1 Kg		
Date of Receipt of Sample	15/02/2025		
Period of Analysis	15/02/2025 To 21/02/2025		
Date of Reporting	21/02/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Soil)	-	-	-
1	Sulphur (Available)	mg/kg	10.64	Manual for Soil Testing , Govt. of India Jan.2011
2	Nitrogen	mg/kg	371.6	Manual for Soil Testing , Govt. of India Jan.2011

Represents details provided by the customer.

End of Report

21/02/25

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	Test Report No.	ECO/LAB/SS/0050/0341/01/2025
		Issue Date of Test Report	13.01.2025

Type of Sample	Soil sample		
Sample Registration No.	0050	Name of Location	Kiriburu Plantation
Sampling Method	IS -2720	Sample Collected By	EMPL Representative
Date of Sample Collection	02.01.2025	Time of Sample Collection	-
Date of Sample Received	02.01.2025	Time of Sample Received	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52 %	Sample ID Code	ECO/LAB/0341/01/2025

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH	-	IS:2720(Part-26) 1987, (Reaff: 2016)	6.45
2.	Electrical Conductivity	µmhos/cm	IS 14767 : 2000(Reaff: 2016)	168.0
3.	Total Soluble Solid	mg/kg	SOP No:S-10 Issue No.2, Date- 12-04-2021	130.0
4.	Nitrogen (N)	mg/kg	SOP No:S-14 Issue No.2, Date- 12-04-2021	138.0
5.	Av. Phosphorous (P_2O_5)	kg/ha	SOP No:S-07 Issue No.2, Date- 12-04-2021	48.0
6.	Av. Potassium (K_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	137.0
7.	Av. Sodium (Na_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	210.0
8.	Av. Calcium as Ca	mg/kg	IS 2720:Part 23:1976(Reaff:2015)	810.0
9.	Av .Magnesium as Mg	mg/kg	SOP No:S-27 Issue No.2, Date- 12-04-2021	232.0
10.	Chloride (Cl)	mg/kg	SOP No:S-04 Issue No.2, Date- 12-04-2021	27.90
11.	Copper (Cu)	mg/kg	SOP No:S-31 Issue No.2, Date- 12-04-2021	0.18
12.	Zinc (Zn)	mg/kg	SOP No:S-32 Issue No.2, Date- 12-04-2021	1.76
13.	Iron (Fe)	mg/kg	SOP No:S-33 Issue No.2, Date- 12-04-2021	5.45
14.	Manganese (Mn)	mg/kg	SOP No:S-36 Issue No.2, Date- 12-04-2021	2.97
15.	Organic Carbon	%	SOP No:S-17 Issue No.2, Date- 12-04-2021	0.30
16.	Sodium Absorption ratio (SAR)	-	-	0.71
17.	Grain Size Distribution			
a	Textural Class	-	SOP No:S-03 Issue No.2, Date- 12-04-2021	Sandy Loam
b	Sand	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	55.0
c	Silt	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	33.0
d	Clay	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	12.0

Opinion/Observation:

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TC-8207

TEST REPORT

Lab No.	150225L-ED-032		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	SOIL		
Customer's Description of Sample#	SOIL		
Mode of Collection of Sample	By Hand		
Date of Sampling	02/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Polythene Pouch. (Loc. Kiriburu Plantation)		
Quantity#	1 Kg		
Date of Receipt of Sample	15/02/2025		
Period of Analysis	15/02/2025 To 21/02/2025		
Date of Reporting	21/02/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Soil)	-	-	-
1	Sulphur (Available)	mg/kg	11.04	Manual for Soil Testing , Govt. of India Jan.2011
2	Nitrogen	mg/kg	362.1	Manual for Soil Testing , Govt. of India Jan.2011

Represents details provided by the customer.

End of Report

Checked By
Idma Laboratories Ltd.
Dipti Jain
Asst. Tech. Manager
Panchkula

Authorised signatory
Idma Laboratories Ltd.
Kartar Singh
Tech. Mgr.
Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, industrial Area, Phase - 1,

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	Test Report No.	ECO/LAB/SS/0050/0342/01/2025
		Issue Date of Test Report	13.01.2025
Type of Sample	Soil sample		
Sample Registration No.	0050	Name of Location	G-Area OB Dump Plantation
Sampling Method	IS -2720	Sample Collected By	EMPL Representative
Date of Sample Collection	02.01.2025	Time of Sample Collection	-
Date of Sample Received	02.01.2025	Time of Sample Received	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C Humidity: 52 %	Sample Quantity	As per Requirement
		Sample ID Code	ECO/LAB/0342/01/2025

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH	-	IS:2720(Part-26) 1987, (Reaff: 2016)	6.80
2.	Electrical Conductivity	µmhos/cm	IS 14767 : 2000(Reaff: 2016)	98.0
3.	Total Soluble Solid	mg/kg	SOP No:S-10 Issue No.2, Date- 12-04-2021	104.0
4.	Nitrogen (N)	mg/kg	SOP No:S-14 Issue No.2, Date- 12-04-2021	126.0
5.	Av. Phosphorous (P_2O_5)	kg/ha	SOP No:S-07 Issue No.2, Date- 12-04-2021	28.0
6.	Av. Potassium (K_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	114.0
7.	Av. Sodium (Na_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	256.0
8.	Av. Calcium as Ca	mg/kg	IS 2720:Part 23:1976(Reaff:2015)	790.0
9.	Av .Magnesium as Mg	mg/kg	SOP No:S-27 Issue No.2, Date- 12-04-2021	244.0
10.	Chloride (Cl)	mg/kg	SOP No:S-04 Issue No.2, Date- 12-04-2021	34.0
11.	Copper (Cu)	mg/kg	SOP No:S-31 Issue No.2, Date- 12-04-2021	0.16
12.	Zinc (Zn)	mg/kg	SOP No:S-32 Issue No.2, Date- 12-04-2021	1.80
13.	Iron (Fe)	mg/kg	SOP No:S-33 Issue No.2, Date- 12-04-2021	5.10
14.	Manganese (Mn)	mg/kg	SOP No:S-36 Issue No.2, Date- 12-04-2021	4.16
15.	Organic Carbon	%	SOP No:S-17 Issue No.2, Date- 12-04-2021	0.32
16.	Sodium Absorption ratio (SAR)	-	-	0.68
17	Grain Size Distribution			
a	Textural Class	-	SOP No:S-03 Issue No.2, Date- 12-04-2021	Sandy Loam
b	Sand	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	57.0
c	Silt	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	29.0
d	Clay	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	14.0

Opinion/Observation:

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

Idma Laboratories Limited

TC-8207

TEST REPORT

Lab No.	150225L-ED-033		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines. P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	SOIL		
Customer's Description of Sample#	SOIL		
Mode of Collection of Sample	By Hand		
Date of Sampling	02/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Polythene Pouch. (Loc.G Area OB Dump Plantation)		
Quantity#	1 Kg		
Date of Receipt of Sample	15/02/2025		
Period of Analysis	15/02/2025 To 21/02/2025		
Date of Reporting	21/02/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Soil)	-	-	-
1	Sulphur (Available)	mg/kg	9.72	Manual for Soil Testing , Govt. of India. Jan.2011
2	Nitrogen	mg/kg	346.1	Manual for Soil Testing , Govt. of India Jan.2011

Represents details provided by the customer.

End of Report

Reviewed by

Idma Laboratories Ltd. Dipti Jain Asst. Tech. Manager Panchkula

Authorised signatory

Idma Laboratories Ltd. Kartar Singh Tech. Mgr. Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website :www.idmagroup.co.in

Email : commercial@idmalab.co.in

Disclaimer :

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- Any complaint/discrepancies in this Test Report Should be communicated in writing within 15 days of the dispatch of Test Report.
- In case of any dispute, the terms & conditions of Idma Laboratories Limited shall prevail.
- In case of any feedback/complaints, please send email at testing@idmagroup.co.in or call at 0172 – 5064827 / 5064830

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	Boloni Ore Mines (SAIL)	Test Report No.	ECO/LAB/SS/0050/0343/01/2025
		Issue Date of Test Report	13.01.2025

Type of Sample	Soil sample		
Sample Registration No.	0050	Name of Location	F- Area Old OB Dump
Sampling Method	IS -2720	Sample Collected By	EMPL Representative
Date of Sample Collection	02.01.2025	Time of Sample Collection	-
Date of Sample Received	02.01.2025	Time of Sample Received	10:30 AM
Start Date of Analysis	06.01.2025	End Date of Analysis	13.01.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	Sample Quantity	As per Requirement
	Humidity: 52 %	Sample ID Code	ECO/LAB/0343/01/2025

Sl. No.	Parameters	Unit	Test Method	Result
1.	pH	-	IS:2720(Part-26) 1987, (Reaff: 2016)	6.45
2.	Electrical Conductivity	µmhos/cm	IS 14767 : 2000(Reaff: 2016)	124.0
3.	Total Soluble Solid	mg/kg	SOP No:S-10 Issue No.2, Date- 12-04-2021	128.0
4.	Nitrogen (N)	mg/kg	SOP No:S-14 Issue No.2, Date- 12-04-2021	152.0
5.	Av. Phosphorous (P_2O_5)	kg/ha	SOP No:S-07 Issue No.2, Date- 12-04-2021	56.0
6.	Av. Potassium (K_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	108.0
7.	Av. Sodium (Na_2O)	mg/kg	SOP No:S-19 Issue No.2, Date- 12-04-2021	220.0
8.	Av. Calcium as Ca	mg/kg	IS 2720:Part 23:1976(Reaff:2015)	845.0
9.	Av .Magnesium as Mg	mg/kg	SOP No:S-27 Issue No.2, Date- 12-04-2021	248.0
10.	Chloride (Cl)	mg/kg	SOP No:S-04 Issue No.2, Date- 12-04-2021	31.5
11.	Copper (Cu)	mg/kg	SOP No:S-31 Issue No.2, Date- 12-04-2021	0.18
12.	Zinc (Zn)	mg/kg	SOP No:S-32 Issue No.2, Date- 12-04-2021	2.17
13.	Iron (Fe)	mg/kg	SOP No:S-33 Issue No.2, Date- 12-04-2021	3.80
14.	Manganese (Mn)	mg/kg	SOP No:S-36 Issue No.2, Date- 12-04-2021	3.70
15.	Organic Carbon	%	SOP No:S-17 Issue No.2, Date- 12-04-2021	0.30
16.	Sodium Absorption ratio (SAR)	-	-	0.68
17.	Grain Size Distribution			
a	Textural Class	-	SOP No:S-03 Issue No.2, Date- 12-04-2021	Sandy Loam
b	Sand	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	51.0
c	Silt	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	37.0
d	Clay	%	SOP No:S-03 Issue No.2, Date- 12-04-2021	12.0

Opinion/Observation:

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Idma Laboratories Limited

TC-8207

TEST REPORT

Lab No.	150225L-ED-030		Page No. 1/1
Customer#	Rourkela Steel Plant Bolani Ores Mines, P.O. Bolani District Keonjar- Odisha- 758037 Odisha		
Work Order No.#	EMPL/WO/IDMA/10/2024	Dated	23/10/2024
Type of Sample#	SOIL		
Customer's Description of Sample#	SOIL		
Mode of Collection of Sample	By Hand		
Date of Sampling	02/01/2025		
Visual Observation	N/A		
Packing, Markings, Seal#	Polythene Pouch. (Loc.F Area Old OB Dump)		
Quantity#	1 Kg		
Date of Receipt of Sample	15/02/2025		
Period of Analysis	15/02/2025 To 21/02/2025		
Date of Reporting	21/02/2025		

RESULTS

S.No.	Test Parameter	Units	Results	Test Method
	CHEMICAL TESTING (Soil)	-	-	-
1	Sulphur (Available)	mg/kg	9.88	Manual for Soil Testing , Govt. of India Jan.2011
2	Nitrogen	mg/kg	382.3	Manual for Soil Testing , Govt. of India Jan.2011

Represents details provided by the customer.

End of Report

Reviewed 07/25
Dipti Jain
Asst Tech Manager
Idma Laboratories Ltd.
Panchkula

Authorised Signatories
Kartar Singh
Tech. Mgr.
Idma Laboratories Ltd.
Panchkula

Idma Laboratories Limited

Idma Corporate Park,

391, Industrial Area, Phase - 1,

Panchkula - 134113,

Haryana (India)

Tel No. 0172 - 5064827,- 5064830

Website : www.idmagroup.co.in

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ANNEXURE-IX

REPORT ON PEAK PARTICLE VELOCITY

इंडियन ऑयल कॉर्पोरेशन लिमिटेड
बी. डी.जी (ई) / एस.एम.एस. एक्सप्लोसिव्स संयंत्र, बोलानी
पोष्ट: बोलानी, जिला: केउंनझर (ओड़िसा) - 758037
Indian Oil Corporation Limited
BDG (E): SMS Explosives Support Plant, Bolani
P.O. Bolani, Dist.-Keonjhar (Odisha) - 758037

बी.डी.जी (एक्सप्लोसिव्स)
BDG (Explosives)

IOCL-Expl./Boloni/BOM/E&L/GVR/2025-26/01 Date: 25.06.2025

To,
The General Manager (E&L)
Bolani Ore Mines, SAIL RSP
Keonjhar, Odisha-758037

Subject: Submission of Report of Ground Vibration Test due to blasting.

Ref: BOM/E&L/B-2025-600 Dated 08.04.2025

Dear Sir,

With reference to your above referred request letter for conducting blast induced ground vibration study at Bolani Ores mines site for statutory purpose, we have conducted the study from 01.06.2025 to 15.06.2025. Planned timeline of vibration study was as follows:

Location	Date of study	Remark
Near F Area Hopper	03.06.2025	Blast induced ground vibration
Near Bolani Hospital	10.06.2025	
Near DAV Public School	12.06.2025	
Near Lakhsmi Mandap	12.06.2025	

Study was carried out in the presence our team and the officer nominated by GM (E&L) BOM. Detailed report is attached herewith. Hope this will serve your purpose.

Thanking you,

For, **Indian Oil Corporation Limited**

Manish Kumar
Assistant Manager (Marketing)
Unit In-Charge, IOCL Plant-Bolani

Manish Kumar
Asst. Manager, MKTG
Indian Oil Corporation Limited
Bulk Expl. Support Plant, Bolani-758037
Dist-Keonjhar (Odisha)

VIBRATION-CUM-BLAST REPORT

SN	PARTICULARS	REMARKS
1	Date of Blast	03.06.2025
2	Location /Bench	F AREA NEAR HOPPER
3	Hole Dia (mm)	150 mm
4	No. of Holes	70
5	Bench height (m)	5
	Drilling Parameters	
6	Avg. Depth of the hole (m)	5.5
7	Spacing (m)	3.0
8	Burden (m)	2.3
9	Block Volume (m3)	2656.5
11	Type of Initiators	NONEL
12	Average Explosive Charge per hole (Kg)	54.72
13	Maximum Explosives Charge per Delay (Kg)	60.15
14	Total Primer used (Kg)	10.50
15	Total Bulk Explosives (Kg)	3820.00
16	Total Explosive used	3830.50
	VIBRATION MEASUREMENT:	
17	Distance of Vibration M/c from Blast Site	Approx 400.5 m from Blast face
18	Max. PPV at Orthogonal Directions (mm/sec.)	T: **2.152** V: **1.513** L: **2.317**
19	Corresponding Frequency (Hz)	T: **4.7** V: **5.3** L: **5.1**
20	**Peak Vector Sum**	**2.907 mm/sec at 0.908 sec**
	POST BLAST OBSERVATION	
21	Fragmentation	Good
22	Fly Rock	Nil
23	Muck Profile	As required

For, **Indian Oil Corporation Limited**

Manish Kumar
Asst. Manager, MKTG
Indian Oil Corporation Limited
Bulk Expl. Support Plant, Bolani-758037
Dist-Keonjhar (Odisha)

Blasting I/C
BOM, RSP, SAIL
Sandeep Kumar
DGM (Mining)
BOM-SAIL-RSP

Event Report

Date/Time	Long at 13:44:06 June 3, 2025
Trigger Source	Geo: 0.250 mm/s, Mic: 2.000 pa.(L)
Range	Geo: 254.0 mm/s
Record Time	10.315 sec (Auto=5Sec) at 2048 sps
Operator/Setup:	Operator/IOCL GVR.MMB

Serial Number	UM16986 V 10-89 Micromate ISEE
Battery Level	3.8 Volts
Unit Calibration	December 30, 2024 by UES New Delhi
File Name	__TEMP.EVT

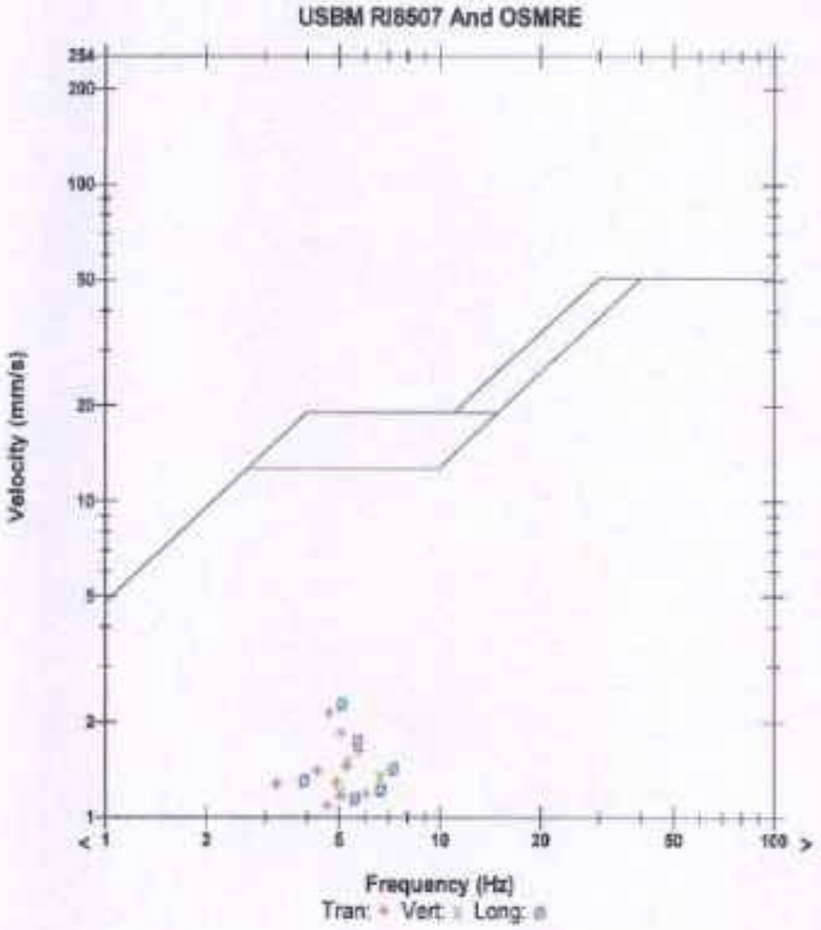
GPS Location	**Latitude**	**Longitude**
Source:	022 5.483 N	085 18.129 E
Sensor1:	022 5.616 N	085 18.313 E
Distance:	400.5 m	

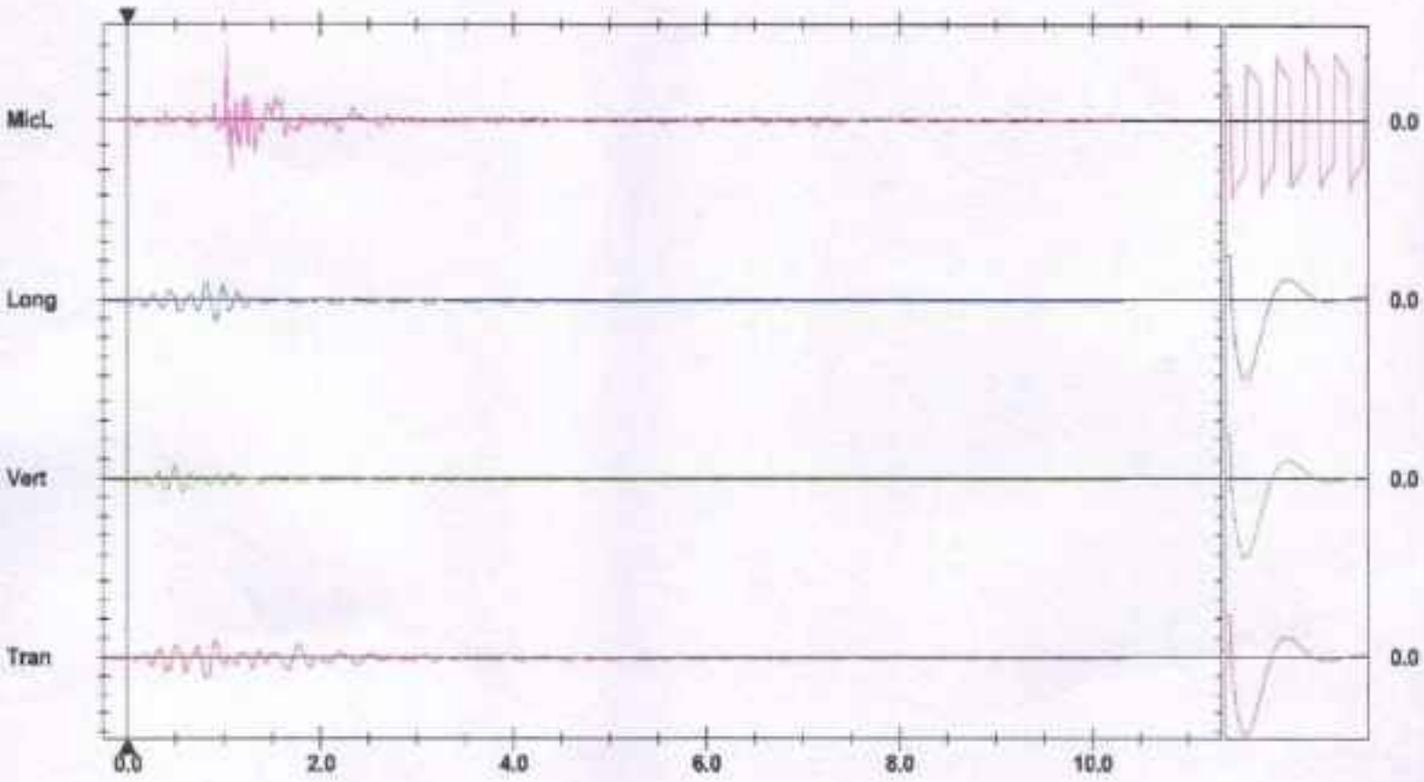
Notes
Location: BOLANI F AREA
Client: BOLANI ORES MINES
User Name: INDIAN OIL CORPRATION LIMITED
General:

Microphone Linear Weighting
PSPL 15.24 pa.(L) at 1.029 sec
ZC Freq 15.5 Hz
Channel Test Passed (Freq = 19.7 Hz Amp = 1128 mv)

	Tran	Vert	Long	
PPV	2.152	1.513	2.317	mm/s
ZC Freq	4.7	5.3	5.1	Hz
Time (Rel. to Trig)	0.811	0.568	0.915	sec
Peak Acceleration	0.015	0.013	0.013	g
Peak Displacement	0.074	0.055	0.067	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.3	7.3	Hz
Overswing Ratio	4.0	4.4	3.9	

Peak Vector Sum 2.907 mm/s at 0.908 sec





Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 5.000 pa.(L)/div
Trigger =

Sensor Check

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VIBRATION-CUM-BLAST REPORT

SN	PARTICULARS	REMARKS
1	Date of Blast	10.06.2025
2	Location /Bench	D AREA BOLANI
3	Hole Dia (mm)	100 mm
4	No. of Holes	55
5	Bench height (m)	5
	Drilling Parameters	
6	Avg. Depth of the hole (m)	4.8
7	Spacing (m)	2.9
8	Burden (m)	2.4
9	Block Volume (m3)	1837.44
11	Type of Initiators	NONEL
12	Average Explosive Charge per hole (Kg)	24.33
13	Maximum Explosives Charge per Delay (Kg)	25.15
14	Total Primer used (Kg)	8.25
15	Total Bulk Explosives (Kg)	1330.00
16	Total Explosive used	1338.25
	VIBRATION MEASUREMENT:	
17	Distance of Vibration M/c from Blast Site	Approx 1047.9 m from Blast face
18	Max. PPV at Orthogonal Directions (mm/sec.)	T: **0.315** V: **0.512** L: **0.481**
19	Corresponding Frequency (Hz)	T: **4.0** V: **3.1** L: **3.0**
20	**Peak Vector Sum**	**0.534 mm/sec at 1.510 sec**
	POST BLAST OBSERVATION	
21	Fragmentation	Good
22	Fly Rock	Nil
23	Muck Profile	As required

For, **Indian Oil Corporation Limited**
Manish Kumar
Asst. Manager, MKTG
Indian Oil Corporation Limited
Bulk Expl. Support Plant, Bolani-758037
Dist-Keonjhar (Odisha)

Sandeep kumar
Blasting I/C
BOM, RSP, SAIL
Sandeep Kumar
DGM (Mining)
BOM-SAIL-RSP

Instantel Event Report

Date/Time	Long at 11:32:04 June 10, 2025
Trigger Source	Geo: 0.150 mm/s, Mic: 2.000 pa.(L)
Range	Geo: 254.0 mm/s
Record Time	16.038 sec (Auto=5Sec) at 2046 sps
Operator/Setup:	Operator/IOCL GVR.MMB

Serial Number	UM16986 V 10-99 Micromate ISEE
Battery Level	3.7 Volts
Unit Calibration	December 30, 2024 by UES New Delhi
File Name	__TEMP.EVT

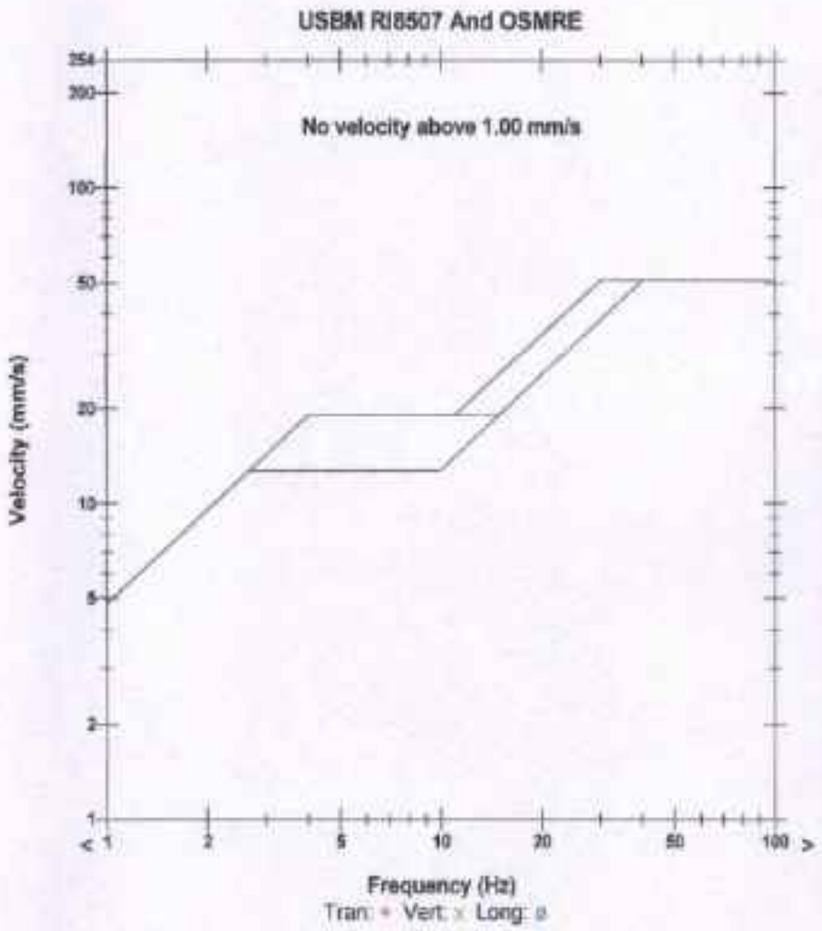
GPS Location	**Latitude**	**Longitude**
Source:	022 7.517 N	085 19.999 E
Sensor1:	022 6.962 N	085 20.031 E
Distance:	1047.9 m	

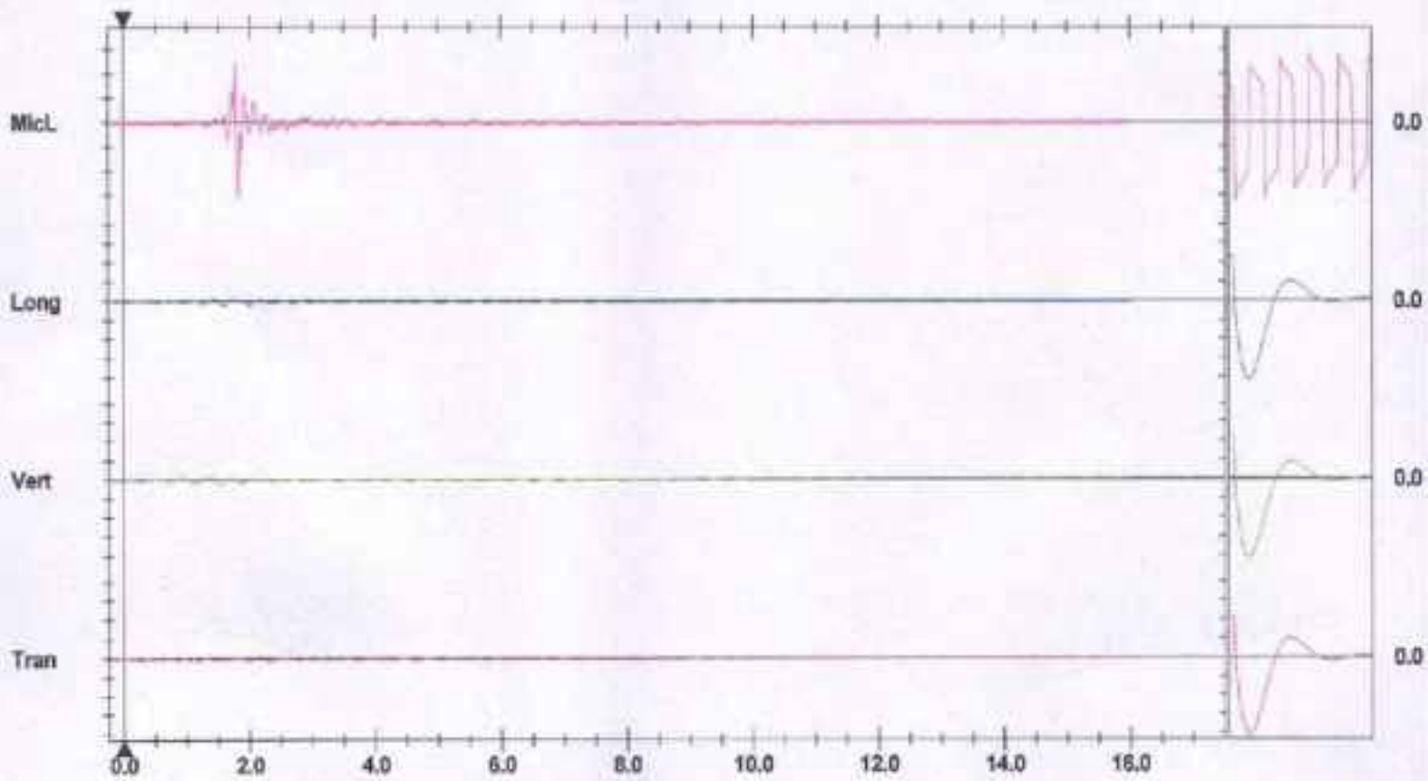
Notes
Location: BOLANI HOSPITAL
Client: BOLANI ORES MINES
User Name: INDIAN OIL CORPRATION LIMITED
General:

Microphone	Linear Weighting
PSPL	3.072 pa.(L) at 1.824 sec
ZC Freq	4.9 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1177 mv)

	Tran	Vert	Long	
PPV	0.315	0.512	0.481	mm/s
ZC Freq	4.0	3.1	3.0	Hz
Time (Rel. to Trig)	1.191	1.509	1.595	sec
Peak Acceleration	0.010	0.008	0.010	g
Peak Displacement	0.063	0.077	0.059	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.5	Hz
Overswing Ratio	4.0	4.5	3.9	

Peak Vector Sum 0.534 mm/s at 1.510 sec





Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 1.000 pa.(L)/div
Trigger =

Sensor Check

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VIBRATION-CUM-BLAST REPORT

SN	PARTICULARS	REMARKS
1	Date of Blast	12.06.2025
2	Location /Bench	D AREA BOLANI
3	Hole Dia (mm)	100 mm
4	No. of Holes	60
5	Bench height (m)	5
	Drilling Parameters	
6	Avg. Depth of the hole (m)	4.7
7	Spacing (m)	2.5
8	Burden (m)	2.0
9	Block Volume (m3)	1410
11	Type of Initiators	NONEL
12	Average Explosive Charge per hole (Kg)	20.98
13	Maximum Explosives Charge per Delay (Kg)	25.15
14	Total Primer used (Kg)	9.00
15	Total Bulk Explosives (Kg)	1250.00
16	Total Explosive used	1259.00
	VIBRATION MEASUREMENT:	
17	Distance of Vibration M/c from Blast Site	Approx 773.8 m from Blast face
18	Maxi. PPV at Orthogonal Directions (mm/sec.)	T: **0.701** V: **0.631** L: **0.788**
19	Corresponding Frequency (Hz)	T: **3.9** V: **7.5** L: **2.8**
20	**Peak Vector Sum**	**0.892 mm/sec at 130.220 sec**
	POST BLAST OBSERVATION	
21	Fragmentation	Good
22	Fly Rock	Nil
23	Muck Profile	As required

For, **Indian Oil Corporation Limited**
Manish Kumar
Asst. Manager, MKTG
Indian Oil Corporation Limited
Bulk Expl. Support Plant, Bolani-758037
Dist-Keonjhar (Odisha)

Sandeep Kumar
Blasting I/C
BOM, RSP, SAIL
Sandeep Kumar
DGM (Mining)
BOM-SAIL-RSP

Instantel Event Report

Date/Time	Vert at 11:44:18 June 12, 2025
Trigger Source	Geo: 0.150 mm/s, Mic: 2.000 pa.(L)
Range	Geo: 254.0 mm/s
Record Time	138.0 sec (Auto=5Sec) at 2048 sps
Operator/Setup:	Operator/IOCL GVR.MMB

Serial Number	UM16986 V 10-99 Micromate ISEE
Battery Level	3.7 Volts
Unit Calibration	December 30, 2024 by UES New Delhi
File Name	__TEMP.EVT

GPS Location	**Latitude**	**Longitude**
Source:	022 7.517 N	085 19.999 E
Sensor1:	022 7.146 N	085 20.206 E
Distance:	773.8 m	

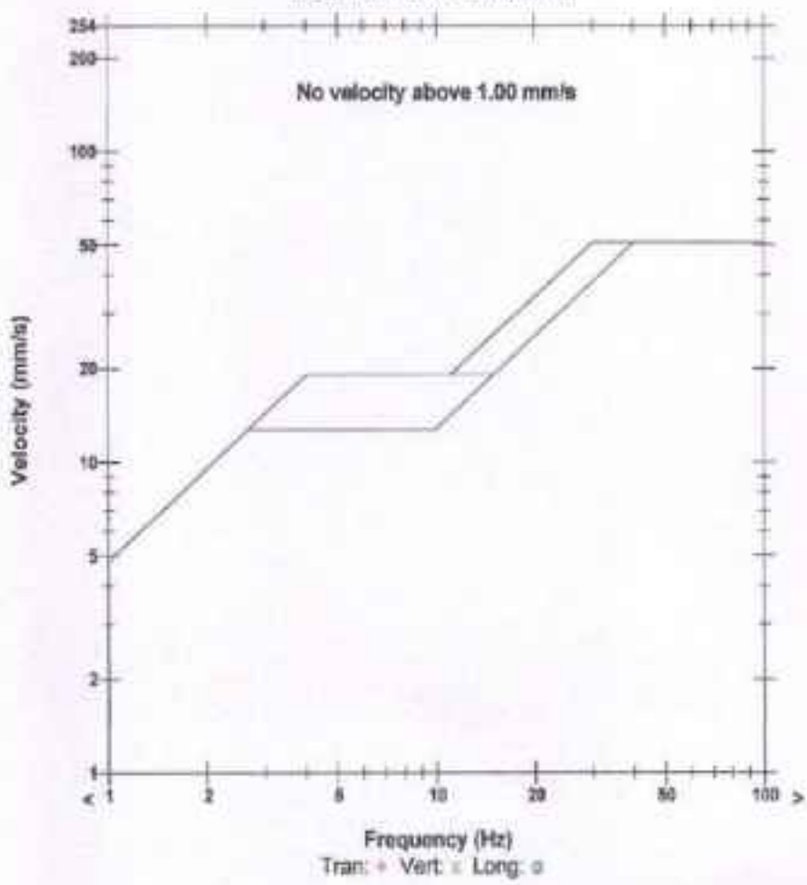
Notes
Location: DAV PUBLIC SCHOOL
Client: BOLANI ORES MINES
User Name: INDIAN OIL CORPRATION LIMITED
General:

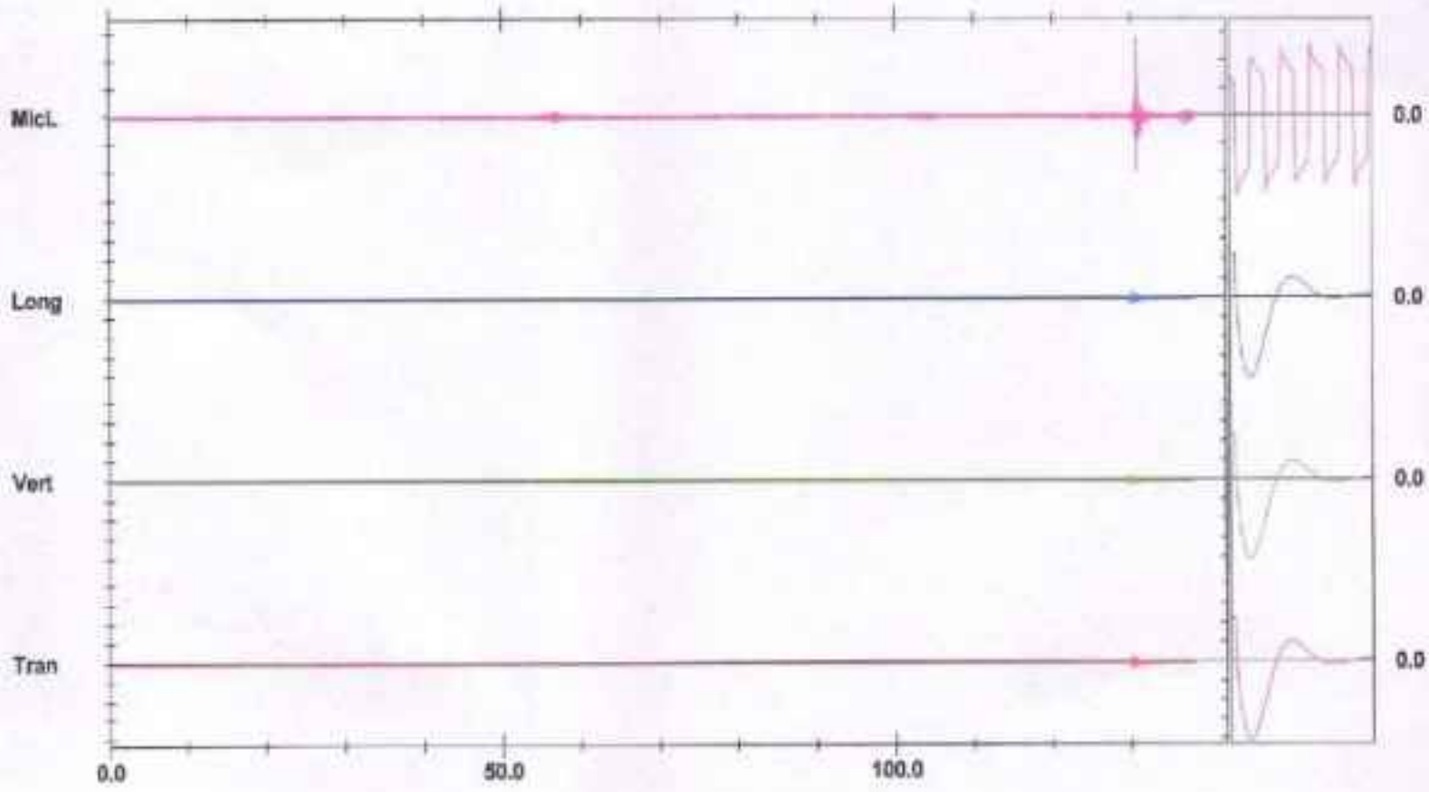
Microphone	Linear Weighting
PSPL	5.570 pa.(L) at 130.746 sec
ZC Freq	11.6 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1148 mv)

	Tran	**Vert**	**Long**	
PPV	0.701	0.631	0.788	mm/s
ZC Freq	3.9	7.5	2.8	Hz
Time (Rel. to Trig)	129.969	130.320	130.053	sec
Peak Acceleration	0.012	0.015	0.013	g
Peak Displacement	9.604	11.35	10.34	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.3	Hz
Overswing Ratio	3.9	4.4	3.9	

Peak Vector Sum 0.892 mm/s at 130.220 sec

USBM RI8507 And OSMRE





Time Scale: 10.00 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 2.000 pa.(L)/div

Sensor Check

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VIBRATION-CUM-BLAST REPORT

SN	PARTICULARS	REMARKS
1	Date of Blast	12.06.2025
2	Location /Bench	PANPOSH AREA BOLANI
3	Hole Dia (mm)	100 mm
4	No. of Holes	30
5	Bench height (m)	5
	Drilling Parameters	
6	Avg. Depth of the hole (m)	4.76
7	Spacing (m)	2.5
8	Burden (m)	2
9	Block Volume (m3)	714
11	Type of Initiators	NONEL
12	Average Explosive Charge per hole (Kg)	24.15
13	Maximum Explosives Charge per Delay (Kg)	25.15
14	Total Primer used (Kg)	4.50
15	Total Bulk Explosives (Kg)	720.00
16	Total Explosive used	724.50
	VIBRATION MEASUREMENT:	
17	Distance of Vibration M/c from Blast Site	Approx 846.4 m from Blast face
18	Max. PPV at Orthogonal Directions (mm/sec.)	T: **0.378** V: **0.434** L: **0.520**
19	Corresponding Frequency (Hz)	**5.1** **4.8** **3.0**
20	**Peak Vector Sum**	**0.582 mm/sec at 0.784 sec**
	POST BLAST OBSERVATION	
21	Fragmentation	Good
22	Fly Rock	Nil
23	Muck Profile	As required

For, **Indian Oil Corporation Limited**
Manish Kumar
Asst. Manager, MKTG
Indian Oil Corporation Limited
Bulk Expl. Support Plant, Bolani-758037
Dist-Keonjhar (Odisha)

Sandeep Kumar

Blasting I/C
BOM, RSP, SAIL
Sandeep Kumar
DGM (Mining)
BOM-SAIL-RSP

Instantel

Event Report

Date/Time	Vert at 12:58:37 June 12, 2025
Trigger Source	Geo: 0.150 mm/s, Mic: 2.000 pa.(L)
Range	Geo: 254.0 mm/s
Record Time	9.5 sec (Auto=5Sec) at 2048 sps
Operator/Setup:	Operator/IOCL GVR.MMB

Serial Number	UM16966 V 10-89 Micromate ISEE
Battery Level	3.7 Volts
Unit Calibration	December 30, 2024 by UES New Delhi
File Name	__TEMP.EVT

GPS Location	**Latitude**	**Longitude**
Source:	022 6.796 N	085 19.427 E
Sensor1:	022 6.609 N	085 19.676 E
Distance:	346.4 m	

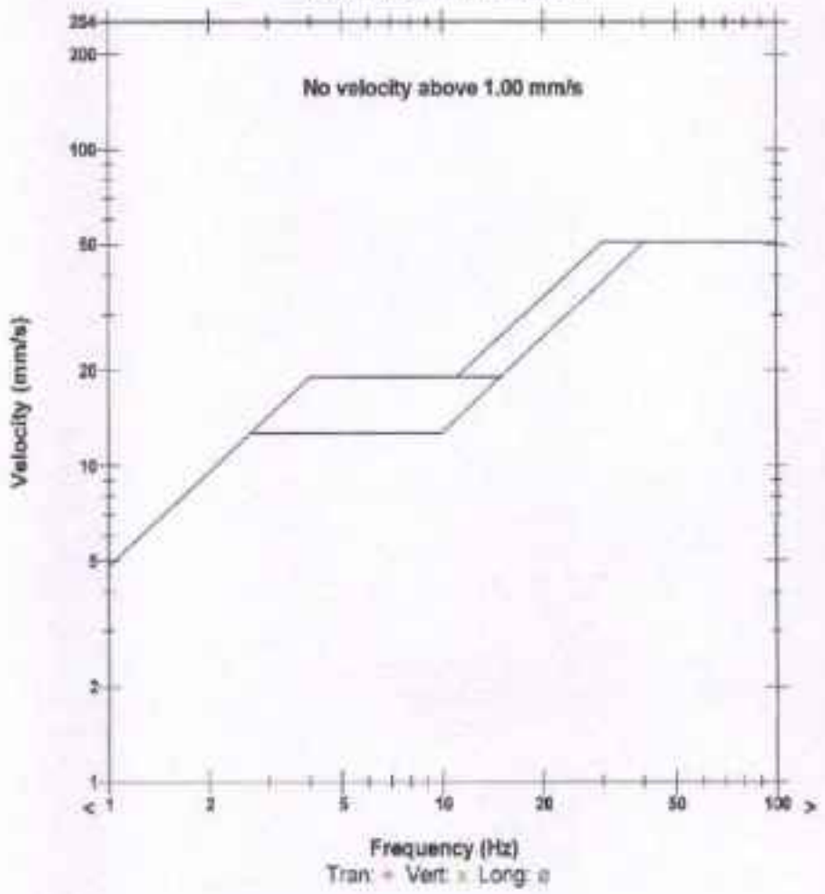
Notes
Location: LAXMI MANDAP
Client: BOLANI ORES MINES
User Name: INDIAN OIL CORPRATION LIMITED
General

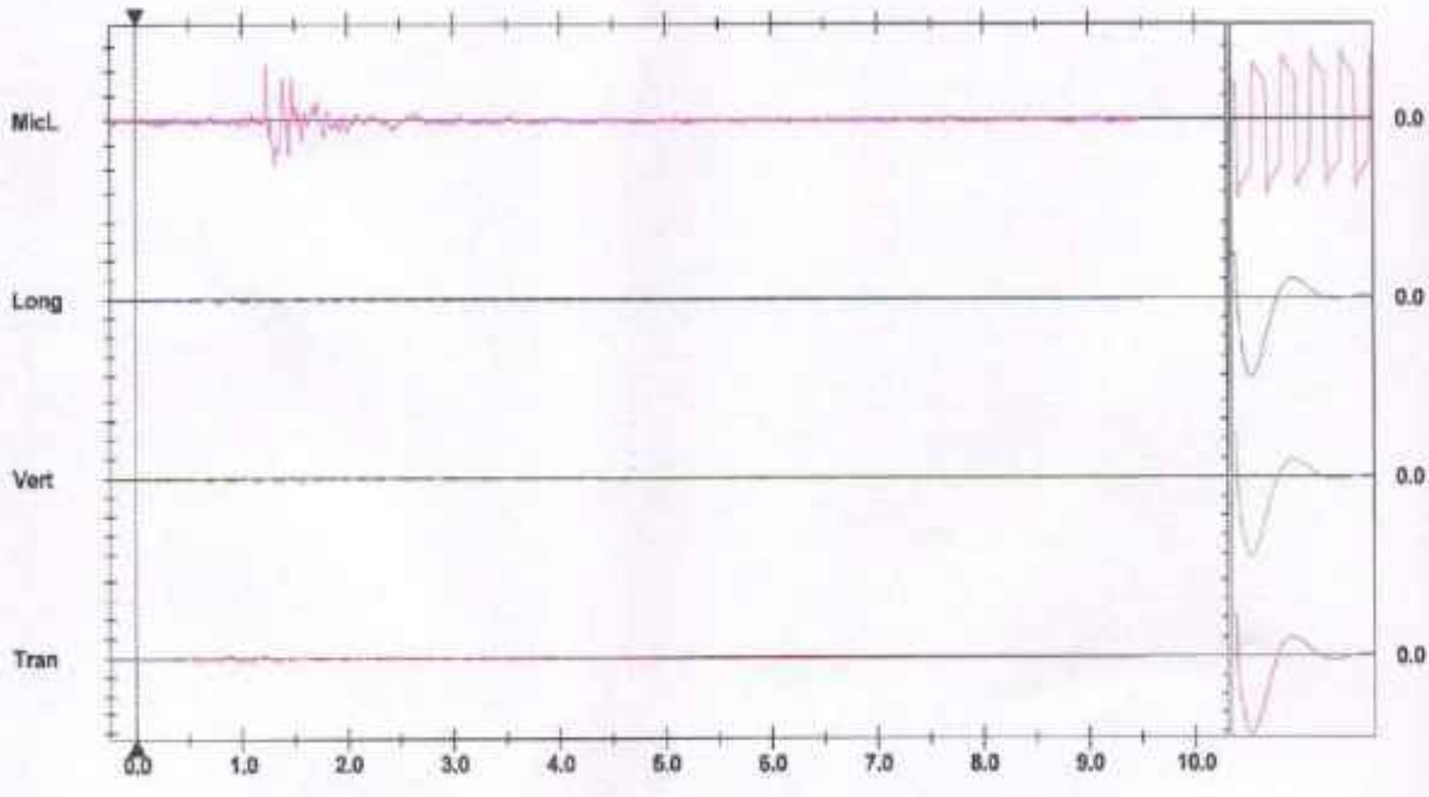
Microphone	Linear Weighting
PSPL	2.312 pa.(L) at 1.231 sec
ZC Freq	13.8 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1172 mv)

	Tran	Vert	Long	
PPV	0.378	0.434	0.520	mm/s
ZC Freq	5.1	4.8	3.0	Hz
Time (Rel. to Trig)	0.764	1.563	0.787	sec
Peak Acceleration	0.010	0.010	0.010	g
Peak Displacement	0.041	0.040	0.034	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.3	Hz
Overswing Ratio	4.0	4.5	4.0	

Peak Vector Sum 0.582 mm/s at 0.784 sec

USBM RI8507 And OSMRE





Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 1.000 pa.(L)/div

Sensor Check

Trigger =

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