सेल SAIL

स्टील अथॉरिटी ऑफ इंडिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
केंद्रीय खनन एवं रसद संगठन
CENTRAL MINING & LOGISTICS ORGANIZATION
ओडिशा खान समूह
ODISHA GROUP OF MINES
बोलानी अयस्क खदान
BOLANI ORES MINES

Ref No: - CGM/B- 746

Date: 30.11.2025

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 Apr'25-Sept'25.

Sir,

Please find enclosed herewith the Six monthly compliance report for the period **Apr'25-Sept'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 ,dated 13/09/2023 and dated.24.07.2025.

Thank you,

Yours faithfully,

30/11/2025

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

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 APR'2025-SEPT'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, dated.24.07.2025
PERIOD: APR'2025-SEPT'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 and 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 and 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/EandL/ 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 and 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 Apr-25 to Sep-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 and 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 and 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 & Different environmental monitoring activities are enclosed as Annexure-VIII.**

Table – A

Name of quarry	Fugitive emission control facilities	Departmental / Contractual	Remarks
F and 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 and 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 and 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 and 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 and 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 and 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 and 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, 85°18’10.31”E	In-pit	Temporary	Retaining wall
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	In-pit	Temporary	Grassing. In the

			22° 7’15.21”N, 85°20’4.41”E			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 and 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 BandC 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 and 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 22° 6'18.24"N 85°19'36.84"E		

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

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 and 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 and 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 and 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 85°19’42.13”E, 22°7’2.08”N To 85°19’25.63”E, 22° 6’54.56”N	Loose Boulder retaining wall 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	RRM retaining wall with Garland Drain 100 m x 1.5 m x 1.2 m

Sl. No.	Year	Location	Co-ordinates	Retaining wall details
			85°19’48.55”E, 22° 5’50.87”N	
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 and 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-IV**.

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 BandC 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-III.**

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 and G quarry
2.	Haul Roads of F and G approach road to Hopper	Fixed water sprinkling alongside haul road	The road is kept wet
3	Haul Roads of F and G quarry and 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 and Panposh and 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 and 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
6	Ore Transportation from F and 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 and 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

Sl. No.	Location of critical points	Safeguard measures	Remarks
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 and 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 and Screen plant
		Fixed water sprinkling system in fines dump side	Water sprinkling at Hopper of 600 TPH plant
12	Approach Roads, Township and 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 and 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
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 air quality monitoring report for the period is attached in Annexure - I. 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 –II & Different environmental monitoring activities are enclosed as Annexure-VIII.**

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 and 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-IV.**

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 reports are enclosed as **Annexure-IX** 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 and 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 reports are enclosed as **Annexure-V & Different environmental monitoring activities are enclosed as Annexure-VIII.**

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 and 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 and 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 and light vehicles is undertaken by Mechanical Maintenance section regularly to keep the vehicular emissions under control.
3. AII 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	Equip. No.	Make	PUCC Validity
1	ROAD SWEEPER	Mechanical	OD09V7220	Tata Motors	24-06-2026
2	EXPLOSIVE VAN	Mines	OD09C6302	Tata Motors	10-04-2026
3	EXPLOSIVE VAN	Mines	OD09V9850	Ashok Leyland	30-12-2026
4	DIESEL BOWSER	Mines	OD09V2926	Ashok Leyland	28-09-2026
5	DIESEL BOWSER	Mines	UP16BT8809	Ashok Leyland	10-04-2026
6	TRUCK	Mechanical	OD09P1842	Mahindra	28-09-2026
7	TRUCK	Store	OD09V7507	Eicher	14-07-2026
8	TRUCK	Mechanical	OD09V5010	Mahindra	24-01-2026
9	TRUCK	OPP	OD09P3263	Tata Motors	28-09-2026
10	MIST CANNON TRUCK	E & L	OD09P6495	Eicher	28-09-2026
11	WATER TANKER	Mines	OD09A2122	Ashok Leyland	10-04-2026
12	WATER TANKER	Mines	OD09W7884	Ashok Leyland	11-07-2026
13	WATER TANKER	Mines	OD09V9936	Tata Motors	05-01-2026
14	MAINT. VAN	Mechanical	OR09Q9263	Tata Motors	10-04-2026
15	AMBULANCE	Hospital	OD09K3343	Tata Motors	28-09-2026
16	AMBULANCE	Hospital	OD09AA9536	Tata Motors	06-02-2026

17	SCHOOL BUS	Mines	OD09A0946	Tata Motors	10-04-2026
18	SCORPIO-S11	CGM Pool	OD09K6668	Mahindra	03-10-2026
19	BOLERO JEEP	Plant	OD09K3576	Mahindra	03-10-2026
20	BOLERO JEEP	Mines	OD09C2376	Mahindra	10-04-2026
21	BOLERO JEEP	Electrical	OD09C2375	Mahindra	10-04-2026
22	BOLERO JEEP	Mines	OD09C2374	Mahindra	10-04-2026
23	BOLERO JEEP	CGM Pool	OD09V1162	Mahindra	30-05-2026
24	BOLERO CAMPER	Survey	OD09C2371	Mahindra	10-04-2026
25	BOLERO CAMPER	Electrical	OD09C2372	Mahindra	10-04-2026
26	BOLERO CAMPER	Plant	OD09C2373	Mahindra	12-04-2026
27	BOLERO CAMPER	Plant	OD09K2575	Mahindra	03-10-2026
28	BOLERO CAMPER	Mechanical	OD09K2576	Mahindra	03-10-2026
29	TATA YODHA CAMPER	Mechanical	OD09W8346	Tata Motors	11-07-2026
30	TATA YODHA CAMPER	Civil	OD0;9W8376	Tata Motors	11-07-2026

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-II.**

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 - II**.
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.

Compliance: Complied

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.
3. The summary of medical examinations carried out during 2024-25, as on date 30th September 2025 of preparation of this report, is as follows:

Contractual workers		**Employees**	
Pre-placement medical examination	Periodical medical examination	Pre-placement medical examination	Periodical medical examination
374 nos.	207 nos.	6 nos.	80 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 2025-26, 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 and CO	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)
6	DAV Public School	PM10, PM2.5, SO2, NOx and 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 2025 at these following locations (at 300 m distance or within the nearest habitation):

SL. NO.	**LOCATION**
1	Bolani Townhip Near Laxhmi Mandir
2	Bolani Hospital
3	DAV Public School Bolani
4	G-Area
5	F-Area Near Hopper

2. The report of Peak Particle Velocity is enclosed in **Annexure - V**

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 of air quality monitoring Reports are enclosed as **Annexure-I**.

30) A final mine closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment and 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 and 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 ElA 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 and 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 and CO	BUFFER/IMPACT ZONE (6.90 ML)	AAQMS (Manual)
6	DAV Public School	PM10, PM2.5, SO2, NOx and 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.

Water quality reports are enclosed as **Annexure-V & Different environmental monitoring activities are enclosed as Annexure-VIII.**

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 and Lease section under direct control of Chief General Manager (Mines). The details of constitution are as follows:

Composition of Environment Management section	**Qualification**
General Manager (Environment & Lease), Grade- E7	(1) MSc Tech Applied Geology (2) M Tech Environmental Sc. & Engineering
AGM (Min-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 Environment & 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 MoEFandCC, New Delhi, Regional Office –MoEF and 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 and 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 and 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.

30/11/2025

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.

30/11/2025

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.

30/11/2025

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

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 .

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 2025-26.
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 and 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, procurement 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 and 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 c**ondition in auction contract/selling contract is being stipulated.

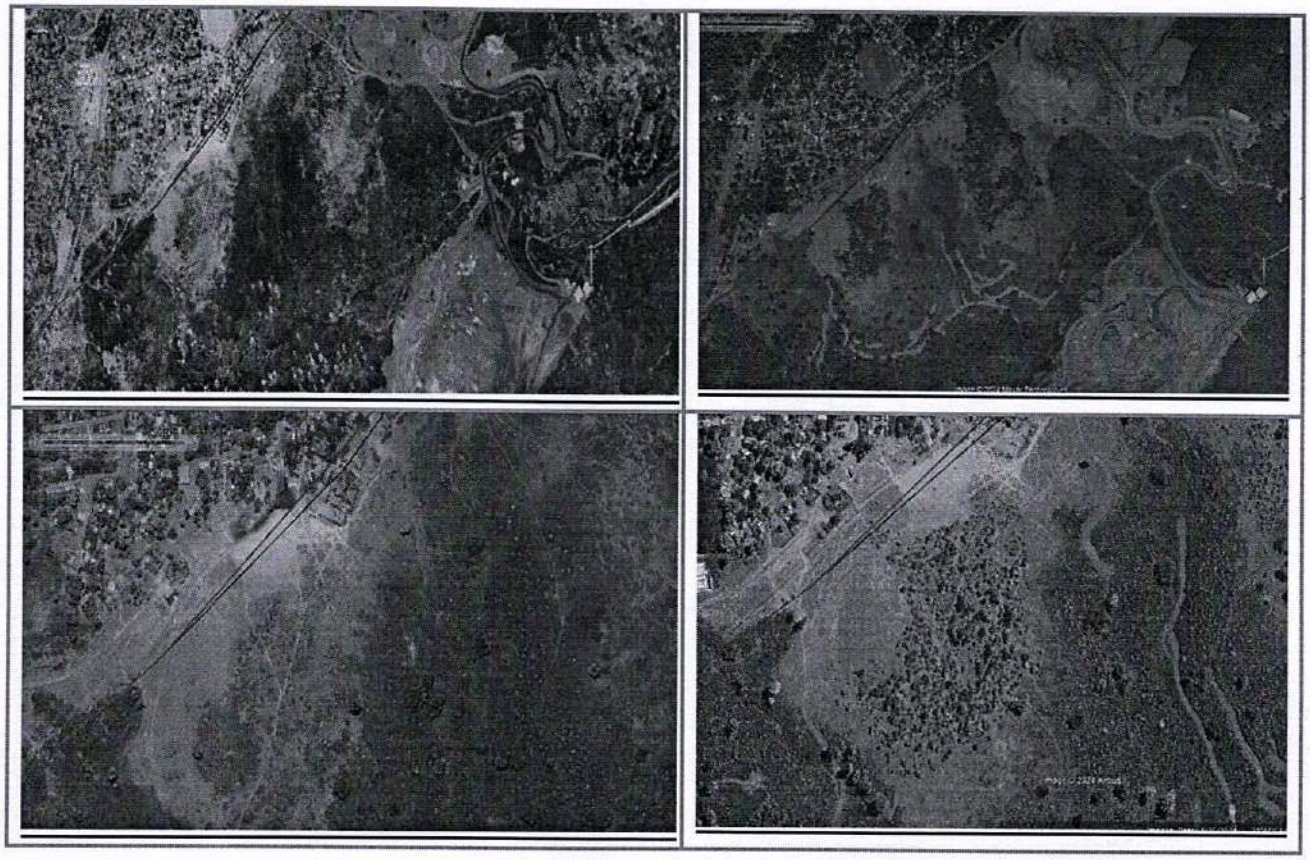
ix. Yearly plantation scheme and three tire green belt development scheme to be done by PP and a record of which must be submitted to IRO with satellite imagery showing the progressive change in land use with six monthly compliance report.

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

30/11/2025

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

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: Agreed to Comply

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: Complied

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. Water quality reports are enclosed as **Annexure-V.**

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 and 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: Complied

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-VI.**

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.

Compliance: Complied

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 .

(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.

Compliance: Complied

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.

Compliance: 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 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.

30/11/2025

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

COMPLIANCE OF SPECIFIC CONDITIONS STIPULATED IN AMENDMENT OF EXTENSION OF EC VIDE NO: J 11015/418/2008 IA.II (M) DT.24.07.2025

1. Specific Conditions:

1.1 Extension of the validity of the existing amended EC order dated 13.09.2023 for an additional 4 (four) years to enable the liquidation of the remaining dump fines as per the approved Review of Mining Plan (RMP) 2025–30, while sustaining the provisions of the original EC granted via letter No. J 11015/418/2008 IA.II (M) dated 21.12.2012, amendment dated 17.02.2014 and its subsequent amendments, within the approved 12 MTPA iron ore capacity.

Compliance: Complied

The mining operations , ancillary activities and dump fines recovery are being carried out strictly within the approved 12 MTPA (ROM) capacity as stipulated in the Environmental Clearance (EC) granted by MoEF andCC vide letter No. J 11015/418/2008 IA.II(M) dated 21.12.2012, and its subsequent amendments, including the latest amendment dated 13.09.2023 and instant amendment dated 24.07.2025 . In line with the approved Review of Mining Plan (RMP) 2025–30, the instant amended EC extends the validity of the existing amended EC to facilitate the complete liquidation of remaining dump fines for an additional period of four (4) years. This EC amendment order does not involve any increase in production capacity or change in the project configuration. All environmental safeguards, monitoring programs, and statutory compliances under the EC and other applicable Acts are being duly implemented and reported to the competent authorities at prescribed intervals, while sustaining the provisions of the original EC granted via letter No. J 11015/418/2008 IA.II (M) dated 21.12.2012 . Hence, this condition is complied with the existing EC provisions, and the proposed extension is procedural to ensure continuity of operations within the approved framework and capacity.

1.2 PP is permitted to liquidate a maximum of 1.2 MTPA of dump fine and 11.47 MTPA of iron ore and the combined total excavation shall not exceed 12 MTPA.

Compliance:

Bolani Iron Ore Mines has taken necessary steps to ensure that liquidation of dump fines remains strictly within the approved limit of 1.2 MTPA, as permitted under the amended Environmental Clearance (EC) dated 13.09.2023. The excavation and dispatch of dump fines are carried out in accordance with the provisions of the approved Review of Mining Plan (RMP) 2025–30, ensuring that the total quantity of dump fines processed does not exceed the EC stipulated ceiling. All activities are conducted within the overall EC capacity of 12.0 MTPA (ROM basis) and are being monitored and documented and reported through the **production returns submitted to IBM & Details are attached in Annexure – X.**

Hence, the condition regarding limitation of 1.2 MTPA of dump fines is being fully complied with. Data updated monthly based on actual production and dispatch records on the basis of returns submitted , all quantities include dump fines from stacks as approved in RMP 2025–30, to keep the liquidation strictly within the 1.2 MTPA EC ceiling.

1.3 PP needs to submit an action plan as per Ministry s OM dated 24.07.2024 wherein it is stated that the plantation of saplings shall be carried out in the earmarked 33percent greenbelt area as

part of the tree plantation campaign EK Ped Ma ke Naam (एक पेड़ माँ के नाम) and the details of the same shall be uploaded in the MeriLife portal (https://merilife.nic.in).

Compliance: Complied

Bolani Iron Ore Mines has prepared an action plan in this regard and details are as follows:

The total Mining Lease (ML) area of Bolani Ores Mines is 1321.45 ha. Accordingly, 33percent of the ML area, i.e., approximately 436.08 ha, is to be developed under greenbelt / plantation. Comprehensive afforestation schemes have already been prepared in consultation with the Divisional Forest Officer (DFO), Keonjhar, and have been technically approved by the Regional Chief Conservator of Forests (RCCF), Rourkela, keeping 33percent of the mining lease area as the plantation target, even prior to the launch of the Ek Ped Ma Ke Naam (एक पेड़ माँ के नाम) campaign. Copies of such approved schemes were submitted to Ministry along with previous compliance reports.

With the introduction of the Ministry s Ek Ped Ma Ke Naam initiative, all ensuing plantation programs shall now be implemented within the earmarked 33percent greenbelt area under the said campaign, and data will be uploaded periodically on the MeriLife portal (https://merilife.nic.in) in line with Office Memorandum of the MoEFCC dated 24.07.2024. The details of the plan is as follows:

As per the approved land use plan, a total area of 412.41 ha has been earmarked as undisturbed zone, comprising 339.21 ha of virgin area to be maintained as forest and 73.20 ha as safety zone. In addition, an area of about 23.67 ha is proposed to be utilized for reclamation and plantation over mined out pits, overburden dumps, and areas available as gap/vacant forest kisam/rakhita patches within and up to 100 meters beyond the mining lease boundary in consultation with DFO Keonjhar and/or as per approved schemes . Indigenous and site specific species recommended by the State Forest Department and other guidelines (CPCB) are being planted to ensure ecological suitability and higher survival rates.

Replacement planting is carried out annually to maintain 80 percent survival rate. In this regard, the copy of work order is **attached herewith in Annexure-XI**, as documentary evidence for support towards implementation of the plan.

Bolani Ores Mines shall ensure the timely submission of plantation reports in the six monthly EC compliance reports and upload on the MeriLife Portal as per the Ministry's requirements.

1.4 PP should ensure that there is no spillage of dump fines/ore during transportation. All adequate measures may be taken in this regard. An implementation report shall be sent to Ministry s Regional Office, Bhubaneswar, in half yearly compliance reports.

Compliance: Complied.

Bolani Iron Ore Mines has taken measures to prevent spillage of ore and dump fines during handling and transportation on to public road, due to which there is no spillage of dump fines / ore during transportation.

The following control measures have been implemented:

i. All dump fines/ore are transported in covered tippers / dumpers equipped with tarpaulin covers to prevent wind-blown spillage, as per the condition stipulated in the auction/selling contract.
ii. CISF inspection gate has been deployed for inspection before exit to public road where vehicles are visually inspected by the executing authorities of fines auction/selling/handling contracts for proper covering and load compliance.
iii. The haul roads and approach roads within Mining Lease are regularly maintained.

iv. Mechanical road sweeping and water sprinkling arrangements are deployed to maintain the public road up to Derby chowk.
v. Compliance reports and photographs evidencing these control measures are included in the half yearly compliance report submitted to the Regional Office, MoEF and CC, Bhubaneswar.

Accordingly, Bolani Iron Ore Mines is in compliance with Condition 1.4 of the EC, ensuring that transportation of dump fines/ore is carried out in a controlled and environmentally safe manner.

The photographs evidencing these control measures are **attached herewith in Annexure-II**.

1.5 PP should comply with the directives of the State Government of Odisha issued vide letter dated 31.01.2020 from Department of Steel and Mines, Govt. of Odisha.

Compliance: complied

Bolani Iron Ore Mines has complied with the directives of the Department of Steel and Mines, Government of Odisha, issued vide letter No. 1025/SM dated 31.01.2020, which permitted SAIL to sell iron ore dump fines/slimes lying at its captive mines in the open market as per the order of the Ministry of Mines, Government of India (Ref. No. 16/33/2019 M.VI dated 04.01.2020). The compliance status with respect to the directives is attached in **Annexure-XII.**

1.6 All other terms and conditions mentioned in the earlier EC dated 21.12.2012, 17.02.2014, 30.07.2020, 05.08.2021, 19.08.2022 and 13.09.2023 shall remain unchanged.

Compliance: Agreed to comply.

Bolani Iron Ore Mines continues to comply with all terms and conditions stipulated in the earlier Environmental Clearances / amendment grant orders dated 21.12.2012, 17.02.2014, 30.07.2020, 05.08.2021, 19.08.2022, and 13.09.2023. All specific conditions, general conditions, and subsequent amendments issued by MoEF&CC and its Regional Office are being adhered to without deviation.

Regular half yearly compliance reports, monitoring data, and documentary evidence are being submitted to the Regional Office, Bhubaneswar, and uploaded on the Parivesh portal as required.

Hence, the condition stands fully complied with.

1. Statutory Compliance:

1.1 The Project Proponent shall follow the mitigation measures provided in MoEFCCs Office Memorandum No. Z 11013/57/2014 IA.II (M), dated 29th October, 2014, titled Impact of mining activities on Habitations Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area

Compliance: Complied.

Bolani Iron Ore Mines (SAIL) is implementing all mitigation measures prescribed in the MoEF andCC Office Memorandum No. Z 11013/57/2014 IA.II(M) dated 29.10.2014, addressing the impact of mining on nearby habitations. Protective greenbelts have been developed along habitation boundaries, and controlled blasting, dust suppression, and noise abatement measures are strictly followed. Haul roads are maintained with water sprinkling and traffic control near villages, while continuous environmental monitoring ensures compliance with air, noise, and vibration standards.

Community consultation and grievance redressal mechanisms are in place, ensuring the safety, health, and welfare of surrounding villages in full compliance with the OM..

1.2 A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.

Compliance: Complied.

A copy of the Environmental Clearance (EC) letter has been formally marked and shared with the concerned Gram Panchayat of Bolani for record and reference. Receipt acknowledgements from are maintained in the compliance file for audit readiness. Copies of the acknowledgement records are annexed to the half yearly compliance reports submitted to MoEF and CC Regional Office, Bhubaneswar. Copies of the Environmental Clearance (EC) letter were published in The Times of India and The Samaja newspapers, and duly distributed to the respective , Tehsil Office, and the Office of the District Collector is attached in **Annexure-XIII**.

1.3 State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector s office/ Tehsildar s Office for 30 days.

Compliance: Complied.

The Odisha State Pollution Control Board (OSPCB) has been duly communicated regarding the grant of amendment of Environmental Clearance (EC) granted to Bolani Iron Ore Mines. As per the condition, the OSPCB is responsible for displaying the EC letter at its Regional Office, the District Industries Centre, and the offices of the District Collector and Tehsildar for a period of 30 days and the same was expedited with OSPCB and was ensured. Confirmation of the same was informed by OSPCB. Accordingly, the condition stands complied with.

1.4 The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.

Compliance: Complied.

Bolani Iron Ore Mines has submitted application for modification of existing Consent to Establish (CTE) and Consent to Operate (CTO) for the amended clauses , from the Odisha State Pollution Control Board (OSPCB) under the provisions of the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974. As such the CTOs are kept valid and up to date, and renewals are applied for well within the prescribed timelines. Copies of the latest CTO/CTE orders are submitted to the regulatory authorities and included in the of the half yearly compliance report. Accordingly, the condition stands fully complied with.

1.5 The project proponent shall prepare a Site Specific Conservation Plan and Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six monthly compliance report. (in case of the presence of Schedule I species in the study area).

Compliance: Complied.

A Site Specific Conservation Plan (SSCP) and Wildlife Management Plan (WMP) for Bolani Iron Ore Mines have been prepared and approved by the Chief Wildlife Warden, Government of Odisha, as

required due to the presence of Schedule I species reported in the study area. All recommendations of the approved SSCP/WMP covering habitat improvement, water provisioning, protection measures, awareness programs, and monitoring protocols are being implemented in coordination with the State Forest Department and the Divisional Forest Officer, Keonjhar. The implementation status, along with documentary evidence and expenditure details, is being submitted regularly as part of the six monthly EC compliance reports to MoEF&CC (Regional Office, Bhubaneswar) and uploaded on the PARIVESH portal.

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.
3. 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.
4. Necessary Infrastructural Supports are provided to local forest departments as and when required for the cause of Wild Life Conservation.
5. 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.

Accordingly, the condition is fully complied with.

1.6 The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.

Compliance: Complied

Bolani Iron Ore Mine (5.10 sq. miles ML area) does not fall within any notified Wildlife Sanctuary, National Park, or Eco Sensitive Zone (ESZ), and no part of the mining lease lies within the 10 km radius of any Protected Area requiring prior clearance from the National Board for Wildlife (NBWL). The requirement of obtaining NBWL clearance is therefore not applicable to this project. Accordingly, the condition stands complied with.

1.7 The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non forest purpose involved in the project.

Compliance: Complied

The Bolani Iron Ore Mines operates entirely within the forest land already approved under the Forest (Conservation) Act, 1980 (now renamed as the Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980). No additional diversion of forest land beyond the earlier FC approvals is involved in the present mining operations. All mining and allied activities are confined strictly to the already diverted forest areas, and no new application for forest diversion is required at this stage. Accordingly, the condition stands fully complied with.

1.8 This Environmental Clearance (EC) is subject to orders/ judgment of Honble Supreme Court of India, Honble High Court, Honble NGT and any other Court of Law, Common Cause Conditions as may be applicable.

Compliance: Agreed.

The Environmental Clearance for Bolani Iron Ore Mines is being implemented in full conformity with all orders, judgments, and directions issued by the Honble Supreme Court of India, the Honble High Courts, the Honble National Green Tribunal (NGT), and any other competent judicial authority, including the applicable Common Cause directions.

All mining, dispatch, environmental management, and statutory compliance activities are carried out strictly in accordance with these judicial mandates. Any new orders or directions issued by judicial bodies are reviewed immediately and implemented in consultation with the concerned regulatory authorities.

Accordingly, the condition stands fully complied with.

1.9 The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.

Compliance: Complied.

No groundwater is being withdrawn for mining or allied activities. Necessary permission from the competent authorities has been obtained for drawl of surface water required for the project. A Water Drawl Agreement for extraction of 7 cusec of surface water (for the envisaged level of production) from the Karo River and its tributaries has been executed with the Executive Engineer, Baitarini Division, Salapada, vide Agreement No. 839 dated 21.02.2025, with a validity of one year. The average water consumption during the reporting period remains well within the permitted quantity.

Accordingly, the condition stands fully complied with.

1.10 The Project Proponent shall inform the MoEF andCC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

Compliance: Complied

There has been no change in ownership of the Bolani Iron Ore Mines (5.10 sq. miles ML). The mining lease continues to remain with M/s Steel Authority of India Limited (SAIL). In the event of any future change in ownership or transfer of the mining lease, the Project Proponent shall duly inform MoEF andCC and apply for transfer of Environmental Clearance (EC) as per Para 11 of the EIA Notification, 2006, as amended from time to time. Accordingly, the condition is complied with.

1.11 The Project proponent complies with all the statutory requirements and judgment of Hon ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India andOrs before commencing the mining operations.

Compliance: Complied

Bolani Iron Ore Mines has complied with all statutory requirements and the directions of the Hon ble Supreme Court of India dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 (Common Cause vs. Union of India and Ors) prior to commencement of mining operations. The compliance included payment of compensation/penalty as determined, securing necessary statutory clearances, and

ensuring adherence to the provisions of the MMDR Act, 1957 and MCR, 1960. Mining operations were resumed only after full compliance with the Supreme Court judgment and subsequent directions of the Ministry of Mines and MoEF and CC.
Accordingly, the condition stands complied with.

1.12 The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining and Geology in strict compliance of Judgment of Hon ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India and Ors.

Compliance: Complied

The State Government (Department of Steel and Mines, Odisha) has permitted continuation of mining operations at Bolani Iron Ore Mines only after ensuring compliance with the Honble Supreme Court's judgment dated 02.08.2017 in W.P.(C) No.114/2014 – Common Cause vs. Union of India and Others.

All levies assessed by the State Government, as applicable to the Bolani 5.10 sq. miles ML, have been fully deposited by M/s SAIL. Only one assessment matter remains sub judice, and its final compliance will be ensured immediately upon disposal by the competent judicial authority.

1.13 The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time. The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.

Compliance: Complied.

The Project Proponent has obtained authorization under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended, from the concerned State Pollution Control Board for handling and disposal of hazardous waste generated from mining and workshop activities. All conditions of the authorization are being complied with, and records/registers are maintained as prescribed.
The updated Environmental Clearance (EC) letter was published in two local newspapers: *The Times of India* (English) and the Odia vernacular daily *The Samaja*, on 30.07.2025, in accordance with the prescribed requirements. The advertisement clearly mentioned that EC has been accorded to the Bolanui Iron Ore Mines and that a copy of the EC is available with the State Pollution Control Board and on the Ministrys website (www.parivesh.nic.in). Further the EC letter has also been submitted to the State Pollution Control Board and is available on the Ministrys PARIVESH portal (www.parivesh.nic.in). A copy of the newspaper advertisement has been forwarded to the MoEF andCC Regional Office, Bhubaneswar for compliance and record.

Accordingly, the condition stands fully complied with.

1.14 The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has obtained authorization under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended from time to time, from the Odisha State Pollution Control Board (OSPCB). The currently valid Hazardous Waste Authorization is Authorization No. IND IV HW 321/14070 dated 25.07.2025.

All conditions stipulated in the authorization covering storage, handling, transportation, disposal through authorized recyclers/TSDF, and maintenance of statutory records are being strictly complied with. The authorization is renewed as required and maintained in force.

Accordingly, the condition stands fully complied with.

2. Statutory Compliance:

2.1 The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

Compliance : Complied

This condition relates to the requirements stipulated in the MoEF andCC OM No. Z 11013/57/2014 IA.II(M) dated 29.10.2014, which has already been complied with and detailed under Condition 1.7 of this report.

As submitted under Condition 1.7, the Bolani Iron Ore Mines, M/s SAIL ML area (5.10 sq. miles) contains no designated grazing land (Gochar) within the lease boundary, as authenticated by the Tahasildar, Barbil and the Forest Department. Hence, no acquisition, disturbance, or diversion of grazing land arises, and the directions of the Honble Supreme Court regarding protection and replacement of grazing lands stand complied with by default. All mining activities are confined to forest land within the ML area, as authenticated by the Tahasildar, Barbil and the Forest Officials of Keonjhar Division. No Gochar land has been diverted for mining or associated activities.

Nevertheless, in alignment with the OM guidelines, suitable grazing patches outside the ML remain undisturbed, sparse shade bearing trees are protected, and plantation of such species is promoted. To support local grazing practices outside the ML, suitable grazing areas identified by the State authorities are kept undisturbed, and shade providing trees are strictly protected. Plantation under the Ek Ped Ma Ke Naam campaign includes shade bearing species in and around these grazing patches. Additional plantations have been carried out in sparse vegetation areas to improve shelter availability, and water troughs have been created near grazing areas for livestock welfare. Additional shade bearing plantations and water troughs have also been created to support livestock in adjoining villages.

Accordingly, the requirement under Condition 2.1 stands complied with, and is covered under compliance submitted for Condition 1.7 (MoEF&CC OM dated 29.10.2014).

2.2 The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the

native species in consultation with the State Forest Department / Agriculture Department/ Rural development department / Tribal Welfare Department / Gram Panchayat such that only those species be selected which are of use to the local people . The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL is carrying out extensive plantation and afforestation activities in the backfilled areas, reclaimed benches, dump slopes, roadside corridors, water body surroundings, safety zones, and community interface zones, in consultation with the State Forest Department, DFO Keonjhar, Gram Panchayats, and local stakeholders.

Plantation is undertaken strictly with native and locally useful species, as recommended by the State Forest Department under the approved afforestation schemes and the Site Specific Conservation Plan. The species mix includes fruit bearing, shade bearing, medicinal, soil binding and biodiversity supportive plants that benefit local communities.

All plantations are executed in line with the CPCB Greenbelt Development Guidelines, maintaining a target density of ~2,500 saplings per hectare in suitable plantation areas. Protection measures such as fencing, mulching, watering, and survival monitoring are implemented with adequate budgetary allocation. Plantation works are also integrated with the Ministry s Ek Ped Ma Ke Naam campaign, and progress is uploaded on the MeriLife portal as required under OM dated 24.07.2024. The copy of work order is attached herewith in **Annexure - XI.** The photographs of plantation activities are attached in **Annexure –III.**

Accordingly, the condition stands fully complied with, and plantation activities continue on a phased annual plan up to 2030.

3. Air Quality Monitoring And Preservation:

3.1 Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has implemented a comprehensive, site specific and multi layered Fugitive Dust Suppression System covering all dust generating zones of the mine. The control framework integrates advanced engineering and operational measures including fixed rotating fog canons, mobile mist canons, dry fog dust suppression systems at crushing and transfer points, fixed water sprinkling lines along major haul roads, concrete pavement upgradation in high traffic zones, mechanical road sweeping units, mobile water sprinklers, dense greenbelt buffers, mandatory tarpaulin covering of all outgoing mineral laden trucks, and an automated wheel washing system at the dispatch gate. Together, these systems ensure continuous compliance with MoEF&CC and CPCB fugitive

emission standards and maintain ambient air quality within prescribed norms. A consolidated summary of zone wise dust control measures is furnished in **Annexure -I** of this report.

3.2 Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.

Compliance: Being complied

Bolani Iron Ore Mines, M/s SAIL has adopted a comprehensive and multi layered dust control strategy for raw material stockpiles, ensuring suppression of wind borne emissions through a combination of engineered, operational and vegetative measures to minimize dust dispersion from lump and fines stockyards, the following measures are in place:

i. **Rotating fog canons** deployed along stockpile peripheries to intercept airborne particulates generated during stacking and reclaiming.
ii. **Mobile mist canons** operated during high wind periods and peak handling hours to provide dynamic suppression across exposed stock surfaces.
iii. **Regular surface wetting and moisture maintenance** of stockpiles through fixed and mobile sprinkling systems.
iv. **Stockpile management practices**, including slope stabilization, controlled height, and periodic compaction, to reduce wind exposure and prevent loose fines from becoming airborne.
v. **Peripheral greenbelt and vegetative barriers** functioning as natural wind buffers and reducing wind velocity in stockpile zones.
vi. **Enclosed conveyor systems and controlled material drop heights** reducing dust generation at feed and discharge points associated with stockpile formation.

Continuous ambient air quality monitoring confirms that PM_{10} and $PM_{2.5}$ concentrations consistently remain within MoEF&CC /CPCB prescribed limits, including during peak stockpile handling seasons. While current systems effectively control wind-borne dust, feasibility studies for wind shelter fencing and chemical spraying are in progress and these measures will be progressively integrated to further strengthen suppression.

3.3 The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF andCC, Zonal office of CPCB and Regional Office of SPCB along with six monthly monitoring report.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL is an opencast iron ore mine with crushing and screening facilities and does not have any process stacks or stack emission–generating units. Accordingly, stack emission monitoring is not applicable to the operations of BOM. However, in compliance with the intent of the condition, BOM maintains a comprehensive air quality monitoring system and ensures regular reporting as required under the EC:

(i) Continuous Ambient Air Quality Monitoring (CAAQMS): Real time monitoring of PM_{10}, $PM_{2.5}$, SO_2 and NO_2 at designated stations.

(ii) Manual Ambient Air Quality Monitoring: Conducted at the identified core and buffer zone locations in accordance with CPCB/OSPCB guidelines.

(iii)Fugitive Emission Monitoring: Undertaken at haul roads, crushing plants, loading/unloading areas, stockyards and other dust generating locations.

The summary reports covering continuous AAQ data, manual monitoring results, and fugitive emission assessments are compiled and submitted to MoEF and CC Regional Office, Bhubaneswar, in six monthly compliance reports, OSPCB at regular intervals along with the six monthly Environmental Clearance compliance report and are also uploaded on the PARIVESH portal.

Thus, the condition is fully complied with.

3.4 The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.

Compliance: Complied.

At Bolani Iron Ore Mines, M/s SAIL, the majority of mineral dispatch is carried out through Railways and only saleable fines are transported by road. Road dispatch operations are managed under an earmarked Sales Department functioning under the supervision of the Head of Mining. As per the terms and conditions of the transportation contracts, only leak proof trucks/dumpers are authorized for movement of iron ore fines and associated materials. All mineral laden vehicles are mandatorily covered with tarpaulin, and the Sales Department ensures strict compliance before release of vehicles. To reinforce control measures, CISF managed dispatch gates verify tarpaulin covering, tail gate sealing, leak proof body condition, and absence of overloading for every outbound truck.

Vehicles not meeting the prescribed conditions, such as improper covering, leakage, or loose tail gates, are denied exit until rectified.

An automated wheel washing system at the fines dispatch gate prevents track out of material onto haul/approach roads.

Transport contractors are contractually bound to maintain leak proof vehicle bodies and proper tarpaulin covering, with penalties imposed for noncompliance.

Accordingly, the condition is fully complied with.

3.5 Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.

Compliance : Not Applicable

Bolani Iron Ore Mines, M/s SAIL is an opencast mining operation and does not involve any underground workings, tunnels, or subterranean material handling passages**.** Accordingly, the requirement for designing ventilation systems for tunnels does not arise in this mining operation.

Ventilation systems such as exhaust fans have been installed in enclosed structures such as motor houses, crusher houses, conveyor galleries, workshops, and oil cellars. These systems ensure adequate air changes, preventing accumulation of dust, fumes, and vapors. Compliance is demonstrated through preventive maintenance records, fire/safety audits ambient monitoring inside enclosed units, and adherence to CPCB/MoEF&CC standards.

3.6 The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognized under Environment (Protection) Act, 1986. 9) The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each). Covering upwind and downwind directions.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has complied with the requirement of fugitive emission monitoring and continuous ambient air quality monitoring. A network of 10 nos. offline fugitive air quality monitoring stations has been established. These stations are strategically located across the plant premises Mines haul roads, stockpiles and adjoining areas to monitor total suspended particulates (TSP) and respirable suspended particulates (RSPM). A network of 06 nos Offline Manual Ambient Air Quality (AAQ) Monitoring Stations and 04 Online Continuous Ambient Air Quality Monitoring Stations (CAAQMS) has been established to monitor key air pollutants, namely PM_{10}, $PM_{2.5}$, SO_2, NO_x, and CO, in accordance with MoEF&CC / CPCB norms.

The ambient monitoring stations are located both within the core zone and outside the ML (buffer zone). The stations are positioned strategically at angular separation of approximately 120°, covering dominant pre vailing wind and downwind directions, as per recommendations of OSPCB, NEERI, and the Environmental Clearance stipulations. The manual stations are placed at a lateral distance of 25 ± 2 m from identified pollutant sources to ensure representative sampling.

All ambient air quality monitoring, sampling, and laboratory analysis are carried out through M/s Ecomen Mining Pvt. Ltd., an NABL accredited and Environment (Protection) Act recognized laboratory. Monthly monitoring reports are submitted to the State Pollution Control Board by the 10th of every month vide email. Further, consolidated environmental monitoring data are regularly submitted along with the half yearly EC Compliance Report to MoEF&CC Regional Office, CPCB Zonal Office, and OSPCB Regional Office, and are uploaded on the PARIVESH portal.

Photographs, air monitoring data, and a detailed map of monitoring locations including coordinates, type of station, monitoring frequency, and wind direction basis, documentation regarding consultation with OSPCB are enclosed in **Annexure -I .**

Accordingly, the condition stands fully complied with.

3.7 Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has implemented an integrated Air Pollution Control (APC) system across all dust generating points covering crushing and screening plants, conveyor transfer houses, loading and unloading areas, stockpiles, haul roads, and dispatch zones.

As the operation is fully opencast and does not involve any process stacks or stack emission–generating units, stack emission standards are not applicable to BOM. APC measures provided include dry fog dust suppression at crushers and hoppers, covered conveyors with dust tight transfer points, rotating fog canons and mobile mist canons at stockpile and material handling areas, fixed

and mobile water sprinkling systems across haul roads, mechanical road sweeping on paved stretches, compaction and height control of stockpiles, and a wheel washing system at the dispatch gate.

Greenbelt buffers along approach roads and sensitive locations further minimize downwind fugitive emissions. Continuous and manual ambient air quality monitoring confirms that particulate levels consistently remain within MoEF and CC/CPCB standards.

The above APC interventions form part of the comprehensive fugitive dust control measures already detailed under Condition 3.1, with supporting documentation photographs are enclosed in **Annexure -II.**

3.8 The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL is an opencast mining operation with crushing and screening units only and does not have any process stacks or stack emission–generating equipment. Therefore, installation of a 24×7 Continuous Emission Monitoring System (CEMS) for process stacks is not applicable to BOM.

However, the mine has established a robust and continuous ambient and fugitive emission monitoring system:

a. Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed and connected to regulatory servers as per OSPCB protocols, measuring PM_{10}, $PM_{2.5}$, SO_2 and NO_x on a 24×7 basis.
b. Manual fugitive emission monitoring is carried out in crushing areas, loading plant, haul roads, and stockyards, at regular intervals, including quarterly monitoring through NABL recognized laboratories
c. Data from CAAQMS and fugitive emission monitoring are submitted to MoEF&CC ,RO, CPCB Zonal Office, and OSPCB, and uploaded on the PARIVESH portal along with the six monthly EC compliance report.

Thus, although CEMS installation is not applicable due to absence of process stacks, continuous and manual monitoring of ambient and fugitive emissions is in place and compliant with the applicable provisions of the Environment (Protection) Rules, 1986.

The monitoring arrangements and reporting framework have already been detailed under compliance to Condition 3.6, and supporting documentation is enclosed in **Annexure -XIV**.

3.9 The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B 29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of

transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has installed 04 (four) Online Continuous Ambient Air Quality Monitoring Stations (CAAQMS) in consultation with OSPCB. The stations have been sited based on long term wind rose and climatological data, with one station positioned in the upwind sector and three stations located across downwind sectors, maintaining an approximate 120° angular separation in accordance with NAAQS Notification No. B 29016/20/90/PCI/I dated 18.11.2009.

The CAAQMS network continuously monitors the air quality parameters PM_{10}, $PM_{2.5}$, SO_2, NO_2, and CO, capturing the cumulative impacts of ore handling, haul road movement, mining operations, transportation, and influence from neighboring pellet/sponge iron plants. To supplement continuous monitoring, manual ambient air quality monitoring is also carried out at key occupational and sensitive locations such as the office building, canteen, main gate, residential colony, school, loading plant, fines selling area, and nearby villages, to assess site specific exposure levels.

The real time air quality data from the CAAQMS network, along with manually monitored results, are digitally displayed at main gate.

The siting of the monitoring stations, monitoring methodology, and operational details have already been presented under Condition 3.6, Condition 3.8 with supporting documents enclosed in **Annexure XIV.**

3.10 The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each).covering upwind and downwind directions.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has installed a network of four (4) Continuous Ambient Air Quality Monitoring Stations (CAAQMS) to monitor common/criterion pollutants relevant to mining operations, namely PM_{10}, $PM_{2.5}$, SO_2, and NO_x, in full compliance with the requirement of one station inside the plant area and three stations outside. The monitoring locations were finalized based on long term wind rose and climatological analysis to ensure adequate representation of both upwind and downwind directions, maintaining an approximate 120° angular separation between stations.

The CAAQMS units continuously record and transmit real time air quality data for 24×7 monitoring of emissions arising from ore handling, crushing, haul road movement, and ancillary industrial activities within the influence zone. The siting criteria, methodology, pollutants monitored, and connectivity to regulatory systems have been implemented as per MoEF andCC and NAAQS guidelines.

The installation details and monitoring framework are already elaborated under Condition 3.6, Condition 3.8 and Condition 3.9, with supporting documentation enclosed in **Annexure -XIV** .

4. Water Quality Monitoring And Preservation:

4.1 Adhere to Zero Liquid Discharge EC Conditions

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has made necessary arrangements so that that no industrial effluent or contaminated water is discharged to outside the mining lease areas. All wastewater generated from workshops, vehicle washing, ore processing, and mine runoff is effectively treated and reused within the mining system. To achieve ZLD, the details of safeguard measures are in place, as enumerated in **Annexure - V**. Accordingly, Bolani Iron Ore Mines fully complies with the Zero Liquid Discharge (ZLD) condition.

4.2 The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.

Compliance: Complied.

Bolani Iron Ore Mines has continued to prepare internal water balance charts and conduct in-house water accounting, ensuring adherence to Zero Liquid Discharge (ZLD) norms. Measures for reducing water consumption, including recycling through ETPs, tailing pond recirculation, and dust suppression optimization, are being implemented and reported regularly to MoEF&CC and OSPCB. To strengthen compliance, the project proponent has initiated action to engage an accredited third-party agency for conducting a fresh water audit, which will be completed and submitted in upcoming reporting cycles.

Bolani Iron Ore Mines has continues to prepare internal water balance charts and conduct in-house water water balance assessment, covering all major water consuming and recycling circuits, including workshop effluent, vehicle washing water, crushing/plant operations, dust suppression systems, tailing pond recirculation, and domestic usage, ensuring adherence to Zero Liquid Discharge (ZLD) norms. Measures for reducing water consumption, including recycling through ETPs, tailing pond recirculation, and dust suppression optimization, are being implemented and reported regularly to MoEF and CC and OSPCB. To strengthen compliance, the project proponent has initiated action to engage an accredited third-party agency for conducting a fresh water audit, which will be completed and submitted in upcoming reporting cycles.

Bolani Iron Ore Mines, M/s SAIL carries out regular internal water balance assessment. Periodic internal water balance reviews are also carried out to optimize water reuse and minimize fresh water drawl. Based on these assessments, the BOM has implemented multiple water conservation and efficiency measures such as enhanced reuse of treated water from ETPs and settling ponds, conversion of high movement internal roads to concrete pavement (reducing water demand for dust suppression), deployment of water efficient fog/mist canons, and recirculation of clarified water from the tailing pond for operational reuse. These measures have significantly reduced the net fresh water requirement of the mine. Bolani Iron Ore Mines is in the process of engaging an external, 3rd party accredited agency to undertake a comprehensive Water Audit in accordance with MoEF and CC/OSPCB requirements.

4.3 Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State

Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.

Compliance: Complied.

This condition has been addressed in detail under Condition 4.1 (Zero Liquid Discharge). Bolani Iron Ore Mines, M/s SAIL ensures that all industrial wastewater, including workshop effluent, vehicle washing wastewater, and mine drainage, is properly collected, routed through treatment systems, and maintained within the standards prescribed under the Consent to Operate (CTO) issued by the Odisha State Pollution Control Board (OSPCB).

Key measures implemented include:

(i) Oil and Grease Traps (Initial Treatment Stage):
All workshop and vehicle washing wastewater first passes through Oil and Grease (O andG) separation units, ensuring removal of floating hydrocarbons and primary contaminants before entering further treatment.

(ii) Effluent Treatment Plants (ETPs):
Two (2) nos. 10,000 KL capacity Effluent Treatment Plants installed at the Bottom Garage Workshop and G Area Workshop receive O andG treated effluent for sedimentation, clarification, and recycling. The treated water meets the quality parameters stipulated in the CTO and is reused for dust suppression, cleaning, and other non-potable applications.

(iii)Mine Water and Runoff Collection:
Mine drainage and surface runoff in monsoon are channelized through garland drains, settling tanks, mega siltation ponds, retaining structures, and check dams, which remove suspended solids and prevent any untreated discharge from reaching natural water bodies.

Treated water from ETPs, settling structures, and the tailing pond system is fully reused within mine operations, consistent with the Zero Liquid Discharge (ZLD) protocol being followed at BOM. Water quality monitoring is conducted at prescribed frequencies through NABL accredited laboratories, and the results confirm conformity with OSPCB standards. These records are submitted regularly along with the six monthly EC Compliance Reports and uploaded on PARIVESH.

Accordingly, the condition is fully complied with, as all industrial wastewater is treated through O and G traps and ETP systems to meet the notified standards under the CTO.

4.4 Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has established a groundwater monitoring network comprising designated piezometer locations, existing dug wells, in core zone and buffer zone in and around the mining lease area. Groundwater level and quality are monitored periodically. Groundwater level measurements are recorded manually using calibrated water level meters and Groundwater quality sampling is conducted quarterly through NABL accredited laboratory, M/s Ecomen Laboratories Pvt.

Ltd., covering all prescribed physical and chemical parameters. Monitoring locations include both core zone piezometer points and buffer zone village wells to capture seasonal variations and assess any mining related influence. The report on changes in Ground water level and quality are submitted in the six monthly compliance reports to the Regional Office of the Ministry and State Pollution Control Board.
Accordingly, the requirement of monitoring and reporting groundwater levels and quality under this Condition 4.4 stands complied with.

4.5 The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

Compliance: Complied

Although Bolani Iron Ore Mines, M/s SAIL is an iron ore mining and processing complex and not a steel plant, the mine has implemented multiple measures to minimize water consumption through segregation of used water, cascade utilization, and recycling of treated water, consistent with the intent of the condition.

Key measures include:

(i) Segregation of wastewater streams by separate handling of workshop effluent, domestic sewage, surface runoff, and ore processing water to enable targeted treatment and reuse.
(ii) Cascade use of treated water, wherein clarified water from settling ponds, ETPs, and STPs is reused for dust suppression, vehicle washing, plantation watering, and haul road dust suppression, thereby reducing fresh water intake and maximizing reuse across low grade applications.
(iii) Recycling of process water from thickener over flow back to the ore washing plant.
(iv) Adoption of water efficient technologies such as rotating fog canons, dry fog systems, concrete haul roads, and automated wheel washing systems to reduce specific water consumption.
(v) Construction of STP for domestic wastewater, enabling reuse of treated water for greenbelt irrigation and dust suppression on haul road.

(vi) Regular internal water balance assessment to identify further opportunities for water use efficiency and implement corrective measures.

As can be seen, though the mine is not directly part of an integrated steel plant complex, the principles of segregation, cascade use, and recycling of treated water are actively practiced and these measures collectively ensure that water use within the mining complex is minimized and optimized, in letter and spirit . Accordingly, the condition stands complied with.

4.6 The project proponent shall practice rainwater harvesting to maximum possible extent.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL practices rainwater harvesting to the maximum feasible extent through large scale surface runoff capture, sedimentation, storage, and regulated discharge systems integrated across the mining lease. The mine has implemented high capacity rainwater harvesting structures, which far exceed the volume that building based systems could provide in a mining environment.

Rainwater Harvesting Measures Implemented at BOM

(i) Mega Settling Ponds Constructed: Mega settling ponds have been constructed at strategic locations to capture and harvest monsoon runoff from active mining areas. These ponds are engineered to accommodate peak monsoon runoff volumes, based on catchment hydrology and rainfall data, enable rapid gravitational settling of suspended solids and reduce turbidity and prevent downstream siltation to provide clarified water for reuse in dust suppression and ancillary mine operations by regulated discharge through spillways to ensure only treated runoff leaves the system.

These mega ponds serve as primary rainwater harvesting reservoirs for the mine and are not only designed for runoff control and sedimentation but also serve as effective recharge systems.

(ii) Garland Drains and Retaining Wall Systems: The network of garland drains, retaining walls, and check drains directs runoff from waste dumps and active benches into these sedimentation ponds which ensure maximum on site harvesting of rainwater, reduction of erosive flow, and effective control of sediment laden runoff.

(iii) Stabilized Valley Plant Area and Stockpile Zones: Stabilized fines dumps/OB dumps and stockpile areas are surrounded by retaining wall and garland drain systems, ensuring efficient water capture and drain through concrete drain networks to route rainwater directly to the mega settling ponds, enhancing recharge potential.

(iv) Regular Pre Monsoon Desilting and Maintenance: Before every monsoon season, all basins, drains, check dams, and sedimentation structures are de silted. Flow channels are cleared and reshaped to maintain full harvesting capacity and efficient runoff handling.

The above systems collectively ensure substantial rainwater harvesting, significant reuse, and controlled zero discharge compliant runoff management, meeting the full intent of the EC condition.

Accordingly, the condition is complied with.

4.7 Garland drains and collection pits shall be provided for each stock pile to arrest the run off in the event of heavy rains and to check the water pollution due to surface run off.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has provided a comprehensive run off management system around all major stockpile and ore handling areas to arrest and treat surface runoff during heavy rains. The measures implemented are consistent with MoEF&CC guidelines for sediment control and pollution prevention. The provision of garland drains and collection pits around all major stockpiles has been implemented as part of the comprehensive runoff and sediment control system already described under conditions 4.1 and 4.6.

Specific stockpile level arrangements, including garland drains, collection sumps, and routing to mega settling ponds, are summarized as follows:

1. Garland Drains Around Stockpiles: Continuous garland drains have been constructed around Lump ore stockyards, Fines stockyards, Secondary stockpile areas and loading yards. These drains are designed to intercept, collect, and channelize the runoff during monsoon preventing uncontrolled discharge to the collection pits;

2. At the terminal points of each garland drain system, collection pits (sumps) are provided to accumulate runoff water, allow settling of suspended solids and prevent direct carrying of silt into natural drainage and facilitate pumping of clarified water back to reuse systems wherever feasible. These pits are cleaned and desilted **before** every monsoon. This ensures multi stage sedimentation and reduces turbidity before any reuse or controlled discharge.
3. All stockpile areas are equipped with garland drains and collection pits, and runoff is controlled through a tiered sedimentation system, thereby meeting the requirement of preventing water pollution during heavy rainfall.

Accordingly, the condition is fully complied with.

4.8 Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has installed a Sewage Treatment Plant (STP) for treatment of domestic wastewater generated from the mine colony, administrative buildings, and associated service facilities. The STP is designed to be fully operational and to meet the prescribed effluent discharge standards under the Environment (Protection) Rules, 1986.
The treated wastewater is reused for greenbelt irrigation, dust suppression, and other non-potable applications, thereby reducing freshwater consumption and strengthening the mines overall Zero Liquid Discharge (ZLD) compliance framework. Routine monitoring of treated effluent quality is carried out to ensure that results consistently meet OSPCB norms.

Photographs of such systems are enclosed in **Annexure – XV.**

Accordingly, the condition stands fully complied with.

4.9 The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis à vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre monsoon (April May), monsoon (August), post monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six monthly basis.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL conducts systematic and year round monitoring of natural watercourses, seasonal streams, springs, and perennial nallahs in and around the mining lease, covering both upstream and downstream locations in accordance with MoEF andCC and CPCB guidelines.

(i) A network of eight (08) designated monitoring locations has been established, where water quality and flow parameters are monitored on a monthly and quarterly basis

during the four prescribed seasons pre monsoon (April–May), monsoon (August), post monsoon (November), and winter (January). The monitored parameters are analysed through NABL accredited laboratories and assessed against CPCB water quality criteria. Flow rate is also recorded at Nallahs and Karo River stretches adjoining the mining lease.

(ii) To ensure safe and regulated drainage, gullies and runoff management structures have been constructed at strategically selected locations within the lease area. In the hill slope sections of seasonal watercourses, temporary check dams are provided to reduce flow velocity and prevent erosion. Further, regular de silting of downstream valley sections of perennial and seasonal nallahs is carried out prior to each monsoon season to maintain the natural drainage capacity.

(iii) Mining operations at BOM do not obstruct or alter any natural watercourses, as all quarries operate on hilltops away from streambeds.

(iv) During mining plan preparation, strict precautions were taken to ensure that no part of the mine workings encroaches upon natural watercourses. A 30 meter safety zone has been maintained on both sides of all streams and drainage lines, where no mining activity is permitted. This safety zone arrangement has been duly verified by the Divisional Forest Officer (Keonjhar) and the Deputy Director of Mines (Joda). If any future modification is required, it shall be undertaken only with proper justification and prior approval of MoEF and CC.

(v) Monitoring data including seasonal analyses, flow measurements, and trend interpretation is regularly submitted to the Ministry of Environment, Forest and Climate Change (MoEF and CC) and its Regional Office, and the State Pollution Control Board (OSPCB) as included in the six monthly EC compliance reports.

Accordingly, the condition stands fully complied with.

4.10 In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro geological study of the area.

Compliance: Complied.

The mining scheme of Bolani Iron Ore Mines, M/s SAIL does not envisage any intersection of the groundwater table at any stage of the currently approved Mining Plan or the Review of Mining Plan (RMP 2025–30). All quarries are located on elevated hilltops with substantial vertical clearance above the regional groundwater level, as confirmed through baseline borehole assessments and periodic groundwater monitoring carried out at piezometer and dug well locations around the lease.

Since no lowering or intersection of the groundwater table is planned or occurring, the requirement of obtaining prior clearance from the Central Ground Water Authority (CGWA) does not presently arise. Should any future modification of the mining scheme indicate the possibility of intersecting the groundwater table, Bolani Iron Ore Mines will undertake a detailed hydrogeological study and obtain prior approval from CGWA and MoEF&CC before initiating such operations, in full compliance with the condition.

Accordingly, the condition is complied with in letter and spirit.

4.11 The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF andCC, Zonal office of CPCB and Regional Office of SPCB along with six monthly monitoring report.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL follows a structured program of manual effluent quality monitoring at the outlets of the Effluent Treatment Plants (ETPs) and the Sewage Treatment Plant (STP), and manual groundwater quality monitoring at designated wells and piezometer locations through NABL accredited laboratories (M/s Ecomen) . As there was no ore processing during the period, mine operates under a Zero Liquid Discharge (ZLD) framework with no continuous effluent discharge, Continuous Effluent Monitoring System (CEMS) for tailings is not applicable. Feasibility of installation of CEMS for ETPs at workshop and the Sewage Treatment Plant (STP) is being studied for installation .

All effluent quality data, STP/ETP performance records, and groundwater quality results are compiled monthly and are incorporated in the six monthly Environmental Clearance (EC) compliance reports submitted to the MoEF and CC Regional Office, Bhubaneswar and uploaded on the PARIVESH portal, which is also accessible to CPCB, OSPCB, and other statutory authorities.

Thus, the condition is compiled in letter and spirit.

4.12 Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J 20012/1/2006 IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL is an opencast mining operation and no polluted water is generated from mining activities, and there is no beneficiation/washing circuit in operation for the last eight (08) years since 2017. Monsoon runoff consists only of natural storm water with suspended soil particles, which is routed through garland drains, check dams, sedimentation basins and mega settling ponds, ensuring removal of silt before reuse or controlled discharge.

In compliance with the above condition, water quality monitoring of surface water, mine runoff collection points, effluent outlets (ETP/STP), drinking water, and groundwater is carried out at 11 (eleven) designated locations. The work has been entrusted to M/s Ecomen Mining Pvt. Ltd., a NABL accredited laboratory, which analyses 21 regulatory parameters, including: pH, TSS, Oil and Grease, Total Residual Chlorine, BOD, COD, As, Hg, Pb, Cd, Cr^{6+}, Cu, Zn, Ni, CN^{-}, F^{-}, S^{2-}, Phenolic Compounds, Mn, Total Fe, Nitrate N / Faecal Coliform, as required under CPCB norms.

Monitoring results consistently remain within prescribed standards, reaffirming that no acid mine drainage, no chemical contamination, and no polluted wastewater is generated from the mine.

As per the MoEF&CC Circular No. J 20012/1/2006 IA.II(M) dated 27.05.2009, the monitoring results are displayed at the main gate of the mine for public information and submitted periodically to the State Pollution Control Board, and are also included in the six monthly EC compliance reports uploaded on PARIVESH.

Accordingly, the condition is fully complied with.

4.13 Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.

Compliance: complied

Bolani Iron Ore Mines, M/s SAIL has adopted a long term, site specific rainwater harvesting and groundwater recharge strategy consistent with the guidance of the Central Ground Water Board (CGWB). The report has been endorsed by Central Ground Water Board (CGWB) and is under regular implementation. As such, the undulating hilly terrain, natural valley catchments, and slope drainage characteristics of the ML area provide substantial inherent potential for rainwater retention and infiltration.

The Major Rainwater harvesting and Recharge Measures adopted by Bolani Iron Ore Mines area are:

i. Mega Settling Ponds (Large Scale Storage and Recharge): The mega settling ponds, completed during last 5 (five) years, act as major rainwater harvesting structures. They capture significant monsoon runoff, enable multi stage sedimentation, and promote gradual infiltration into the subsurface aquifers.
ii. Runoff Diversion through Garland Drains and Check Dams: A continuous network of garland drains, check dams, gullies and intercepting trenches across hill slopes and waste dump peripheries diverts storm water into controlled recharge zones, reducing flow velocity and enhancing percolation.
iii. Seasonal Recharge Basins and Valley Storage: Seasonal ponds and desilted natural basins in valley sections store monsoon runoff for extended periods, allowing natural seepage and groundwater recharge.
iv. Rainwater Storage in Mine Pits: Inactive and worked out mine pits some time store rainwater which act as recharge reservoirs, enabling continuous seepage into the surrounding aquifers.
v. No Groundwater Withdrawal: The mine does not extract groundwater for industrial use; hence all harvested rainwater contributes to aquifer neutrality and augmentation.

Bolani Iron Ore mine is in the process of engaging a competent agency/ hydrogeological institute/ in consultation with CGWB/ State Ground Water board to conduct a scientific recharge assessment and annual recharge reporting will be done in the ensuing six monthly compliance reports and submitted to the MoEF and CC Regional Office.

Accordingly, compliance is being ensured and will be fully strengthened upon completion of the recharge study.

4.14 The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL conducts regular groundwater quality monitoring 4 times annually, which includes the pre monsoon (April–May) and post monsoon (November) seasons, at designated sampling wells located within the mine lease and adjacent buffer zone villages. The monitoring is carried out by M/s Ecomen Laboratories Pvt. Ltd., a NABL accredited laboratory recognized under the Environment (Protection) Act, 1986.

Groundwater samples are collected and analysed covering all prescribed physico chemical and bacteriological parameters as per CPCB/IS: 10500 guidelines. Manual piezometric water level measurements are taken using calibrated portable piezometric water level meters,

Monitoring results indicate that groundwater quality remains within the prescribed standards, with no adverse impact attributable to mining operations. The results are included in the six monthly EC compliance reports submitted to MoEF&CC Regional Office and OSPCB and are also maintained at the mine office for inspection.

Accordingly, the condition stands complied with.

4.15 The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall be treated and recycled.

Compliance: complied

Bolani Iron Ore Mines, M/s SAIL has a long established tailing/slime disposal facility located in the adjoining 6.90 sq. miles ML, designed as per approved mining plan and best environmental practices, that has been operational since 2003 . While no membrane lining was laid originally, the pond area is composed of compacted clayey strata and naturally occurring low permeability lateritic formations, functioning as an impervious lining. Three no's of earthen embankments have been and the surrounding topography (encircling hillocks) acts as a natural containment barrier, further minimizing any risk of leachate migration. Toe drains and peripheral collection channels have been provided along the downstream toe of the dams to intercept any possible seepage.

The wet beneficiation (washing) plant has remained nonoperational since 2017 till date. Consequently, no tailings or slime discharge has occurred for the last eight (08) years, and the tailing pond has not received any new inflows during this period.

A closed loop recirculation system for recovering and reusing clarified tailing water in the washing plant is proposed to be installed. This system will ensure zero discharge, minimal freshwater intake, and compliance with CPCB/MoEF&CC norms once the wet plant becomes operational.

4.16 The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.

Compliance: being complied

Bolani Iron Ore Mines, M/s SAIL is an open cast, iron ore mine. At present, the wet beneficiation (washing) plant has remained nonoperational since 2017, and therefore no liquid effluent is generated from ore washing or beneficiation circuits. Consequently, there is no process effluent discharge point that requires installation of a 24×7 Continuous Effluent Monitoring System (CEEMS) under the Environment (Protection) Rules, 1986. Since no effluent generating process is operational, CEEMS installation is not technically applicable at present, and all water quality monitoring requirements continue to be met through manual NABL accredited monitoring mode.

All industrial water presently used within the mine (workshop effluent, vehicle washing, etc.) is treated in two (02) intermittently in the Effluent Treatment Plants (ETPs) and reused internally. Manual effluent and surface runoff quality monitoring is carried out through NABL accredited, EPA recognized laboratory (M/s Ecomen Laboratories Pvt. Ltd.), covering all parameters prescribed by OSPCB under CTO.

Proposal for provision of a CEEMS at tailing disposal system integrated with re circulation system is in process for installation prior to re commissioning of the wet beneficiation/washing plant. On installation the system will be connected to OSPCB and CPCB servers and calibrated as per supplier specifications through NABL recognized agencies.

5. Noise Monitoring And Prevention:

5.1 The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

Compliance: Complied.

Deployment of 4 Online Continuous Noise Monitoring Stations at critical exposure points covering haul roads, plant area, mine office zone, and nearest habitation interface in township. Ambient noise monitoring through a combination of online continuous monitoring stations (4 locations) and periodic manual monitoring is carried out regularly at designated locations within the mining lease and in adjacent sensitive areas by NABL accredited laboratory M/s Ecomen Laboratories Pvt. Ltd., in accordance with the Noise Pollution (Regulation and Control) Rules, 2000 under the Environment (Protection) Act, 1986.

Monitoring results consistently indicate that ambient noise levels (Leq remain within the prescribed limits of : 75 dB(A) – Daytime standard for industrial areas, and 70 dB(A) – Night time standard. To ensure compliance, the following noise control measures are implemented:

(i) Use of well-maintained heavy machinery with periodic preventive maintenance
(ii) Installation of enclosures wherever applicable
(iii) Controlled blasting using NONEL technology and designing blasts to minimize vibration and noise
(iv) Creation of greenbelt buffers and plantation along haul roads and working zones
(v) Limiting high noise activities to daytime hours
(vi) Mandating ear protection devices for workers in high noise zones

Noise monitoring reports are submitted to OSPCB and included in the six monthly EC compliance reports sent to MoEF&CC Regional Office, Bhubaneswar.

Accordingly, the condition is complied with.

5.2 Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six monthly compliance report.

Compliance: Complied.

The details of conducting regular noise level surveys and submitting the report to the MoEF&CC Regional Office has already been addressed under Condition 5.1.

Bolani Iron Ore Mines, M/s SAIL conducts regular noise level surveys in accordance with the prescribed guidelines. Monitoring is carried out at fixed locations within the mine lease area (core zone) and in nearby buffer zone villages. Deployment of 4 Online Continuous Noise Monitoring Stations at critical exposure points covering haul roads, plant area, mine office zone, and nearest habitation interface in township in accordance with the Noise Pollution (Regulation and Control) Rules, 2000 under the Environment (Protection) Act, 1986.

6. Noise And Vibration Monitoring And Prevention:

6.1 The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has implemented multiple measures to ensure that night time illumination and noise from mining operations do not disturb nearby habitations, wildlife, or livestock, thereby protecting the natural right to darkness and maintaining circadian comfort for surrounding communities.

i. Directional Control of Floodlights: All floodlights in active working zones, haul roads, and loading areas are angled downward and oriented away from nearby villages (Bolani, Balagoda, and peripheral habitations). High mast lights are fitted with hoods/shields to prevent horizontal light spill toward villages. Such illumination zoning ensures that nonoperational areas remain unlit, avoiding unnecessary light pollution.

ii. Reduced Night time Operational Lighting: Only minimum essential safety lighting is operated after dark. No illumination is directed towards forest edges or village boundaries. Lighting circuits in peripheral areas are time controlled/ manually regulated to avoid glare exposure.

iii. Compliance with Night time Noise Standards: Night time noise levels are continuously monitored through 4 Online Noise Monitoring Stations, supplemented by quarterly manual surveys. Noise levels remain within the EPA norms (70 dB (A) at night).

iv. Noise and illumination reduction measures include:
   a) NONEL based controlled blasting (restricted to daytime only)
   b) Prohibition of high noise activities at night
   c) Acoustic enclosures on DG sets and machinery
   d) Mandatory use of silencers, mufflers, and preventive maintenance
   e) No night time blasting is carried out.
   f) Peripheral forest zones and wildlife corridors are kept dark, minimizing ecological disturbance.
   g) Plantation belts near village boundaries act as natural light and sound buffers.
   h) Community feedback is taken through regular CSR interface and grievance mechanisms.
   i) The illumination survey is measured on a quarterly basis using a lux meter, and the illumination reports indicate that the levels are within the prescribed norms. Additionally, the sound levels are consistently within the acceptable limits as outlined in the guidelines

Online and manual noise/illumination observations form part of the Six Monthly EC Compliance Report submitted to MoEF&CC RO, Bhubaneswar. The illumination survey report for the period is attached in **Annexure - XVI.**

Accordingly, the condition is fully complied with.

6.2 The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL carries out periodic blast vibration monitoring strictly in accordance with the DGMS (Tech) Circular No. 7 of 1997. Monitoring is undertaken at 500 m or the nearest habitation, whichever is closer, to ensure that Peak Particle Velocity (PPV) remains within permissible DGMS limits. Controlled blasting using NONEL, reduced charge per delay, optimized burden spacing, and scientific blast design ensure minimal vibration impact is practiced.

PPV Monitoring was conducted in June 2025, at the following monitoring points: Near F–Area Hopper within 500 m / nearest sensitive point, Near Bolani Hospital Nearest habitation interface, and Near DAV Public School Nearest institutional/sensitive receptor and Near Lakshmi Mandap i.e nearest community infrastructure. These points represent the closest habitation/sensitive receptors around the active blasting zones. All PPV readings recorded in June–2025 remained well within DGMS limits viz. ≤ 5 mm/s for residential structures and ≤ 10 mm/s for industrial structures. The report is attached **in Annexure -VI.**

IIT (ISM) Dhanbad conducted an advanced Blast Vibration Study covering wave propagation characteristics, Peak particle velocity at multiple offsets, Charge weight per delay optimization, Safe blast design recommendations. All recommendations of IIT ISM have been implemented in current blasting operations. PPV data is also included in the Six Monthly EC Compliance Report submitted to MoEF&CC RO, Bhubaneswar and OSPCB.

Accordingly, the condition is fully complied with.

6.3 The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL ensures that occupational noise exposure in the work environment is maintained below 85 dB (A) in compliance with DGMS, OSHA, and MoEF andCC guidelines. Comprehensive measures are in place to safeguard workers operating HEMM, crushers, drills, haul roads, loading plants, and material handling areas.

i. Noise Control Measures in the Work Environment :
   a. All HEMM (dumpers, loaders, drills, dozers, graders) undergo scheduled preventive maintenance to minimise mechanical noise.
   b. DG sets and compressors are fitted with acoustic enclosures and silencers.
   c. Operators cabins of shovels, dumpers and drilling machines are sound proofed and air conditioned, maintaining an internal noise environment well below statutory limits.

d. No high noise activity is permitted during night hours near peripheral sensitive zones.
e. Personal Protective Equipment (PPE):
   - Mandatory Usage, all workers in high noise zones are mandatorily provided with earmuffs and earplugs as part of standard PPE.
   - Workers in dusty and material handling areas are provided with dust masks / respirators, helmets, safety shoes, reflective jackets and gloves.

ii. Monitoring and Enforcement :
a. Compliance enforcement teams and safety officers conduct daily inspections to ensure mandatory PPE usage.
b. Entry into high noise or dusty operational zones without PPE is strictly prohibited, and responsible officials are held accountable for any violation.
c. Violations, if any, result in disciplinary action as per the SAIL Mines Safety Code.

iii. Training, Awareness and Health Surveillance :
a. Periodic training on occupational health, PPE usage, safe HEMM operation, and respiratory safety is conducted for all employees and contractual workers in BOM s Mines Vocational Training Center(MVTC)
b. Safety talks are held daily, and safety awareness campaigns > safety weeks / safety committee meetings are carried out regularly.
c. Health checkups (PMEs) including audiometric (hearing) tests and pulmonary function tests are conducted in line with DGMS and OSPCB requirements.

iv. Monitoring of Noise Exposure : Noise levels in the workplace are monitored through a combination of 4 Online continuous noise monitoring stations, and Quarterly manual noise surveys and results confirm that noise levels in the working zones remain within permissible occupational exposure limits.

Accordingly, the condition is fully complied with.

7. Energy Conservation Measures:

7.1 Provide LED lights in their offices and residential areas.

Compliance: Complied.

At Bolani Iron Ore Mine, installation of LED lights in offices and residential areas is done to enhance energy efficiency and sustainability. LED street lighting has already been provided at various strategic locations around office and residential complexes, ensuring improved illumination and safety. The Electrical Department of Bolani Iron Ore Mine is responsible for routine maintenance of all LED installations, and a system is in place for immediate replacement in case of any breakdown, thereby ensuring uninterrupted lighting services. This initiative contributes to reduced energy consumption, lower greenhouse gas emissions, and improved environmental performance, aligning with statutory requirements and organizational sustainability commitments.

7.2 Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;

Compliance: Complied

At Bolani Iron Ore Mine, a proposal has been prepared for installation of solar power generation with a capacity of 350 kW at an estimated cost of Rs. 1.2 cores, covering office and residential buildings along with solar lighting systems for common areas, STP areas, street lights, and parking zones.

8. Mining Plan:

8.1 The land use of the mine lease area at various stages of mining scheme as well as at the end of life shall be governed as per the approved Mining Plan. The excavation vis à vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self sustaining. The compliance status shall be submitted half yearly to the MoEFCC and its concerned Regional Office.

Compliance: Complied.

Bolani Iron Ore Mine, M/s SAIL is implementing land use management strictly as per the approved Mining Plan. Excavation, backfilling, and reclamation activities are carried out in phased manner, with afforestation raised over reclaimed areas and degraded forest lands. Monitoring of rehabilitated zones continues until vegetation becomes self-sustaining. Compliance status is reported half yearly to the MoEF&CC Regional Office, Bhubaneswar, along with supporting maps, photographs, and plantation records.

Afforestation is carried out within mine lease area at various stages of mining scheme as per the approved Mining Plan.

8.2 The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden and dump management, O.B and dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land use of the mine lease area at various stages of mining scheme as well as at the end of life; etc.).

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL strictly adheres to the approved Mining Plan and its subsequent modifications approved by the Indian Bureau of Mines (IBM). All mining activities including annual excavation quantities (ROM, waste, OB, IB, and topsoil), method of mining, deployment of HEMM, dump development, dump re handling, mineral evacuation, and pit advancement etc are executed exactly as per the approved plan.

Overburden and waste dumps are developed only at the locations specified in the Mining Plan, with systematic slope stabilization, toe wall construction, garland drains, and concurrent plantation. Ultimate pit depth, safety benches, haul road gradients, and bench parameters strictly follow the approved design.

The mine follows the transportation mode prescribed in the plan, with stable haul road geometry and covered conveyors from crushing to dispatch yard as approved in the latest RMP. Concurrent reclamation is implemented in inactive dump slopes and backfilled areas as per the progressive mine closure plan (PMCP). Land use at different stages of mining is monitored and reported through annual PMCP returns to IBM.

No deviation from the approved lease area, mining technology, or production excavation envelope has been made. Any proposed modification is processed only through due approval by IBM as per MCDR, 2017.

Accordingly, the condition stands fully complied with.

9. Land Reclamation:

9.1 The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.

Compliance: complied

Bolani Iron Ore Mines, M/s SAIL ensures scientific dump management and slope stabilization in full conformity with the approved Mining Plan, PMCP, and MoEF&CC guidelines. All overburden (OB) and waste dumps are developed using dozers, graders to achieve proper consolidation, controlled benching and systematic leveling of dump mass. The outer slopes of active and stabilized dumps are vegetated with native and site specific species recommended by the DFO, Keonjhar, which improves slope stability, enhances soil binding, and reduces erosion.

Gullies or surface erosional features formed on dump slopes are regularly identified and restored through backfilling, grading, and construction of check bunds and gully plugs to maintain the structural integrity of the dumps. Garland drains, toe walls, turfing, and coir matting/geo jute are provided across vulnerable stretches to reduce runoff velocity and minimize wash off during monsoon.

In critical and erosion prone areas, stabilization measures, such as G area OB dump slope, layered compaction; drainage chutes, coir geotextiles, and stone pitching have been adopted based on recommendations of technical inspections. Plantation on dump slopes is carried out at a density of ~2,500 saplings/ha using native, fast growing and soil binding species.

These measures collectively ensure slope stability, prevent erosion, and minimize sediment laden runoff from dump surfaces.

Accordingly, the condition stands complied with.

9.2 The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.

Compliance:

Bolani Iron Ore Mines, M/s SAIL strictly adheres to scientific management of Overburden (OB), waste, and topsoil as per the approved Mining Plan, DGMS guidelines, and Progressive Mine Closure Plan (PMCP). All OB and waste materials generated during mining operations are stacked only at earmarked and geo referenced dump locations, and no unauthorized or temporary dump is created within the lease.

Dump height, width, overall slope angle, berm configuration, and benching are maintained strictly as prescribed in the approved Mining Plan and relevant DGMS circulars, ensuring long term slope stability and safety. Active dump phases are kept limited, and each lift is compacted and stabilized using dozers/compactors to avoid prolonged exposure.

Topsoil generated during excavation is conserved separately in designated topsoil storage yards and is not mixed with OB/waste. This stored topsoil is systematically utilized for dump reclamation, plantation, slope greening, and development of the 33percent greenbelt as per the MoEF&CC OM dated 24.07.2024 (Ek Ped Maa Ke Naam). Native species are used for vegetative stabilization in accordance with the Forest Department s recommendations.

Accordingly, the condition stands fully complied with.

9.3 Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de silted regularly, particularly after monsoon season, and maintained properly.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has constructed an extensive network of catch drains, garland drains, settling tanks and siltation ponds of appropriate capacity around all critical areas including mine workings, mineral yards, OB/waste dumps, topsoil dumps, and haul road corridors to prevent runoff, sediment transport, and silt entry into natural water bodies.

All catch drains are designed with adequate gradient and lined sections to efficiently channel storm water into settling tanks / siltation ponds, where suspended solids settle before reuse. Runoff collected from these structures is reutilized for haul road dust suppression, greenbelt irrigation, plantation activities, and water sprinkling operations, supporting the mines Zero Liquid Discharge (ZLD) commitment.

A structured pre monsoon and post monsoon de silting program is undertaken every year to maintain hydraulic efficiency of drains, sedimentation basins, settling ponds, and check dams. De silted material is removed and disposed at designated sites as per approved mining plan. Additional temporary check dams and silt traps are constructed in seasonal flow paths to minimize erosion and ensure compliance during high intensity rainfall events.

Accordingly, the requirement of constructing and maintaining sediment control structures around mine workings, stockyards, and waste dumps stands fully complied with.

9.4 Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run off and sediment flow into adjoining water bodies. A safety margin of 50percent shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

Compliance: Complied

At Bolani Iron Ore Mines, catch drains, settling tanks, and siltation ponds of appropriate dimensions have been proposed and progressively constructed around mine workings, mineral yards, and topsoil/OB/waste dumps to prevent runoff and sediment flow into nearby water bodies such as nallahs, rivers, and ponds. Bolani Ores Mines has implemented a comprehensive Runoff Management and Sediment Control System developed in consultation with OSPCB (Regional Office), the State Forest Department, and expert institutions such as IIT (ISM) Dhanbad and NIT Rourkela. The system is designed to arrest storm water runoff, minimize sediment transport, stabilize dump slopes, and eliminate direct discharge into natural water bodies.

Watershed Based Planning (IIT–ISM 2024 Study): In 2024, a comprehensive runoff management study was conducted by IIT(ISM) Dhanbad; the final report was submitted in December 2024. The entire ML has been delineated into 8 sub watersheds, which has been codified runoff control structures consisting of garland drains, check dams, retaining structures, settling basins and cascade settling ponds. The recommendations confirmed the adequacy of several existing structures and proposed additional check dams and drains, which are now under implementation.

Runoff Water Management Systems (RWMS) – Sub Watershed Details : Each RWMS comprises a combination of Garland drains/ catch drains (masonry/earthen/boulder lined), Catch drains at dump toes, Retaining walls with check weirs, Cascade settling ponds (3 to 4 ponds in series) ranging from 5,000 m³ to 20,000 m³ and Spillways designed for safe overflow of clarified water

The runoff control structures discussed under Condition 4.1 (settling ponds, garland drains, check dams, and IIT ISM hydrological analysis) are further elaborated herewith.

i. Runoff from mining pits, dump slopes, fines handling sites and haul road embankments is channelized through these structures to ensure complete sedimentation before discharge**.**

ii. Key Implemented Features:
   - **a)** Catch drain–siltation pond systems constructed at all critical slope toes to intercept sediment laden runoff and allow adequate settling time**.**
   - **b)** De silting of drains and ponds carried out annually before monsoon as part of the Monsoon Preparedness Plan**.**
   - c) Check dams**,** gully plugs**,** and cascade settling ponds constructed to reduce flow velocity on hill slopes and improve retention time.
   - d) Where required, retaining walls with garland drains have been constructed, strengthened**,** **or** extended based on rainfall runoff calculations from the IIT(ISM) study.

iii. RWMS Capacity and Structural Adequacy**: C**ertain RWMS systems contain three major settling ponds in series, with cumulative capacity of up to 20,000 m³ to handle peak monsoon runoff. Others contain 4 settling ponds in sequence**,** depending on watershed characteristics.

iv. All RWMS designs maintain ~50percent safety margin over peak rainfall (50 year return period) as during designing drains, settling ponds, check dams, and runoff channels, BOM has not only considered the 50 year peak rainfall but added 50percent extra capacity on top of that. This extra margin ensures that even if rainfall is 50percent more intense than the 50 year peak estimate, the system will still handle the runoff safely. The RWMS - 1 to RWMS - 10 have been mapped to their respective sub watershed locations table & Photographs evidencing structural completion and monsoon performance have been **attached in Annexure – XVII** .

The systems are fully functional and ensured stable, non-erosive flow and compliant discharge during 2025 monsoon.

All runoff from the ML area is diverted through engineered drains and natural drains and fed into settling ponds/cascade ponds before reaching natural nallahs. No direct discharge of silt laden runoff occurs from fines handling areas; OB dumps or hauls road embankments, which collectively ensures:

- Arrest of sediments
- Prevention of erosion
- Peak runoff handling
- Clarified discharge meeting environmental norms
- Ground water Recharge

This satisfies the intent and requirements of aforesaid EC Conditions 9.3 and 9.4, and implementation continues to be strengthened as per IIT(ISM) 2024 recommendations.

10. Waste Management:

10.1 The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous and Other waste (Management and Transboundary Movement) Rules, 2016.

Compliance: Complied.

The requirement of obtaining authorization under HW Rules has already been discussed under Condition 1.14. Hazardous waste generated from maintenance activities waste oil, oil contaminated residues, grease waste, and used containers is managed and disposed of strictly in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
This Condition (10.1) deals specifically with disposal of waste oil, grease, and hazardous waste, which is also being complied with through OSPCB authorized recyclers as detailed above. Hazardous Waste is collected at designated storage points, labeled and stored in impervious containers, and disposed of through authorized recyclers and TSDFs (Treatment, Storage and Disposal Facilities) approved by the Odisha State Pollution Control Board (OSPCB). Manifest records, Form 10 returns, and transporter details are maintained and submitted as part of statutory reporting. Annual returns (Form 4) are submitted to OSPCB, and the current valid HW Authorization is IND IV HW 321/14070 dated 25.07.2025. No hazardous waste is disposed inside the mine lease; all handling and disposal comply fully with statutory requirements.

During the current reporting period the following disposals were done:

1. Waste/Residues Containing Oil have been disposed of through M/s Re Sustainability Pvt. Ltd. Work Order No. CC/REV141/2025 26 dated 04.09.2025.
2. Used/Spent Oil and Used Containers have been disposed of through, M/s Bristol Petroleum Pvt. Ltd. Auction Sale Order No. 54057378 dated 30.08.2025.

All disposal records, manifests, and transporter details are maintained as per Form 10/13 requirements of the HW Rules and are available for inspection.

10.2 Kitchen waste shall be composted or converted to biogas for further use. (to be decided on case to case basis depending on type and size of plant).

Compliance: Agreed to comply.

Kitchen waste from the canteen and colony areas is currently collected separately and handed over to the authorized BOMs own collection system. Composting/biogas generation facilities are not yet operational at BOM because the colony/canteen waste quantity is relatively small and does not justify an industrial scale biogas system. BOM has initiated the following actions:

i. The kitchen waste generation at Bolani Iron Ore Mines, M/s SAIL is minimal.
ii. Volume assessment of biodegradable kitchen waste Mine canteens, mine colonies / residential areas for workers and guest houses / rest houses, office kitchen facilities is being done.
iii. A proposal for installation of small scale organic composting units (aerobic bins/compost pits) for the kitchen wastes from above premises is under evaluation and will be implemented in consultation with OSPCB and as per Solid Waste Management Rules, 2016.
iv. Site selection has been completed.
v. On installation, Segregation of biodegradable waste will be done and composting will be done through organic bins/pits and the compost produced will be utilized in greenbelt development and mine rehabilitation plantations.

Till the composting system is commissioned, all kitchen waste continues to be segregated and disposed of through the existing collection channel, ensuring no environmental impact.

11. Green Belt And Emp:

11.1 Green belt shall be developed in an area equal to 33percent of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL planned its plantation activities over degraded forest land, safety zone areas, reclaimed pits, OB dumps, roadside avenues, and water body peripheries using native species at a density of 2,500 saplings per hectare (or any site specific rate) and these efforts collectively fulfill the requirements of Conditions 1.3, 2.2 earlier and instant condition 11.1, which mandate the development of the 33percent greenbelt/plantation area of the mining lease using indigenous species in line with CPCB and State Forest Department guidelines, and its implementation under the Ministry s Ek Ped Maa Ke Naam initiative with periodic reporting on the MeriLife portal.

Extensive greenbelt and afforestation are being undertaken within the mining lease, significantly exceeding the normative 33percent requirement applicable to plant areas under CPCB guidelines. (N.B Since this project is an open cast mine and not a manufacturing plant, the term plant area is interpreted as nonoperational/error).

A cumulative green cover exceeding 33percent of the mine leases nonoperational land has already been developed through plantations carried out over several years. Bolani Iron Ore Mines, M/s SAIL has prepared a detailed Action Plan in accordance with the Ministry s Office Memorandum dated 24.07.2024, mandating plantation within the earmarked 33percent greenbelt area under the national tree plantation campaign Ek Ped Ma Ke Naam (**एक पेड़ माँ के नाम)** , and uploading of plantation details on the MeriLife Portal (https://merilife.nic.in).

The total Mining Lease (ML) area of Bolani Ores Mines is 1321.45 ha. Accordingly, 33percent of the ML area (436.08 ha) is required to be developed as greenbelt. Plantation/afforestation schemes covering this target have already been prepared earlier in consultation with the Divisional Forest Officer (DFO), Keonjhar, and technically approved by the Regional Chief Conservator of Forests (RCCF), Rourkela. These approved plans were also submitted to the Ministry along with previous EC compliance reports. As per the approved land use plan: 412.41 ha have been earmarked as undisturbed zone, consisting of:

(i) 339.21 ha virgin forest area, and 73.20 ha safety zone and
(ii) An additional 23.67 ha is available for reclamation and plantation over mined out pits, overburden dumps, and gaps/vacant forest kisam/rakhita patches within and up to 100 m beyond the ML boundary, in consultation with DFO, Keonjhar, as per approved schemes.
(iii) The nonmineralized areas within the lease, including zones already supporting natural vegetation and previously developed plantations, are systematically maintained and have been duly incorporated into the 33percent greenbelt/plantation coverage of Bolani Iron Ore Mines.

Till date,_____ **ha** has been covered under plantation in degraded forest land, and ____ **ha** has been covered within safety zone plantation areas.

With the implementation of the Ministry s Ek Ped Ma Ke Naam II initiative, all future plantation activities, including gap planting, release of plants, and survival monitoring shall now be executed

strictly within the earmarked greenbelt areas under this campaign, and details of plantation will be uploaded periodically on the MeriLife portal, as required under the OM dated 24.07.2024.

Key compliance actions include:

i. Large scale plantation of native species as recommended by CPCB and State Forest Department, including species such as Jamun, Karanj, Neem, Sirish, Chakunda, Gamhar, and Pipal to ensure micro climatic stability and ecological restoration.
ii. Scientific plantation on backfilled areas, reclaimed benches, dump slopes, and a long haul / approach roads
iii. Peripheral greenbelt developed around colony, office area, approach road, loading plant boundary, and safety zone regions, conforming to the CPCB norms for dust attenuation.
iv. Annual plantation programs under CSR, Mines Environment Plan, and Ek Ped Maa Ke Naam campaign are strengthening the greenbelt each year.
v. Survival monitoring and maintenance are ensured through mulching, watering, and soil amendments.

Thus, the requirement of developing a greenbelt equivalent to 33percent of the area (as applicable) with native species is being complied with.

11.2 The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

Compliance: being complied

Bolani Iron Ore Mines, M/s SAIL has initiated the process for preparing a comprehensive Greenhouse Gas (GHG) Emissions Inventory covering Scope 1 and Scope 2 emissions from mining operations, ore handling, fuel consumption, and supporting activities.

The work for preparation of the GHG inventory and formulation of a long term GHG reduction programed including carbon sequestration through plantation activities is presently under tendering/engagement of an expert agency, in line with MoEF&CC requirements.

Once finalized, the GHG inventory and reduction roadmap shall be submitted to MoEF&CC as part of the EC compliance documentation.

12. Transportation:

12.1 The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has implemented a comprehensive and multi-tier dust suppression system across all haul roads, crushing zones, conveyor networks and material handling areas, fully

meeting the requirements of this condition which are detailed earlier in the compliance of Conditions 3.1, 3.4, 3.7, with technical summary provided in **Annexure -II.**

The main haulage roads F G haul road and D Panposh 600 TPH haul roads within the mining lease have been provided with permanent fixed water sprinkling arrangements, installed during 2024–25, ensuring continuous surface wetting during operational hours. All secondary and auxiliary roads inside the mine are regularly wetted using tanker mounted mobile water sprinklers (28 KL, 12 KL and 9 KL capacities) deployed in scheduled rotations.

High dust–generating areas including crushing plants, feed hoppers, loading plant, stockyards, and transfer points are equipped with appropriate Air Pollution Control (APC) systems, such as dry fog dust suppression at the 1600 TPH primary gyratory hopper, fog canons (fixed and mobile) at lump and fines handling zones, and fixed misting lines. The conveyor system from F and G area to the dispatch point is fully covered, with all transfer points enclosed and fitted with dust suppression units.

Additionally, a truck mounted mist cannon is deployed synchronously during shovel–dumper loading operations to suppress fugitive dust at source. Road dust re entrainment is further minimized through concrete pavement upgrades in high traffic zones and routine mechanized suction sweeper cleaning. All measures collectively ensure that fugitive dust emissions remain within stipulated MoEF and CC/CPCB standards. Preventive maintenance of APC equipment ensures uninterrupted functioning and Greenbelt development around haul roads and crushing zones acts as a natural dust barrier are also ensured.

12.2 No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a bypass road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].

Compliance: Complied

This condition has already been complied with and elaborated under Condition 1.4 of this report, wherein it has been demonstrated that transportation of minerals from Bolani Iron Ore Mines is not carried out through village roads and a dedicated haulage/bypass route is in place. The same practices continue to be followed, ensuring compliance with the requirements of instant condition 12.2.

Transportation of minerals from Bolani Iron Ore Mines, M/s SAIL is not carried out through any village or habitation roads. Mineral evacuation is undertaken predominantly through Railway sidings, and limited truck movement for fines dispatch uses a dedicated concrete haul road developed exclusively for mine traffic. A bypass type dedicated approach road (concrete paved) connects the Loading Plant/Dispatch Area to the PWD/SH public road, ensuring that trucks do not pass through Bolani or Balagoda villages. No village road is used, and no mineral traffic enters the habitation limits.

To mitigate any residual impacts in the proximity stretch:

(i) Strict speed limits (15 km/h) are enforced at sensitive stretches near the village boundary.
(ii) Tarpaulin covering and prohibition of overloading are strictly implemented and verified at a CISF managed check gate.
(iii) Mobile and fixed water sprinkling systems are deployed to control dust on haul roads approaching the exit point.
(iv) Trucks exiting the mines pass through an Automated Wheel Washing System, preventing track out of material.
(v) Vehicular emission standards are monitored and valid Pollution under Control (PUC) certificates is ensured for all contracted vehicles.
(vi) The mine has also borne the cost of strengthening the connecting approach road to ensure safe traffic movement.

Accordingly, the transportation system at BOM adheres to the prescribed environmental safeguards, effectively avoiding movement through village roads and meeting the spirit and purpose of this condition.

13. Public Hearing And Human Health Issues:

13.1 Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has prepared and implemented a comprehensive Emergency Preparedness Plan (EPP) based on the Hazard Identification and Risk Assessment (HIRA) and the Disaster Management Plan (DMP), as mandated under statutory requirements. These documents form an integral part of the Bolani mine s ISO 45001:2018 Occupational Health and Safety Management System, and standard operating procedures are periodically reviewed based on internal audits, mock drills, and risk mitigation requirements.

Regular mock drills (fire, slope failure, blasting incident, electrical emergency, medical emergency, etc.) are conducted in coordination with CISF, the Mines Rescue Team, and the Safety Department, and records of the same are maintained. Emergency response teams have been designated, and safety signage, communication systems, first aid stations, and emergency facilities have been provided in all operational areas.

Continuous strengthening of the EPP is under process as part of continual improvement under ISO protocols, ensuring full alignment with DGMS guidelines and MoEF&CC expectations.

Thus, the condition is complied with and implementation is ongoing as per HIRA–DMP requirements.

13.2 Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL conducts Periodic Medical Examination (PME) and occupational health surveillance of all workers including direct employees, contract workers, and HEMM operators at regular intervals as per the requirements of the Factories Act, Mines Rules, and DGMS guidelines.

The occupational health check-ups cover respiratory health, audiometry, vision tests, lung function tests, chest X ray, blood and urine analysis, and other mandatory diagnostic parameters for early detection of occupational diseases at Bolani Hospital .

A dedicated Occupational Health Centre (OHC) maintains digital and physical medical records of all PME reports, which are updated continuously and preserved as required under statutory norms. Workers found with any medical concerns are referred for further examination and advised restricted duties wherever necessary.

Thus, the requirement for regular occupational health surveillance and record maintenance stands fully complied with.

13.3 The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.

Compliance: Complied.

Bolani Ores Mines is an open cast operation; no workmen are deployed in high temperature work zones. Accordingly, heat stress analysis is not applicable. However, employees are provided with appropriate PPE such as industrial helmets, cooling neck shades, cotton breathable overalls, water bottles, and heat resistant gloves (as applicable) to mitigate general heat exposure in open cast conditions.

13.4 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, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Compliance: Complied.

Bolani Iron Ore Mine, M/s SAIL ensures that, as and when required during construction of large projects, construction labour engaged during project related civil and infrastructure works are provided with temporary housing facilities within the site, equipped with all necessary infrastructure. Facilities include fuel for cooking, mobile toilets, safe drinking water, medical health care, and crèche facilities. All statutory welfare provisions for regular workers and departmental contract workers are fully in place, including safe drinking water facilities, first aid centers, medical services through Bolani Hospital, sanitation facilities, and resting shelters near operational zones.

13.5 Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL is an existing operational mining facility with no major construction activities presently requiring dedicated labour colonies. Hence, no temporary construction labour housing is currently warranted.

However, as part of statutory compliance and preparedness:

(i) Any future construction/expansion related labour engagement will be housed in designated temporary facilities within the project area, equipped with safe drinking water, sanitation (mobile toilets), waste water treatment (mobile STP), first aid/medical facilities, and clean cooking fuel.

(ii) The contractor will be contractually bound to adhere to all labour welfare requirements under the EC condition, BOCW Act, and OSPCB norms.

(iii) All such temporary structures, if created, will be dismantled upon completion of the respective construction works.

(iv) Thus, the condition is complied with, and Bolani Iron Ore Mines remains committed to implementing full provisions whenever construction labour deployment is undertaken.

14. Green Belt:

14.1 The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has developed and is continuing to strengthen the 7.5 meter safety zone greenbelt along the entire mining lease boundary in accordance with CPCB guidelines.

The safety zone plantation was initiated prior to this EC period and has since been progressively strengthened. Under the unified 33percent greenbelt programme (linked to Conditions 1.3, 2.2 and 11.1), additional plantation, gap filling, and maintenance works have been undertaken along the boundary from the windward side of active mining blocks.

Plantation in these safety zone corridors is being executed using native, pollution tolerant and fast growing species (as recommended by the State Forest Department), at a density of 2,500 saplings per hectare. Plantation work is prioritized on the windward side of active mining areas and is largely completed within the stipulated first five year window. Gap plantation, maintenance, and replacement planting are undertaken annually to maintain >80percent survival rate.

This greenbelt development is aligned with the Ministry's other EC other stipulations in this compliance report and is being implemented.

15. Corporate Environment Responsibility:

15.1 A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

Compliance: Complied.

In compliance with the requirement, Bolani Iron Ore Mines, M/s SAIL has established a dedicated Environmental departments at both the Project Level and Corporate (SAIL HQ) Level, staffed with qualified environmental professionals. The departments functions under the direct supervision of senior executives, ensuring statutory compliance, resource allocation, and reporting to the Head of the Organization.

At Mines level, a dedicated Environment Management Cell functions as an independent unit under the Head of Environment and Lease, reporting directly to the Chief General Manager (Mines). The EMS is staffed with qualified and experienced personnel, including a General Manager (Environment and Lease), AGM (Mining–E andL), Mining Foreman, and Mining Mate and with outsourced staffs. The cell is responsible for day to day environmental monitoring, compliance management, reporting, and communications for implementation of all statutory environmental safeguards as stipulated under the EC, CTO, and Forest/Mining regulations. Further, necessary proposal is under process for recruitment of multidisciplinary qualified personnel s for induction into environmental management section.

15.2 Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has prepared a detailed road map of Environmental Management Plan (EMP) Action Plan, incorporating all EC conditions and assigning clear responsibilities through a structured responsibility matrix.

The Environmental Clearance (EC) compliance framework at Bolani Iron Ore Mines, M/s SAIL operates through a structured multi-level responsibility system involving all functional HODs under the overall supervision of the Chief General Manager (Mines) and Executive Director (Mines). Environmental compliance activities are coordinated by the Environment Lease Department, supported by Mining, Mechanical, Electrical, Civil, Projects, HR, Safety, Medical, and Finance departments as per domain specific responsibilities. Year wise financial provisions for environmental protection measures including dust suppression, water management, plantation, monitoring, waste management, and infrastructure are earmarked under a separate environment budget, which is not diverted for any other purpose. Progress on implementation of each EMP component is reviewed internally and the year wise implementation status is reported regularly to the MoEF&CC Regional Office through the Six Monthly EC Compliance Reports, along with supporting documentation and expenditure details.

15.3 Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

Compliance: complied

Bolani Iron Ore Mines, M/s SAIL conducts a self-environmental audit annually as part of its internal Environmental Management System (EMS) for ISO certification by external audit team i.e TUV NORD CERT Gmbh , covering statutory compliance, performance of environmental control measures, monitoring results, and status of EC/CTE/CTO conditions. Audit observations are reviewed by the CGM (Mines) and corrective actions are assigned to respective HODs for closure. Thus, the requirement of periodic self-audit and third party audit is complied with and will continue to be followed systematically.

15.4 The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the

environmental / forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest I wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF andCC as a part of six monthly report.

Compliance:

Bolani Iron Ore Mines, M/s SAIL operates under the SAIL Board approved SAIL Corporate Environmental Policy, which is applicable to all its mining units, including BOM. The policy prescribes mandatory Standard Operating Procedures (SOPs) for statutory compliance, environmental protection, internal checks, and deviation reporting. A defined system of internal audits, deviation reporting, and escalation is in place through the Head (Environment), CGM (Mines), ED (Mines), and the Corporate Environment Division, ensuring timely identification and rectification of any environmental/forest/wildlife related noncompliance. The Board approved Environmental Policy/Resolution has been submitted to the MoEF&CC as part of the six monthly compliance report.

15.5 All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL adheres to the applicable recommendations of the Charter on Corporate Responsibility for Environmental Protection (CREP) relevant to mineral beneficiation operations. Although the wet beneficiation plant has remained nonoperational since 2017, all CREP mandated environmental safeguards such as zero liquid discharge, controlled handling of ore fines, effective dust suppression, solid waste management, and energy efficient practices are implemented in the operational material handling, crushing, and screening units.

The Charter on Corporate Responsibility for Environment Protection (CREP) issued by CPCB prescribes a set of environmental performance commitments for the mineral beneficiation sector, particularly focused on water conservation, zero discharge, tailings management, air pollution control, energy efficiency, and waste minimization. Although the wet beneficiation plant at Bolani Iron Ore Mines has remained nonoperational since 2017, the mine continues to maintain compliance with the CREP principles through the following measures:

1. Zero Liquid Discharge and Water Conservation

i. No process effluent is generated, as the washing plant is non-functional as of now.
ii. Recirculation system is proposed to be installed for reuse of water to make it ZLD .

2. Tailing/Slime Management

i. A 75 ha tailing pond exists in the adjoining 6.90 sq. miles ML for historic slime storage.
ii. No fresh slurry is generated since 2017; the pond remains stable and is monitored.
iii. The pond is surrounded by hillocks and engineered embankments ensuring long retention time and zero escape of solids.

3. Air Pollution Control Measures (Mining + Beneficiation Area)

i. Rotating fog cannons, mobile mist cannons, dry fog systems at primary crusher hopper, and fixed water sprinklers across haul roads are deployed
ii. Conveyor systems from F G mining area are covered, and truck movement is controlled through tarpaulin cover, wheel washing, and CISF checks.

iii. Four CAAQMS and ten fugitive monitoring stations monitor PM_{10}, $PM_{2.5}$, NO_2, SO_2 and CO.
iv. Dust masks, PPE, and noise control systems are provided to all workers.

4. Energy Conservation and Process Optimization

i. Energy efficient equipment's with periodic maintenance.
ii. Conveyor based ore movement reduces fuel based haulage.
iii. LED lights installed in mines and plant area.

5. Waste Minimization and Hazardous Waste Management

i. Hazardous wastes (used oil, residue contaminated waste, oil soaked cotton, etc.) are disposed through authorized recyclers (Re Sustainability Pvt. Ltd., Bristol Petroleum Pvt. Ltd.).
ii. No process sludge or beneficiation waste is generated.

6. Occupational Health and Safety Measures

i. Regular medical check-ups, noise and dust exposure monitoring.
ii. PPE is mandatory; safety audits are carried out periodically.
iii. Emergency preparedness plan includes mock drills and first aid facilities.

7. Greenbelt Development and Ecological Restoration

i. Plantation over degraded forest land, OB dumps, reclaimed pits, safety zones, and roadside avenues under the 33percent greenbelt commitment.
ii. Ek Ped Maa Ke Naam action plan under implementation and uploaded on MeriLife portal.
iii. Native species at 2500 saplings/ha as per CPCB guidelines.

Even though no beneficiation operations are currently in use, Bolani Iron Ore Mines fully complies with the applicable principles of the CREP Charter through robust mining sector environmental controls, zero discharge initiatives, structured waste management, and a comprehensive greenbelt and restoration programme.

15.6 The Project Proponent shall submit the time bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF andCC Office Memorandum No.22 65/2017 IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

Compliance: Complied

Since the present EC approval dt 24.07.2025 pertains to an amendment of the existing Environmental Clearance, the Public Hearing (PH) commitments made earlier for Bolani Iron Ore Mines, M/s SAIL continue to remain valid and are already under implementation. Most of the Public Hearing commitments have been fully complied with, while the remaining items are regular, ongoing obligations that are being carried out continuously (e.g., road maintenance, water supply, health camps, dust suppression, CSR interventions in nearby villages, and safety measures).

All activities and commitments made during the Public Hearing process are under continuous implementation. in aligned with guideline of MoEF&CC vide O.M. No. 22 65/2017 IA.III dated 30.09.2020 and the project has complied with the requirement to prepare a time bound action plan for

Public Hearing commitments; most commitments have already been fulfilled, and the remaining activities, being regular in nature, are implemented on an ongoing basis.

The expenditures incurred for such activities are over and above the statutory environmental protection costs, consistent with Corporate Environment Responsibility (CER) requirements.

Implementation of all remaining actionable items will be ensured within three years, with progress reported through the six monthly EC compliance submissions.

Thus, the stipulation under this condition stands complied with.

16. Miscellaneous:

16.1 The project proponent shall submit the environmental statement for each financial year in Form V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL submits the Environmental Statement (Form V) for every financial year to the Odisha State Pollution Control Board (OSPCB) in compliance with Rule 14 of the Environment (Protection) Rules, 1986. The Environmental Statement is prepared based on monitored environmental data, certified laboratory reports, and statutory records, and is submitted within the prescribed timelines. A copy of the Form V Environmental Statement is also uploaded on the company s website for public disclosure, as required under this condition.

Accordingly, the condition is being complied with on a regular annual basis.

16.2 The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL strictly complies with all stipulations prescribed by the Odisha State Pollution Control Board (OSPCB) and the State Government. All operations including air quality management, water management, waste handling, noise control, mine environment, and statutory reporting are carried out in full conformity with the valid CTO/CTE conditions and directives issued by OSPCB, the Directorate of Mines, Forest Department, and other State authorities.

Compliance records, monitoring reports, and returns are submitted within prescribed timelines, and periodic inspections by State authorities are duly facilitated. Any recommendations or corrective instructions issued are promptly implemented to ensure continual adherence to regulatory requirements.

16.3 No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF and CC).

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL confirms that no further expansion, modification, enhancement of capacity, or alteration of mining and ore handling facilities has been undertaken beyond what is approved under the existing Environmental Clearance and its amendments.

Any future expansion, modernization, technological modification, additional infrastructure, or increase in production/throughput shall be initiated only after obtaining prior approval from the Ministry of Environment, Forest and Climate Change (MoEF and CC), in strict compliance with the EIA Notification, 2006 and its amendments.

The condition is being fully complied with.

16.4 The above conditions will be enforced inter alia, under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.

Compliance:

Bolani Iron Ore Mines, M/s SAIL complies with all provisions of: The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, The Environment (Protection) Act, 1986, The Public Liability Insurance Act, 1991, including all rules, amendments, and directions issued thereunder.

Compliance is also ensured with all applicable orders of the Hon ble Supreme Court, High Court, NGT, and other Courts of Law relating to environmental protection and mining operations.

16.5 The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has submitted copies of the Environmental Clearance (EC) letter to the Heads of local bodies, including the Gram Panchayats and relevant Government offices, in accordance with the stipulated condition. The concerned local authorities have been formally requested to display the EC copy for a period of 30 days as mandated. Documentary evidence of dispatch and acknowledgement copies are maintained and can be produced as required.

16.6 The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponents website permanently.

Compliance: Complied.

In compliance with regulatory requirements, copies of the Environmental Clearance (EC) letter were submitted to the Regional office, District Industries Centre and Collectors office/ Tehsildar s Office within 07 (seven) days from the date of issuance of the EC letter, and the EC has been submitted on dated 26.07.2025.For Displaying The EC letter to 30 days from the date of issuance.

16.7 The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the

projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL monitors the prescribed ambient air quality criteria pollutants PM_{10}, $PM_{2.5}$, SO_2, and NO_x through a network of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and manual ambient monitoring stations, as detailed under Conditions 3.6 and 3.9.

The monitored data is digitally displayed at a public display unit installed near the main gate of the mine for public disclosure and is also uploaded on the official SAIL/Bolani Mines webpage as part of routine transparency measures. Since the mining operations do not involve stacks or process emissions, stack emission monitoring is not applicable to the mine. Monitoring results are also submitted to regulatory authorities through the six monthly compliance reports.

16.8 The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL hereby confirms that the Environmental Clearance amendment pertains to continuation of existing mining operations and does not involve a new project requiring financial closure. The mine has been in continuous operation under valid leases and approvals, and no fresh land development work is envisaged beyond what is already approved under the Mining Plan and earlier ECs.

However, as required under this condition, any future milestone related to financial closure (where applicable), commencement of land development works, or initiation of production operations under revised EC limits shall be formally intimated to the MoEF&CC and its Regional Office, Bhubaneswar, in a timely manner.

Presently, mining operations continue under the extant Mining Plan, CTO/CTE, and Environmental Clearance provisions, and compliance status is being regularly reported through the six monthly EC compliance submissions on PARIVESH.

16.9 The project proponent shall submit six monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL submits the six monthly Environmental Clearance (EC) compliance reports regularly within the prescribed timelines. The reports are uploaded on the Ministry s PARIVESH portal (environment clearance portal) in accordance with the provisions of the EIA Notification, 2006 and subsequent amendments. Copies of the same are also submitted to the MoEF&CC Regional Office, Bhubaneswar and the Odisha State Pollution Control Board (OSPCB) for records. The compliance reporting process is system driven and monitored through the Environment Management Cell (EMC) to ensure timely and accurate submission every cycle.

16.10 The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half yearly basis.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL ensures transparency by uploading the status of compliance of EC conditions along with results of monitored environmental data (air, water, noise, soil, and plantation survival rate) on the company s official website.

The information is updated on a half yearly basis, in line with the stipulated requirement. This ensures accessibility of compliance data to regulators, stakeholders, and the public.

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

Compliance: Agreed to comply.

The condition is noted. Any appeal against the EC, if applicable, shall be preferred before the Hon ble National Green Tribunal within the prescribed period under Section 16 of the NGT Act, 2010.

16.12 The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

Compliance: Agreed to comply.

Bolani Iron Ore Mines, M/s SAIL has ensured strict adherence to all commitments and recommendations made in the EIA/EMP report, during the Public Hearing, and in the presentation before the Expert Appraisal Committee (EAC). These commitments have been integrated into the Environmental Management Plan (EMP) and are under regular implementation. Progress is monitored by the Environmental Cell and reported to the MoEF&CC Regional Office through six monthly compliance submissions. Public hearing commitments (employment, health facilities, water supply, infrastructure support, plantation, and community welfare) are under regular fulfillment, with year wise action plans executed within stipulated timelines.

16.13 The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL informs the MoEF andCC Regional Office regarding key project milestones such as financial approvals, administrative sanctions, and commencement of land development activities, as applicable to the mining lease. Since this proposal pertains to amendment / extension of the existing Environmental Clearance and not a new Greenfield project, financial closure and project start date were already reported at the time of original EC. Any future approvals or commencement of additional land development works requiring EC applicability will be duly communicated to the Regional Office in accordance with this condition.

16.14 The above conditions will be enforced inter alia, under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the

Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL operates strictly in accordance with all applicable environmental legislations, including the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, and the Public Liability Insurance Act, 1991, together with all amendments and rules framed thereunder.

All statutory consents (CTE/CTO), authorizations, returns, and monitoring requirements mandated under these Acts are being regularly obtained, renewed, and complied with. The mine also adheres to any directions, circulars, and enforcement orders issued by Hon ble Supreme Court / High Court / NGT and other statutory authorities relevant to mining and environmental management.

Accordingly, Bolani Iron Ore Mines maintains full compliance with this condition.

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

Compliance: Agreed to comply.

The condition is noted. Any appeal against the EC, if applicable, shall be preferred before the Hon ble National Green Tribunal within the prescribed period under Section 16 of the NGT Act, 2010.

16.16 The Project Proponent shall prepare digital map (land use and land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF and CC.

Compliance: Agreed to comply.

Bolani Iron Ore Mines, M/s SAIL prepares periodic Digital Land Use and Land Cover (LULC) maps covering the entire 5.10 sq. mile ML area using DGPS/Total Station surveys, satellite imagery, and GIS based interpretation, as part of the statutory mine plan preparation and modification cycle every five years, by engaging IIT(ISM) Dhanbad .

Digital Land Use and Land Cover (LULC) mapping of the entire Bolani Iron Ore Mines lease covering active quarry areas, OB dumps, reclaimed zones, afforested areas, water bodies, safety zones, infrastructure blocks, and undisturbed forest patches has earlier been prepared to meet IBM (MCDR) requirements. The same LULC mapping protocol will be resumed and updated once every five years, synchronized with each Review of Mining Plan (RMP) cycle, to ensure full compliance with this Environmental Clearance condition.

The preparation of updated digital LULC map is under processing and the GIS layers will be shared with the MoEF&CC Regional Office as part of the five yearly monitoring requirement.

16.17 In pursuant to Ministrys O.M No 22 34/2018 IA.III dated 16.01.2020 to comply with the direction made by Honble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations,

undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

Compliance: Agreed to comply.

Bolani Iron Ore Mines, M/s SAIL acknowledges the statutory requirement under the Ministry s O.M dated 16.01.2020 and the Hon ble Supreme Court's direction in W.P. (Civil) No.114/2014. The mine is committed to undertake re grassing and ecological restoration of the mining area and all disturbed zones after cessation of mining operations.

Restoration activities will include soil conditioning, plantation of native grasses, shrubs, and trees, and development of land suitable for the growth of fodder, flora, and fauna. The Environmental Cell will coordinate with accredited agencies and forest authorities to ensure scientific reclamation and monitoring. Progress will be documented and reported to MoEF&CC Regional Office.

16.18 A separate Environmental Management Cell with suitable qualified manpower should be set up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF andCC.

Compliance: Complied.

In compliance with the requirement, Bolani Iron Ore Mines, M/s SAIL has established a dedicated Environmental departments at both the Project Level and Corporate (SAIL HQ) Level, staffed with qualified environmental professionals. The departments functions under the direct supervision of senior executives, ensuring statutory compliance, resource allocation, and reporting to the Head of the Organization.

At Mines level, a dedicated Environment Management Cell functions as an independent unit under the Head of Environment and Lease, reporting directly to the Chief General Manager (Mines). The EMS is staffed with qualified and experienced personnel, including a General Manager (Environment and Lease), AGM (Mining - E and L), Mining Foreman, and Mining Mate and with outsourced staffs. The cell is responsible for day to day environmental monitoring, compliance management, reporting, and communications for implementation of all statutory environmental safeguards as stipulated under the EC, CTO, and Forest/Mining regulations. Further, necessary proposal is under process for recruitment of multidisciplinary qualified personnel s for induction into environmental management section.

16.19 The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC and its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.

Compliance: Complied.

Six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards are submitted to the MOEFCC and its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board**.**

16.20 The concerned Regional Office of the MoEF andCC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF andCC officer(s) by furnishing the requisite data / information / monitoring reports.

Compliance: Agreed to Comply.

Bolani Iron Ore Mines, M/s SAIL extends full cooperation to the officers of the Regional Office, MoEF&CC during random monitoring visits. All requisite data, information, and monitoring reports (air, water, noise, soil, plantation survival, EMP fund utilization, and EC condition wise compliance status) are furnished promptly.

The Environmental Cell coordinates with all departments to ensure transparency and availability of records. Monitoring reports are also annexed to the six monthly compliance submissions.

16.21 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: Agreed to Comply.

Bolani Iron Ore Mines, M/s SAIL acknowledges that the Ministry of Environment, Forest and Climate Change (MoEF and CC) or any other competent authority reserves the right to alter, modify, or stipulate additional conditions in the interest of environmental protection. The project proponent remains committed to complying with any such directions or modifications issued by the Ministry, Regional Office, or other statutory authorities. All changes, if stipulated, will be incorporated into the Environmental Management Plan (EMP) and reported in six monthly compliance submissions.

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

Compliance: Agreed to Comply.

Bolani Iron Ore Mines, M/s SAIL strictly adheres to transparency and accuracy in all submissions related to Environmental Clearance (EC) compliance. No factual data has been concealed, and no false or fabricated information has been submitted.

All monitoring results (air, water, noise, soil, plantation survival, EMP fund utilization) are generated through NABL accredited laboratories and Clause wise compliance reports are prepared and submitted to the MoEF&CC Regional Office on a six monthly basis, ensuring defensibility and adherence to the provisions of the Environment (Protection) Act, 1986.

17. Corporate Environment Responsibility (Cer):

17.1 The Project Proponent shall submit the time bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF andCC Office Memorandum No.22 65/2017 IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

Compliance: Complied

Since the present EC approval dt 24.07.2025 pertains to an amendment of the existing Environmental Clearance, the Public Hearing (PH) commitments made earlier for Bolani Iron Ore Mines, M/s SAIL continue to remain valid and are already under implementation. Most of the Public Hearing commitments have been fully complied with, while the remaining items are regular, ongoing obligations that are being carried out continuously (e.g., road maintenance, water supply, health camps, dust suppression, CSR interventions in nearby villages, and safety measures).

All activities and commitments made during the Public Hearing process are under continuous implementation. in aligned with guideline of MoEF&CC vide O.M. No. 22 65/2017 IA.III dated 30.09.2020 and the project has complied with the requirement to prepare a time bound action plan for Public Hearing commitments; most commitments have already been fulfilled, and the remaining activities, being regular in nature, are implemented on an ongoing basis.

The expenditures incurred for such activities are over and above the statutory environmental protection costs, consistent with Corporate Environment Responsibility (CER) requirements.

Implementation of all remaining actionable items will be ensured within three years, with progress reported through the six monthly EC compliance submissions.

Thus, the stipulation under this condition stands complied with.

Standard EC Conditions for (Mineral beneficiation)

1. Statutory Compliance

1.1 The Environment Clearance (EC) granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project.

Compliance: Agreed to Comply

Bolani Iron Ore Mine, M/s SAIL agrees to and complies with this condition. It is acknowledged that the EC granted under the EIA Notification, 2006 (and subsequent amendments) is limited to environmental appraisal and clearance of the project and it is not a blanket approval. It does not substitute or override statutory requirements under other applicable legislations. The need for multi legislation compliance to secure and maintain all parallel statutory permissions in a timely and defensible manner is complied with. As such, all operations are carried out strictly under the provisions of the EIA Notification, 2006 and subsequent amendments. All other statutory permissions required under applicable Acts/Rules, including Air Act, Water Act, FC Act, Wildlife Act, Hazardous Waste Rules, OSPCB consents, CGWA norms, and IBM/MCDR requirements, are obtained separately and complied with as mandated.

1.2 The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non forest purpose involved in the project.

Compliance: Complied.

Bolani Iron Ore Mine, M/s SAIL operates entirely within an already granted forest lease area and no new diversion of forest land for non-forest purposes is involved under the present EC amendment. The mining operations continue strictly within the forest land permitted under the earlier Stage I and Stage II Forest Clearances issued by the Government of India for the Bolani 5.10 sq. miles ML. Stage II Forest Clearance for the entire forestland within the 5.10 sq. miles ML area, including the safety zone stretch, has already been obtained under the Forest (Conservation) Act, 1980/1986. All tree felling and related activities were carried out strictly as per permissions granted by the Divisional Forest Officer (DFO), Keonjhar. The originally approved diverted land use plan is being strictly adhered to, and any future land use modification, if required, will be undertaken only with prior approval of the competent authority.

Accordingly, no additional forest clearance is required, and Bolani Iron Ore Mine remains fully compliant with the provisions of the Forest (Conservation) Act, 1980 (noting that the EC condition cites 1986). All stipulated conditions of the existing FCs are being adhered to and reported periodically to the State Forest Department.

1.3 This Environmental clearance is granted subject to final outcome of Hon ble Supreme Court of India, Hon ble High Court, Hon ble NGT and any other Court of Law, if any, as may be applicable to this project.

Compliance: Agreed to Comply.

Bolani Iron Ore Mine, M/s SAIL acknowledges that this Environmental Clearance (EC) is subject to the final outcome of any proceedings before the Hon ble Supreme Court, Hon ble High Court, Hon ble NGT, or any other Court of Law.

The Environmental Clearance for Bolani Iron Ore Mines is being implemented in full conformity with all orders, judgments, and directions issued by the Hon ble Supreme Court of India, the Hon ble High Courts, the Hon ble National Green Tribunal (NGT), and any other competent judicial authority, including the applicable Common Cause directions and strictly abides by all judicial directions applicable to the lease and undertakes that EC related activities shall at all times remain compliant with such orders. All mining, dispatch, environmental management, and statutory compliance activities are carried out strictly in accordance with these judicial mandates. Any new orders or directions issued by judicial bodies are reviewed immediately and implemented in consultation with the concerned regulatory authorities.

This stipulation has also been addressed earlier under Condition 1.8, which similarly requires adherence to ongoing judicial directions. Accordingly, the condition stands fully complied with.

1.4 The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.

Compliance: Agreed to Comply.

The Bolani Iron Ore Mine (5.10 sq. miles ML area) does not fall within any Wildlife Sanctuary, National Park, Eco Sensitive Zone (ESZ), or wildlife corridor notified under the Wildlife (Protection) Act, 1972. No part of the mining lease lies within the regulated zone that requires appraisal by the Standing Committee of the National Board for Wildlife (NBWL).

Further, this position has already been addressed under earlier compliance related to Wildlife Conservation (Condition 1.5 and 1.6 / SSCP WMP), wherein site specific wildlife studies and the approved Wildlife Conservation Plan confirmed the absence of NBWL applicability.

Accordingly, NBWL clearance is not required, and the condition stands complied with by default.

1.5 The project proponent shall prepare a Site Specific Conservation Plan and Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six monthly compliance report. (in case of the presence of Schedule I species in the study area).

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has already fully complied with the requirement of preparing and implementing a Site Specific Conservation Plan (SSCP) and Wildlife Management Plan (WMP) due to the presence of Schedule I species in the study area, before the grant of instant EC amendment order .

The SSCP/WMP was prepared on the basis of detailed biological surveys conducted by expert committees and wildlife specialists, and subsequently approved by the Chief Wildlife Warden, Odisha vide order no. 4506/1WL(C) SSP 126/2012 dated 23.06.2014, with a total financial outlay of ₹1676.41 lakh.

Implementation of the Plan is being carried out in close coordination with the State Forest and Wildlife Department. An amount of ₹5,68,22,350 has been deposited into CAMPA A/c No. 1585 towards the Regional Wildlife Management Fund. Continuous infrastructural and logistical support is provided to the Forest Department for wildlife protection activities.

As part of SSCP implementation, extensive forest fire prevention measures were undertaken during FY 2024–25, resulting in zero forest fire incidents within the ML area. Periodic implementation status reports, with documentary evidence, are submitted along with every six monthly EC compliance report to MoEF&CC Regional Office, Bhubaneswar, and uploaded on PARIVESH.

1.6 The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has obtained all required Consent to Establish (CTE) and Consent to Operate (CTO) from the Odisha State Pollution Control Board (OSPCB) under the provisions of the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974. CTE for 12 MTPA Iron Ore (ROM), including excavation and dispatch of 3.0 MTPA dump fines, 0.5 MTPA fresh ore, installation of 06 nos. mobile crushing and screening plants (300 TPH each), 01 no. crushing and screening plant (600 TPH), and 01 no. wet beneficiation plant (1600 TPH) (while keeping total EC approved capacity within 12 MTPA) has been granted vide CTE Order No. 2151/IND II CTE 6456 dated 14.02.2023 and CTE Order No. 8815/IND II CTE 7319 dated 03.05.2025 . CTOs corresponding to the above CTEs have also been granted by the Odisha State Pollution Control Board (OSPCB), and all stipulated conditions are under regular compliance. Further, an application for CTE amendment to incorporate the changes arising from the instant EC amendment has already been submitted to OSPCB and is in processing. All conditions stipulated in these consents are under regular compliance and monitored by the Environmental Management Section (EMS) of the mines.

1.7 The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL does not extract or draw groundwater for any mining or processing activity; hence no permission from CGWA is required. All safeguard measures for groundwater protection and recharge are being followed.

For surface water usage, the mine has already obtained the necessary permission from the competent State authority. A valid Water Drawl Agreement for extraction of 7 cusecs of surface water from the Karo River and its tributaries has been executed with the Executive Engineer, Baitarini Division, Salapada, vide Agreement No. 839 dated 21.02.2025 (valid for 1 year), and the same is being adhered to.

The present average water consumption of the mine is within the permitted drawl limit.

Accordingly, the condition stands complied with.

1.8 The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has obtained authorization under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended from time to time, from the Odisha State Pollution Control Board (OSPCB). The current valid authorization is IND IV HW 321/14070 dated 25.07.2025; covering storage, handling, and disposal of all applicable hazardous waste categories generated from mining and associated operations. All conditions stipulated in the authorization are being complied with, and hazardous waste disposal is carried out only through authorized recyclers and TSDF operators, as reported in the six monthly EC compliance submissions.

2. Air Quality Monitoring And Preservation

2.1 The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as 04/06 Nos. Continuous Ambient Air Quality Station (CAAQMS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories. (case to case basis small plants: Manual; Large plants: Continuous and their no s.).

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL is an open cast mine and does not have any process stacks; hence installation of CEMS is not applicable. However, the requirement for continuous ambient air quality monitoring has been fully complied with. Four (04) online Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed and connected to the OSPCB and CPCB servers, as detailed earlier under Conditions 3.6, 3.9 and 3.10. This condition (2.1) has been fully addressed under: Condition 3.6 regarding quarterly fugitive/ambient air monitoring, Condition 3.9 regarding installation of 4 CAAQMS (upwind/downwind, 120° apart) , Condition 3.10 regarding continuous AAQ monitoring system at min. 4 locations and Condition 3.7 regarding all APC systems at all dust generating sources . The detailed compliance is again elaborated as follows:

To ensure continuous monitoring of ambient air quality as required under this condition, the mine has installed a comprehensive ambient monitoring network consisting of:

A. Continuous Ambient Air Quality Monitoring Stations (CAAQMS) – 24×7 Operation of **total of** 04 (four) CAAQMS units **have been installed:**

1. 01 station **monitoring** PM_{10}, $PM_{2.5}$, SO_2, NOx and CO
2. 03 stations monitoring PM_{10} and $PM_{2.5}$

These CAAQMS units are connected to the OSPCB RT DAS server for real time data transfer. A Comprehensive Annual Maintenance Contract (CAMC) has been awarded to M/s Future Instruments, who are responsible for: system operation, calibration as per manufacturer s specifications, continuous uptime, data integrity and server connectivity

B. Fugitive Dust Monitoring Network: A network of 10 (ten) offline fugitive air quality monitoring stations has been established across all dust generating zones of the mine. Monitoring at these stations includes:

1. SPM
2. RSPM

All sampling and laboratory analysis are carried out by M/s Ecomen Laboratories Pvt. Ltd., a NABL accredited laboratory recognized under the Environment (Protection) Act, 1986. Periodic calibration of portable monitors is also performed by Ecomen as per standard QA/QC protocols.

C. Compliance Assurance

1. Continuous and manual monitoring data are submitted regularly to OSPCB and included in the Six Monthly EC Compliance Reports uploaded on the PARIVESH portal.
2. All monitoring locations, methods, and parameters comply with the Environment (Protection) Rules, 1986 and NAAQS Notification 2009.

Thus, the requirement of installing and operating 24×7 air quality monitoring systems and maintaining calibration, data reporting, and regulatory linkage is fully complied with.

2.2 The project proponent shall carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area (at least at four locations one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has established a comprehensive Continuous Ambient Air Quality Monitoring (CAAQM) network to comply with the requirement of monitoring ambient air quality at four locations one within and three outside the lease area, positioned approximately 120° apart, covering both upwind and downwind directions based on long term wind rose analysis.

A total of 04 (four) Online CAAQMS stations have been installed, of which one station monitors PM_{10}, $PM_{2.5}$, SO_2, NO_x, and CO, and the remaining three stations monitor PM_{10} and $PM_{2.5}$, conforming to siting criteria prescribed in the NAAQS Notification, 2009. All stations are integrated with rt das for real time data transmission to OSPCB and CPCB servers. Operation, calibration, and AMC are handled by M/s Future Instruments, while periodic calibration verification is carried out through NABL accredited agencies.

In addition to CAAQMS, a network of 10 offline fugitive air quality monitoring stations is operational within the mine and surrounding villages to assess total and respirable particulates across all dust intensive zones. Monitoring and analysis of these stations are carried out by M/s Ecomen Laboratories Pvt. Ltd., a NABL accredited laboratory recognized under the Environment (Protection) Act, 1986.

The CAAQMS and fugitive monitoring stations together ensure comprehensive assessment of pollutant dispersion arising from mining operations, haul road movement, ore handling, loading and unloading, and adjacent industrial influence.

All results are included in six monthly EC Compliance Reports, submitted to MoEF&CC Regional Office and uploaded on PARIVESH.

2.3 The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL carries out quarterly fugitive emission monitoring at all 10 designated locations within the mining and processing premises through M/s Ecomen Laboratories Pvt. Ltd., a NABL accredited and EPA recognized laboratory. Monitoring covers Total Suspended Particulates (TSPM), PM_{10}, and other relevant parameters as per CPCB/MoEF&CC guidelines. All monitored data are recorded, reviewed, and reported in the six monthly EC compliance reports submitted to MoEF&CC Regional Office and uploaded on PARIVESH. The monitored results remain within the prescribed limits, and the condition stands complied.

2.4 Sampling facility at process stacks and at quenching towers shall be provided as per CPCB guidelines for manual monitoring of emissions.

Compliance: Not Applicable

Bolani Iron Ore Mines, M/s SAIL is an opencast mining project with associated dry crushing and screening facilities, wet beneficiation and does not have any process stacks or quenching towers, as no thermal, pyro metallurgical or combustion based operations are carried out at the site. Hence, provision of sampling facility at process stacks and quenching towers is not applicable to this mine.

However, the intent of the condition is complied with through alternative monitoring provisions appropriate to mining operations, including: CAAQMS (4 nos.) installed for real time monitoring of PM_{10}, $PM_{2.5}$, SO_2, NO_2 and CO. , 10 nos. fugitive emission monitoring stations for quarterly manual monitoring by NABL accredited laboratory (M/s Ecomen Laboratories Pvt. Ltd.), Stack equivalent monitoring points provided at dust generating locations such as crusher hopper points, conveyor transfer points, loading plant, fines handling area, and haul road junctions. Monitoring is carried out as per CPCB Guidelines on Fugitive Emissions (2010) and included in the six monthly EC compliance reports.

Thus, the requirement stands complied with in spirit and as applicable to a mining project.

2.5 Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has implemented a comprehensive and site specific Air Pollution Control (APC) system across all dust generating and fugitive emission areas. The mine does not have process stacks; hence, stack emission norms are not applicable. However, an integrated fugitive dust control system has been deployed, and its details have already been elaborated under Conditions 2.1, 2.2, 2.3, and Condition 3.1 to 3.10, and summarized in **Annexure – II** (Fugitive dust control Plan of BOM).

The installed APC measures include:

A. At Material Handling and Crushing Points

i. Dry Fog Dust Suppression Systems (DFDS) installed at the 1600 TPH Gyratory Crusher feed hopper and major transfer points.
ii. Fixed High Pressure Fog Cannons deployed at lump and fines handling areas.
iii. Enclosed conveyor galleries from mine to dispatch point to eliminate open transfer point dust.

B. At Stockpiles, Mine benches and Loading Areas

i. Rotating Fog Cannons (180–270° coverage) for fines and lump stockpile misting.
ii. Truck mounted mist canons for dynamic suppression during peak operations.
iii. Mobile water tankers (28 KL, 12 KL, 9 KL) for cyclic sprinkling.

C. At Haul Roads and Transit Areas

i. Concrete pavement provided in loading plant and internal haulage roads to prevent dust generation.
ii. Fixed sprinkling lines along haul roads in F and G areas and Panposh–D corridor.
iii. Mechanical road dust sweeper trucks deployed daily.
iv. Wheel washing system at exit gates to prevent track out.

D. At Mine Pits

i. Truck mounted mist cannons used in shovel–dumper cycle to suppress at the source.
ii. Wet drilling practiced; drill machines are equipped with dust extractors.

All monitored concentrations of PM_{10}, $PM_{2.5}$, SO_2, NO_2, and CO remain within CPCB prescribed standards. Detailed APC systems and operational evidence were elaborated previously under the compliance of Condition 3.1 (Dust Suppression), Condition 3.6 (Fugitive Emission Monitoring), Condition 3.8 (Continuous Monitoring), and Condition 3.10 (CAAQMS Siting). Supporting data, maps, and photographs are enclosed in **Annexure – XIV** Dust Control Plan of BOM.

Bolani Iron Ore Mines has fully implemented a multi layered APC system covering all dust generating and fugitive emission sources, in full compliance with this condition.

2.6 The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.

Compliance: Not applicable

The condition regarding installation of 24×7 Continuous Emission Monitoring Systems (CEMS) at process stacks is not applicable to Bolani Iron Ore Mines, M/s SAIL, as the mine and its associated iron ore handling/processing facilities do not contain any process stacks generating stack emissions.

This has already been addressed in detail under Condition 2.1, Condition 2.2, Condition 2.3, and Condition 3.6 / 3.9, where the monitoring systems, locations, calibration protocol, and third party laboratory accreditations have been elaborated. In summary, Bolani Iron Ore Mines, M/s SAIL does not have any process stacks, hence CEMS installation is not applicable;

However, the intent of the condition is complied with through alternative monitoring provisions appropriate to mining operations, including: CAAQMS (4 nos.) installed for real time monitoring of

PM_{10}, $PM_{2.5}$, SO_2, NO_2 and CO. , 10 nos. fugitive emission monitoring stations for quarterly manual monitoring by NABL accredited laboratory (M/s Ecomen Laboratories Pvt. Ltd.), Stack equivalent monitoring points provided at dust generating locations such as crusher hopper points, conveyor transfer points, loading plant, fines handling area, and haul road junctions. Monitoring is carried out as per CPCB Guidelines on Fugitive Emissions (2010) and included in the six monthly EC compliance reports. Monitoring methodology and compliance details are fully described in Compliance of Conditions 2.1, 2.2, 2.3, 3.6, and 3.9.

2.7 The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.

Compliance:

Bolani Iron Ore Mines, M/s SAIL does not have any bag filter–based process stacks, as the mining operation is fully open cast and does not involve stack emission–generating process units such as kilns, furnaces, or dryers requiring bag filters. Hence, leakage detection systems and mechanized bag cleaning facilities are not applicable to the present mining configuration. However, the intent of the condition, preventing fugitive emissions at material handling points, is fully met through a comprehensive suite of pollution control systems already reported, including: Dry Fog Dust Suppression Systems at primary hoppers, Rotating Fog Canons at stockpiles and loading plant, Fixed water sprinkling lines at conveyor galleries and haul roads, Covered conveyors from mine to dispatch, Mobile mist canons at mine pit shovel benches, Concrete haul roads and sweeper trucks to prevent dust liberation and Wheel washing system at fine selling dispatch gate . These systems collectively serve the functional objective of the condition, controlling particulate escape at source, equivalent to APC performance expected from mechanized bag cleaning/bag filter maintenance systems. Therefore, although bag filters are not applicable, the spirit of the condition is fully complied with through robust dust mitigation infrastructure.

2.8 The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986. 9) The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each). covering upwind and downwind directions.

Compliance: Complied

In the context of Bolani Iron Ore Mines, M/s SAIL, the term plant premises pertains to the entire mining operational zone, including the open cast working pits, haul roads, loading plant, ore processing plant (OPP), mechanical workshops, crushing and screening units, material handling yards, OB dump areas, and ancillary facilities associated with mining operations. As BOM does not have conventional industrial stacks, monitoring is focused on fugitive emissions generated within these operational areas. Bolani Iron Ore Mines conducts quarterly fugitive emission monitoring at all 10 fixed locations through NABL accredited laboratories (now by M/s Ecomen Laboratories Pvt. Ltd.), in full compliance with the requirement under the Environment (Protection) Act, 1986.

The network of 10 offline fugitive AAQ monitoring stations for TSPM and 4 Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are installed in consultation with OSPCB, in upwind and downwind directions at 120° separation to continuously monitor key parameters including PM_{10}, $PM_{2.5}$, SO_2, NO_x, and CO. The CAAQMS are connected to the SPCB s RT DAS server, and monitoring and calibration are carried out through M/s Future Instrumentation and NABL accredited labs.

This monitoring framework, earlier elaborated under Condition 2.1 – Discussion on CEMS/CAAQMS installations, Condition 2.2 – Continuous AAQ monitoring within and outside plant at 120° spacing, Condition 2.3 - Quarterly fugitive emission monitoring via NABL accredited lab, and Conditions 3.1, 3.6, 3.7, 3.8, 3.9 and 3.10, ensures full compliance with the requirement of monitoring fugitive emissions within the premises of the mine and its associated facilities.

2.9 Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.

Compliance: being complied

Bolani Iron Ore Mine, M/s SAIL, being an open cast mining operation, does not have enclosed shop floors where large stationary vacuum cleaning systems are typically required for dust floor cleaning. However, Bolani Iron Ore Mines, M/s SAIL maintains ore processing plant buildings, the tertiary crushing plant, workshop areas, stores, mechanical maintenance and the loading plant buildings within the mining lease area. Dedicated industrial vacuum units (mobile or stationary) are not yet deployed within these plant premises, and roads inside mine premises owing to the predominantly moorum based, unpaved haul road/approach road network inside the mine. Feasibility is being explored to procure industrial grade vacuum cleaning equipment suitable for OPP / TCP plant floors, workshop areas, and paved sections of shop floors / internal roads etc. to regularly mechanized cleaning integrated into site housekeeping SOPs thereafter.

At present, routine cleaning in these operational zones are primarily managed through manual based with wet dust suppression systems during cleaning. The mine has adopted mechanized dry sweeping systems on Township and village roads to maintain dust free roads. Comprehensive dust suppression measures and installation of vacuum based systems will be implemented as part of the ongoing plant cleaning enhancement plan.

2.10 The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each). Covering upwind and downwind directions.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has already installed a network of 04 (four) Continuous Ambient Air Quality Monitoring Stations (CAAQMS) fulfilling the requirement of one upwind and three downwind monitoring stations, with angular separation of ~120°, selected based on long term site specific climatological and wind rose data. These CAAQMS monitor the prescribed criterion parameters PM10, PM2.5, SO2, NOX and CO, covering all major dust and emission influencing activities such as ore handling, crushing, haul road movement, OPP operations, and mineral dispatch points. All four CAAQMS are connected to the OSPCB RT DAS server and are operated, calibrated, and maintained by the authorized agency M/s Future Instruments, in accordance with CPCB and EP Rules, 1986. In addition to continuous monitoring, manual ambient air quality monitoring is being undertaken at multiple locations within and outside the mine premises through NABL accredited laboratory M/s Ecomen Laboratories Pvt. Ltd., as discussed under earlier Conditions 2.1, 2.2, 2.3, 3.6 and 3.9. . The air quality data are displayed at the main gate digital display unit and integrated into the half yearly EC compliance reporting submitted on PARIVESH.

Thus, the requirement of installing and operating four CAAQMS covering upwind and downwind directions stands fully complied with.

2.11 Ensure covered transportation and conveying of raw material to prevent spillage and dust generation; Use closed bulkers for carrying fly ash.

Compliance: complied

Transportation of fly ash is not applicable to Bolani Iron Ore Mines, as the mining operation does not handle, store, or transport fly ash. However, for all applicable Iron mineral transportation, full compliance with covering, sealing, and spill proof dispatch is ensured.

Bolani Iron Ore Mines, M/s SAIL ensures covered and spill proof transportation of minerals in accordance with the stipulated EC condition. While the majority of iron ore dispatch from BOM is carried out through Indian Railways, which inherently eliminates risks of spillage and fugitive dust, dispatch of dump fines and fresh fines to local end users/external conversion agencies is undertaken by trucks. All mineral carrying trucks are mandated in the transportation contracts to use tarpaulin covers, and leak proof vehicle bodies are ensured through contractual conditions and physical verification at the CISF managed exit gate. Vehicles found with loose tail gates, improper covering, or spillage risk are not permitted to exit the premises.

Further, haul road dust suppression measures, such as water sprinkling, fixed/movable mist canons and concrete approach roads to PWD road , are in place to prevent dust generation during transport. The mine has also installed an Automated Wheel Washing System at the fines dispatch gate to prevent track out of dust and material onto public roads. Internal haul roads in front of Main gate have been upgraded with concrete pavements near the loading plant, and truck mounted mist cannons are deployed at loading points to arrest fugitive emissions.

Thus, covered transportation and spillage free conveyance is strictly enforced, in compliance with the condition.

2.12 The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF and CC, Zonal office of CPCB and Regional Office of SPCB along with six monthly monitoring report.

Compliance: Complied

This requirement is already complied and elaborated under Conditions 2.1, 2.2, 2.6, and 2.8. Details of installed CAAQMS network (04 stations), data connectivity to OSPCB/CPCB RT DAS, manual monitoring locations, calibration mechanisms, and fugitive monitoring network (10 stations) are also covered under these conditions. Bolani Iron Ore Mines, M/s SAIL does not have any process stacks, as mining and associated ore handling operations are entirely open cast in nature; hence, continuous stack emission monitoring is not applicable. However, in full compliance with the monitoring requirements of this condition, the mine has established a comprehensive air quality monitoring framework covering both continuous and manual monitoring systems, as detailed below:

A. **Continuous Ambient Air Quality Monitoring**:
Four (04) Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed (as elaborated under Conditions 2.1, 2.6, 3.6 and 3.9). These stations monitor PM_{10}, PM10, PM2.5, SO2, NOX and CO and are connected to the OSPCB/CPCB RT DAS servers. Calibration is carried out by M/s Future Instruments as per supplier specifications.

B. **Manual Monitoring of Ambient and Fugitive Emissions**:

Ten (10) offline fugitive air quality monitoring stations and additional manual ambient air quality monitoring locations are operated quarterly through M/s Ecomen Laboratories Pvt. Ltd., a CPCB recognized NABL accredited laboratory (refer Conditions 2.3 and 3.6). Monitoring covers PM10, PM2.5, SO2, NOX and CO at both mine and peripheral locations.

Monthly summary of (i) continuous AAQMS data, and (ii) manual ambient/fugitive monitoring results is submitted regularly to: MoEF&CC Regional Office, Bhubaneswar, CPCB Zonal Office, and OSPCB Regional Office, and the same data is also incorporated in the six monthly EC compliance report uploaded on PARIVESH.

Thus, the requirements of Condition 2.12 are fully complied with and Hence, no further elaboration remains, because all compliance, regarding Installation of 24×7 Continuous Ambient Air Quality Monitoring Stations (CAAQMS), Monitoring PM10, PM2.5, SO2, NOX and CO , Coverage at minimum 4 locations (1 upwind + 3 downwind), 120° spacing, upwind-downwind approach, Connection of data to OSPCB/CPCB and reporting in six monthly EC compliance report, are all discussed .

2.13 Recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after briquetting/ agglomeration.

Compliance: Complied (NA)

Bolani Iron Ore Mines is an opencast iron ore mining operation and does not handle coal, coke, lime, or any process that generates coal/coke/lime fines. Hence, this part of the condition is not applicable.

However, iron ore fines generated during crushing, screening, and ore handling operations, including fines accumulated in pollution control systems (dry fog, mist suppression zones, floor sweepings), are collected separately, classified as mineral fines, recycled back into the beneficiation/processing circuit whenever the wet beneficiation plant is operational, or dispatched since briquetting/agglomeration units are not present within the mining lease, the question of internal briquetting does not arise.

All collection, handling, and reuse/dispatch of fines are strictly done in accordance with the Mining Plan, IBM guidelines, and OSPCB consent conditions.

2.14 Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has provided appropriate Air Pollution Control (APC) measures at all dust generating points, including ore handling zones, crushing/ screening units, haul roads, loading plant, OPP areas, stockpiles, and transfer points.

The APC infrastructure comprises:

i) Dry Fog Dust Suppression Systems at primary crushing and major transfer points (as detailed under Condition 3.1).
ii) Rotating Fixed Fog Cannons and Truck Mounted Mist Cannons at material handling, stockpiling, and loading areas.

iii) Fixed Water Sprinkling Lines along haul roads and high capacity mobile water sprinklers (28 KL / 12 KL / 9 KL) for continuous surface wetting.
iv) Enclosed conveyors, chute enclosures, and covered dispatch systems to minimise fugitive emissions.
v) Concrete pavement in high traffic areas and vacuum sweeping units in selected internal roads.
vi) Wheel washing system at dispatch gates to prevent track out dust.
vii) Greenbelt/plantation buffers along haul roads and plant edges to act as dust barriers (linked to Conditions 1.3, 2.2, and 11.1).

Fugitive emissions are monitored through quarterly surveys and continuous air quality monitoring (CAAQMS) and as explained under Conditions 2.1, 2.2, 2.3, 3.1, 3.6 and 3.7, and all monitored values remain within MoEF and CC/CPCB prescribed limits

Thus, the requirement of providing APC systems at all vulnerable sources is fully complied, with detailed technical measures already fu**rnished in Annexure -II.**

2.15 The project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL ensures that all mineral transportation by road, limited primarily to dispatch of dump fines and fresh fines to local end users/external conversion agencies is carried out strictly using leak proof trucks and dumpers, as mandated in the auction contract/work order to the 3 rd parties . All such vehicles are mandatorily covered with tarpaulin, and tail gate sealing is enforced to prevent any spillage or dust release during transit. A dedicated Sales Team of BOM and CISF managed check gate at the dispatch point are operational, where each outbound truck is inspected for: Proper tarpaulin covering, Leak proof body condition, Absence of overloading, Tail gate locking compliance, Vehicles not meeting these requirements are not allowed to exit the premises.

Additionally, an automated wheel washing system is installed at the fines dispatch gate to prevent track out of adhered fines onto public roads. Transport contractors are bound by contract conditions and written advisories requiring leak proof vehicles and tarpaulin covering, with penalties for violations.

For the majority of production, rail transport remains the preferred and primary evacuation mode, significantly reducing road based dust emissions.

2.16 The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL ensures that all mineral transportation by road, limited primarily to dispatch of dump fines and fresh fines to local end users/external conversion agencies is carried out strictly using leak proof trucks and dumpers, as mandated in the auction contract/work order to the 3 rd parties . All such vehicles are mandatorily covered with tarpaulin, and tail gate sealing is enforced to prevent any spillage or dust release during transit. A dedicated Sales Team of BOM and CISF managed check gate at the dispatch point are operational, where each outbound truck is inspected for: Proper tarpaulin covering, Leak proof body condition, Absence of overloading, Tail gate locking compliance, Vehicles not meeting these requirements are not allowed to exit the premises.

Additionally, an automated wheel washing system is installed at the fines dispatch gate to prevent track out of adhered fines onto public roads. Transport contractors are bound by contract conditions and written advisories requiring leak proof vehicles and tarpaulin covering, with penalties for violations.

For the majority of production, rail transport remains the preferred and primary evacuation mode, significantly reducing road based dust emissions.

2.17 The project proponent shall provide primary and secondary fume extraction system at all heat treatment furnaces.

Compliance: Not Applicable.

Bolani Iron Ore Mines, M/s SAIL is a purely opencast iron ore mining project with associated crushing, screening, loading, and ore handling facilities only. The mine does not have any heat treatment furnaces, reheating furnaces, annealing units, or thermal processing facilities that require primary or secondary fume extraction systems.

Since no furnace based metallurgical or thermal operations are carried out within the leasehold, the requirement of providing fume extraction systems does not arise for this project.

However, BOM continues to comply with all applicable air pollution control requirements for mining operations, including: Dust suppression systems (fixed, mobile, dry fog, water sprinklers) and CAAQMS and manual AAQ monitoring as per earlier conditions (refer Conditions 3.1, 3.6, 3.7, and 2.1–2.10) along with regular fugitive emission monitoring.

Thus, the condition is Not Applicable to the nature and scope of operations at Bolani Iron Ore Mines.

2.18 Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.

Compliance: Complied (already discussed under 3.2).

Bolani Iron Ore Mines, M/s SAIL has adopted a comprehensive and multi layered dust control strategy for raw material stockpiles, ensuring suppression of wind borne emissions through a combination of engineered, operational and vegetative measures. To minimize dust dispersion from lump and fines stockyards, the following measures are in place:

i. **Rotating fog canons** deployed along stockpile peripheries to intercept airborne particulates generated during stacking and reclaiming.
ii. **Mobile mist canons** operated during high wind periods and peak handling hours to provide dynamic suppression across exposed stock surfaces.
iii. **Regular surface wetting and moisture maintenance** of stockpiles through fixed and mobile sprinkling systems.
iv. **Stockpile management practices**, including slope stabilization, controlled height, and periodic compaction, to reduce wind exposure and prevent loose fines from becoming airborne.
v. **Peripheral greenbelt and vegetative barriers** functioning as natural wind buffers and reducing wind velocity in stockpile zones.
vi. **Enclosed conveyor systems and controlled material drop heights** reducing dust generation at feed and discharge points associated with stockpile formation.

Continuous ambient air quality monitoring confirms that PM_{10} and $PM_{2.5}$ concentrations consistently remain within MoEF and CC/CPCB prescribed limits, including during peak stockpile handling seasons. While current systems effectively control wind-borne dust, feasibility studies for wind shelter fencing

and chemical spraying are in progress and these measures will be progressively integrated to further strengthen suppression.

2.19 Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.

Compliance: (Complied above and under 3.2).

Bolani Iron Ore Mines, M/s SAIL has adopted a comprehensive and multi layered dust control strategy for raw material stockpiles, ensuring suppression of wind borne emissions through a combination of engineered, operational and vegetative measures. To minimize dust dispersion from lump and fines stockyards, the following measures are in place:

i. **Rotating fog canons** deployed along stockpile peripheries to intercept airborne particulates generated during stacking and reclaiming.
ii. **Mobile mist canons** operated during high wind periods and peak handling hours to provide dynamic suppression across exposed stock surfaces.
iii. **Regular surface wetting and moisture maintenance** of stockpiles through fixed and mobile sprinkling systems.
iv. **Stockpile management practices**, including slope stabilization, controlled height, and periodic compaction, to reduce wind exposure and prevent loose fines from becoming airborne.
v. **Peripheral greenbelt and vegetative barriers** functioning as natural wind buffers and reducing wind velocity in stockpile zones.
vi. **Enclosed conveyor systems and controlled material drop heights** reducing dust generation at feed and discharge points associated with stockpile formation.

Continuous ambient air quality monitoring confirms that PM10 and PM2.5 concentrations consistently remain within MoEF and CC/CPCB prescribed limits, including during peak stockpile handling seasons. While current systems effectively control wind-borne dust, feasibility studies for wind shelter fencing and chemical spraying are in progress and these measures will be progressively integrated to further strengthen suppression.

2.20 Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.

Compliance: Complied (Not applicable)

Bolani Iron Ore Mines, M/s SAIL is an opencast mining operation and does not involve any underground workings, tunnels, or subterranean material handling passages**.** Accordingly, the requirement for designing ventilation systems for tunnels does not arise in this mining operation.

Ventilation systems such as exhaust fans have been installed in enclosed structures such as motor houses, crusher houses, conveyor galleries, workshops, and oil cellars. These systems ensure adequate air changes, preventing accumulation of dust, fumes, and vapors. Compliance is demonstrated through preventive maintenance records, fire/safety audits ambient monitoring inside enclosed units, and adherence to CPCB/MoEF&CC standards.

2.21 Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars

Compliance: Complied (Not applicable)

Bolani Iron Ore Mines, M/s SAIL is a fully opencast iron ore mining operation and does not involve underground workings, enclosed tunnels, or oil cellars requiring mechanical ventilation systems. The

mining configuration is open to atmosphere, ensuring natural ventilation and air circulation. Hence, the requirement of designing ventilation systems for tunnels, motor houses, and oil cellars is not applicable to this project.

2.22 Pollution control system in the plant shall be provided as per the CREP Guidelines of CPCB.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL ensures that all pollution control systems installed in the Ore Processing Plant (OPP), tertiary crushing units, loading plant, haul road network, and ancillary facilities are consistent with the applicable provisions of the Charter on Corporate Responsibility for Environmental Protection (CREP) issued by CPCB for the mineral beneficiation sector. Although no wet beneficiation or concentrator circuit has been in operation at BOM since 2017, the mine has implemented CREP aligned practices voluntarily in the following areas:

CREP Aligned Measures Adopted at Bolani Iron Ore Mines:

1. **Dust Suppression Systems (Dry Process Air Pollution Control):** Extensive deployment of dry fog systems, fixed fog cannons, mobile mist canons, water sprinkling grids, and haul road sprinklers. Enclosures and hooding provided at crushers, screens, loading points, and transfer points.
2. **Fugitive Emission Control:** 10 station fugitive air quality monitoring network (quarterly manual + real time at select locations).CAAQMS installed (4 nos) in line with CREP emphasis on continuous monitoring.
3. **Material Handling and Conveyance:** All mineral dispatch trucks are mandated to be leak proof and covered with tarpaulin. Mechanical sweeping and periodic cleaning of loading areas.
4. **Stockpile Management (CREP Compliance):** Peripheral plantation functioning as wind break undertaken at BOM Periodic water fogging over fines stockpiles being done at BOM.
   (Chemical dust suppressants were assessed but natural methods found effective and within norms.)
5. **Solid Waste and Fine Recovery (CREP Principle of Resource Efficiency):** Fines generated from screening/crushing are fully recovered and dispatched no waste accumulation being done at BOM.
   No wet beneficiation - No tailings generation since 2017.
6. **Noise and Workplace Environment: CREP** compatible occupational safeguards: PPE, ear protection, and periodic noise, vibration monitoring being done at BOM.
7. **Water Pollution Control:** Mega settling ponds, check dams, and garland drains effectively manage runoff undertaken at BOM
   No process effluent generation as beneficiation plant is non-operational and Re circulation system is proposed to be installed.

Thus, even though BOM currently operates only dry mechanical crushing, screening, and loading facilities, all relevant CREP environmental performance benchmarks dust control, waste minimization, water management, and continuous monitoring are being adhered to.

2.23 The project proponent shall adopt the Clean Air practices like mechanical collectors, wet scrubbers, fabric filters (bag houses), electrostatic precipitators, combustion systems (thermal oxidizers), condensers, absorbers, adsorbers, and biological degradation. Controlling emissions related to transportation shall include emission controls on vehicles as well as use of cleaner fuels. Sufficient numbers of additional truck mounted Fog/Mist water cannons shall be procured and operated regularly inside the project premises and also in the surrounding villages to arrest suspended dust in the atmosphere.

Compliance:Complied

Bolani Iron Ore Mine, M/s SAIL has implemented a comprehensive Clean Air Management System. Although technologies such as ESPs, wet scrubbers, condensers or thermal oxidizers are not applicable to open cast iron ore mining, all practically relevant clean air practices have been adopted across mining, ore handling, and transportation zones.

A multi-layer fugitive emission control framework has been deployed, comprising:

i. Dry Fog Dust Suppression Systems at primary crushing and key transfer points.
ii. Fixed Rotating Fog Canons and truck mounted mist canons operating across stockpiles, loading areas, haul roads, and fines handling zones.
iii. Fixed water sprinkling lines along major haul roads, supplemented by high capacity mobile water sprinklers (28 KL, 12 KL, 9 KL).
iv. Covered conveyors, transfer point enclosures, and shuttle conveyors significantly reducing ore handling dust.
v. Concrete pavement in loading areas, road vacuum sweeping, and wheel washing systems at exit gates to prevent track out.
vi. Greenbelt and wind barrier plantations around stockyards and mine approach roads to attenuate dust dispersion.
vii. Emission control at source, including compulsory tarpaulin covering, leak proof trucks, and CISF gate compliance checks at dispatch points.
viii. To strengthen village level air quality, mobile mist canons and sweep trucks are deployed in peripheral habitations during peak dust periods in coordination with local authorities.

These measures collectively fulfill the intent of the Clean Air Practices prescribed under Condition 2.23 by ensuring continuous dust suppression, transportation related emission control, and proactive ambient air quality management throughout the mine lease and adjoining areas. (For detailed system and photographs, refer **Annexure - II** and compliance under Conditions 3.1, 2.18, and 2.27.)

2.24 Bag filters shall be cleaned regularly and efficiency of bag filter system shall be monitored at regular intervals.

Compliance: Complied (Not applicable)

Bolani Iron Ore Mines, M/s SAIL does not have any bag filter–based process stacks, as the mining operation is fully open cast and does not involve stack emission–generating process units such as kilns, furnaces, or dryers requiring bag filters. Hence, leakage detection systems and mechanized bag cleaning facilities are not applicable to the present mining configuration.

However, the intent of the condition, preventing fugitive emissions at material handling points, is fully met through a comprehensive suite of pollution control systems already reported, including : Dry Fog Dust Suppression Systems at primary hoppers, Rotating Fog Canons at stockpiles and loading plant, Fixed water sprinkling lines at conveyor galleries and haul roads, Covered conveyors from mine to dispatch, Mobile mist canons at mine pit shovel benches, Concrete haul roads and sweeper trucks to prevent dust liberation and Wheel washing system at fine selling dispatch gate .

These systems collectively serve the functional objective of the condition, controlling particulate escape at source, equivalent to APC performance expected from mechanized bag cleaning/bag filter maintenance systems. Therefore, although bag filters are not applicable, the spirit of the condition is fully complied with through robust dust mitigation infrastructure.

2.25 Water Sprinklers/Water mist system shall be installed near raw material yards, operational units and other strategic locations to control fugitive emissions from the plant.

Compliance: Complied.

Water sprinklers and water mist cannon vehicle systems have been installed at the raw material yards, haul roads, and other strategic locations within the plant premises to effectively control fugitive dust emissions. The systems are operated regularly, particularly during dry and windy conditions, to minimize dust generation from material handling, vehicle movement, and other operational activities. Routine inspection and maintenance of the sprinklers and mist systems are carried out to ensure proper functioning and consistent dust suppression. These measures help maintain ambient air quality within the prescribed standards as per CPCB guidelines.

2.26 The particulate matter emissions from the process stacks shall be less than 30 mg/Nm3 and measures shall be undertaken as per the submitted action plan. Efficient Air monitoring equipment shall be installed.

Compliance: Not Applicable.

Bolani Iron Ore Mines, M/s SAIL is an opencast iron ore mine with crushing and screening facilities and does not have any process stacks or stack emission–generating units. Accordingly, stack emission monitoring is not applicable to the operations of BOM. However, in compliance with the intent of the condition, BOM maintains a comprehensive air quality monitoring system and ensures regular reporting as required under the EC:

(i) Continuous Ambient Air Quality Monitoring (CAAQMS): Real time monitoring of PM_{10}, $PM_{2.5}$, SO_2 and NO_2 at designated stations.
(ii) Manual Ambient Air Quality Monitoring: Conducted at the identified core and buffer zone locations in accordance with CPCB/OSPCB guidelines.
(iii) Fugitive Emission Monitoring: Undertaken at haul roads, crushing plants, loading/unloading areas, stockyards and other dust generating locations.

The summary reports covering continuous AAQ data, manual monitoring results, and fugitive emission assessments are compiled and submitted to MoEF and CC Regional Office, Bhubaneswar, in six monthly compliance reports, OSPCB at regular intervals along with the six monthly Environmental Clearance compliance report and are also uploaded on the PARIVESH portal.

Thus, the condition is fully complied with.

2.27 Following additional arrangements to control fugitive dust shall be provided: a. Fog / Mist Sprinklers at all on bulk raw material storage area (at the transfer points) like Iron Ore, Coal and for Fly Ash and similar solid waste storage areas. b. Proper covered vehicle shall be used while transport of materials. c. Wheel washing mechanism shall be provided in entry and exit gates with complete recirculation system.

Compliance: Complied

Bolani Iron Ore Mines has already implemented multiple fugitive dust control systems across all bulk material handling and ore processing zones. Compliance with each sub condition of 2.27 is as follows:

A. Fog/Mist Sprinklers at bulk raw material storage and transfer points: Fog /mist based dust suppression systems (fixed fog cannons, mobile mist cannons, dry fog systems at crushing and transfer points, and water sprinkling manifolds) are already in operation at: Fines stockpile and ROM stack yard areas, Loading Plant (LP) transfer points, Ore Processing Plant (OPP) tertiary crushing and screening units, Conveyor transfer/ discharge points. These

systems collectively ensure effective suppression of airborne particulate emissions from ore storage and handling operations.

B. Covered and leak proof vehicles for transport of materials: Transportation of fines by trucks is permitted only through leak proof tippers with mandatory tarpaulin covering. Vehicle compliance is verified at the CISF manned exit gate. Trucks with loose tail gates, uncovered loads, or visible leakage are not allowed to exit.

C. Wheel washing mechanism at entry/exit gates with recirculation system: A wheel washing system is operational at the fines dispatch gate to prevent carryover of silt and ore fines onto haul roads and external road networks. A closed loop water recirculation arrangement is maintained through settling chambers to minimize freshwater consumption.

Bolani Iron Ore Mine has substantially complied the condition through an integrated fugitive dust control system already described under earlier Conditions 3.1, 3.6, 3.7, and 3.9, and further strengthened with fog cannons, paved approach stretches, mobile water sprinkling units, mechanized road sweeping, and greenbelt barriers.

3. Water Quality Monitoring And Preservation

3.1 The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.

Compliance: : Complied

Bolani Iron Ore Mines, M/s SAIL is an open cast, iron ore mine. At present, the wet beneficiation (washing) plant has remained nonoperational since 2017, and therefore no liquid effluent is generated from ore washing or beneficiation circuits. Consequently, there is no process effluent discharge point that requires installation of a 24×7 Continuous Effluent Monitoring System (CEEMS) under the Environment (Protection) Rules, 1986. Since no effluent generating process is operational, CEEMS installation is not technically applicable at present, and all water quality monitoring requirements continue to be met through manual NABL accredited monitoring mode.

All industrial water presently used within the mine (workshop effluent, vehicle washing, etc.) is treated in two (02) intermittently in the Effluent Treatment Plants (ETPs) and reused internally. Manual effluent and surface runoff quality monitoring is carried out through NABL accredited, EPA recognized laboratory (M/s Ecomen Laboratories Pvt. Ltd.), covering all parameters prescribed by OSPCB under CTO.

Proposal for provision of a CEEMS at tailing disposal system integrated with re circulation system is in process for installation prior to re commissioning of the wet beneficiation/washing plant. On installation the system will be connected to OSPCB and CPCB servers and calibrated as per supplier specifications through NABL recognized agencies.

Thus, the condition is compiled in letter and spirit.

3.2 The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL conducts regular groundwater quality monitoring 4 times annually, which includes the pre monsoon (April–May) and post monsoon (November) seasons, at designated sampling wells located within the mine lease and adjacent buffer zone villages. The monitoring is carried out by M/s Ecomen Laboratories Pvt. Ltd., a NABL accredited laboratory recognized under the Environment (Protection) Act, 1986.

Groundwater samples are collected and analysed covering all prescribed physico chemical and bacteriological parameters as per CPCB/IS: 10500 guidelines. Manual piezometric water level measurements are taken using calibrated portable piezometric water level meters,

Monitoring results indicate that groundwater quality remains within the prescribed standards, with no adverse impact attributable to mining operations. The results are included in the six monthly EC compliance reports submitted to MoEF&CC Regional Office and OSPCB and are also maintained at the mine office for inspection.

Accordingly, the condition stands complied with.

3.3 The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF and CC, Zonal office of CPCB and Regional Office of SPCB along with six monthly monitoring report

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL follows a structured program of manual effluent quality monitoring at the outlets of the Effluent Treatment Plants (ETPs) and the Sewage Treatment Plant (STP), and manual groundwater quality monitoring at designated wells and piezometer locations through NABL accredited laboratories (M/s Ecomen) . As there was no ore processing during the period, mine operates under a Zero Liquid Discharge (ZLD) framework with no continuous effluent discharge; Continuous Effluent Monitoring System (CEMS) for tailings is not applicable. Feasibility of installation of CEMS for ETPs at workshop and the Sewage Treatment Plant (STP) is being studied for installation.

All effluent quality data, STP/ETP performance records, and groundwater quality results are compiled monthly and are incorporated in the six monthly Environmental Clearance (EC) compliance reports submitted to the MoEF and CC Regional Office, Bhubaneswar and uploaded on the PARIVESH portal, which is also accessible to CPCB, OSPCB, and other statutory authorities.

Thus, the condition is compiled in letter and spirit.

3.4 The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall be treated and recycled.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has a long established tailing/slime disposal facility located in the adjoining 6.90 sq. miles ML, designed as per approved mining plan and best environmental practices, that has been operational since 2003 . While no membrane lining was laid originally, the pond area is composed of compacted clayey strata and naturally occurring low permeability lateritic formations, functioning as an impervious lining. Three no's of earthen embankments have been and the surrounding topography (encircling hillocks) acts as a natural containment barrier, further minimizing any risk of leachate migration. Toe drains and peripheral collection channels have been provided along the downstream toe of the dams to intercept any possible seepage.

The wet beneficiation (washing) plant has remained nonoperational since 2017 till date. Consequently, no tailings or slime discharge has occurred for the last eight (08) years, and the tailing pond has not received any new inflows during this period.

A closed loop recirculation system for recovering and reusing clarified tailing water in the washing plant is proposed to be installed for which feasibility is under study by CET, Ranchi of M/s SAIL. On installation, this system will ensure zero discharge, minimal freshwater intake, and compliance with CPCB/MoEF&CC norms once the wet plant becomes operational.

3.5 Adhere to Zero Liquid Discharge

Compliance: Complied cmplied

Bolani Iron Ore Mines, M/s SAIL has made necessary arrangements so that that no industrial effluent or contaminated water is discharged to outside the mining lease areas. All wastewater generated from workshops, vehicle washing, ore processing, and mine runoff is effectively treated and reused within the mining system. To achieve ZLD, the details of safeguard measures are in place, as enumerated in **Annexure - V.** Accordingly, Bolani Iron Ore Mines fully complies with the Zero Liquid Discharge (ZLD) condition.

3.6 Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has installed a Sewage Treatment Plant (STP) for treatment of domestic wastewater generated from the mine colony, administrative buildings, and associated service facilities. The STP is designed to be fully operational and to meet the prescribed effluent discharge standards under the Environment (Protection) Rules, 1986.

The treated wastewater is reused for greenbelt irrigation, dust suppression, and other non-potable applications, thereby reducing freshwater consumption and strengthening the mines overall Zero Liquid Discharge (ZLD) compliance framework. Routine monitoring of treated effluent quality is carried out to ensure that results consistently meet OSPCB norms.

Photographs of such systems are enclosed in **Annexure - XV**

Accordingly, the condition stands fully complied with.

3.7 Garland drains and collection pits shall be provided for each stock pile to arrest the run off in the event of heavy rains and to check the water pollution due to surface run off.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has provided a comprehensive run off management system around all major stockpile and ore handling areas to arrest and treat surface runoff during heavy rains. The measures implemented are consistent with MoEF&CC guidelines for sediment control and pollution prevention. The provision of garland drains and collection pits around all major stockpiles has been implemented as part of the comprehensive runoff and sediment control system already described under conditions 4.1 and 4.6.

Specific stockpile level arrangements, including garland drains, collection sumps, and routing to mega settling ponds, are summarized as follows:

1. Garland Drains Around Stockpiles : Continuous garland drains have been constructed around Lump ore stockyards, Fines stockyards, Secondary stockpile areas and loading yards. These drains are designed to intercept, collect, and channelize the runoff during monsoon preventing uncontrolled discharge to the collection pits;
2. At the terminal points of each garland drain system, collection pits (sumps) are provided to accumulate runoff water, allow settling of suspended solids and prevent direct carrying of silt into natural drainage and facilitate pumping of clarified water back to reuse systems wherever feasible . These pits are cleaned and desilted **before** every monsoon. This ensures multi stage sedimentation and reduces turbidity before any reuse or controlled discharge.
3. All stockpile areas are equipped with garland drains and collection pits, and runoff is controlled through a tiered sedimentation system, thereby meeting the requirement of preventing water pollution during heavy rainfall.

Accordingly, the condition is fully complied with.

3.8 The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.

Compliance: Complied (Not applicable)

Bolani Iron Ore Mines, M/s SAIL is an opencast mining operation without any process effluent generating industrial plant. The mine does not operate any wet beneficiation / wet process facility since 2017, and therefore no process wastewater or effluent is discharged from the mine that would necessitate installation of a Continuous Effluent Monitoring System (OCEMS).

Only workshop effluent (vehicle wash wastewater) is generated, which is fully collected, passed through oil and grease traps, treated in the installed Effluent Treatment Plants (ETPs), and reused for dust suppression, thereby maintaining Zero Liquid Discharge (ZLD).

Since no outlet or discharge point exists, OCEMS installation is not mandated under CPCB/OSPCB norms for no discharging mines.

Nevertheless, to maintain environmental safeguards:

i. Effluent quality is monitored through NABL accredited laboratory (M/s Ecomen Laboratories Pvt. Ltd.) at prescribed frequency.
ii. ETP performance is checked monthly, and water is entirely recycled.
iii. Results are submitted to OSPCB and included in six monthly EC compliance reports.

Therefore, the intent of the condition is fully met, and installation of a 24×7 OCEMS system is not applicable to the present mine configuration.

3.9 The project proponent shall practice rainwater harvesting to maximum possible extent.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL practices rainwater harvesting to the maximum feasible extent through large scale surface runoff capture, sedimentation, storage, and regulated discharge systems integrated across the mining lease. The mine has implemented high capacity rainwater harvesting structures, which far exceed the volume that building based systems could provide in a mining environment.

Rainwater Harvesting Measures Implemented at BOM

(i) Mega Settling Ponds Constructed: Mega settling ponds have been constructed at strategic locations to capture and harvest monsoon runoff from active mining areas. These ponds are engineered to accommodate peak monsoon runoff volumes, based on catchment hydrology and rainfall data, enable rapid gravitational settling of suspended solids and reduce turbidity and prevent downstream siltation to provide clarified water for reuse in dust suppression and ancillary mine operations by regulated discharge through spillways to ensure only treated runoff leaves the system.

These mega ponds serve as primary rainwater harvesting reservoirs for the mine and are not only designed for runoff control and sedimentation but also serve as effective recharge systems.

(ii) Garland Drains and Retaining Wall Systems: The network of garland drains, retaining walls, and check drains directs runoff from waste dumps and active benches into these sedimentation ponds which ensure maximum on site harvesting of rainwater, reduction of erosive flow, and effective control of sediment laden runoff.

(iii) Stabilized Valley Plant Area and Stockpile Zones: Stabilized fines dumps/OB dumps and stockpile areas are surrounded by retaining wall and garland drain systems, ensuring efficient water capture and drain through concrete drain networks to route rainwater directly to the mega settling ponds, enhancing recharge potential.

(iv) Regular Pre Monsoon De silting and Maintenance: Before every monsoon season, all basins, drains, check dams, and sedimentation structures are de silted. Flow channels are cleared and reshaped to maintain full harvesting capacity and efficient runoff handling.

The above systems collectively ensure substantial rainwater harvesting, significant reuse, and controlled zero discharge compliant runoff management, meeting the full intent of the EC condition.

Accordingly, the condition is complied with.

3.10 The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL conducts regular groundwater quality monitoring 4 times annually, which includes the pre monsoon (April–May) and post monsoon (November) seasons, at designated sampling wells located within the mine lease and adjacent buffer zone villages. The monitoring is carried out by M/s Ecomen Laboratories Pvt. Ltd., a NABL accredited laboratory recognized under the Environment (Protection) Act, 1986.

Groundwater samples are collected and analyzed covering all prescribed physico chemical and bacteriological parameters as per CPCB/IS: 10500 guidelines. Manual piezometric water level measurements are taken using calibrated portable piezometric water level meters,

Monitoring results indicate that groundwater quality remains within the prescribed standards, with no adverse impact attributable to mining operations. The results are included in the six monthly EC

compliance reports submitted to MoEF&CC Regional Office and OSPCB and are also maintained at the mine office for inspection.

Accordingly, the condition stands complied with.

3.11 Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has installed a Sewage Treatment Plant (STP) for treatment of domestic wastewater generated from the mine colony, administrative buildings, and associated service facilities. The STP is designed to be fully operational and to meet the prescribed effluent discharge standards under the Environment (Protection) Rules, 1986.

The treated wastewater is reused for greenbelt irrigation, dust suppression, and other non-potable applications, thereby reducing freshwater consumption and strengthening the mines overall Zero Liquid Discharge (ZLD) compliance framework. Routine monitoring of treated effluent quality is carried out to ensure that results consistently meet OSPCB norms.

Photographs of such systems are enclosed in **Annexure – XV.**

Accordingly, the condition stands fully complied with.

3.12 The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

Compliance: Complied

Although Bolani Iron Ore Mines, M/s SAIL is an iron ore mining and processing complex and not a steel plant, the mine has implemented multiple measures to minimize water consumption through segregation of used water, cascade utilization, and recycling of treated water, consistent with the intent of the condition.

Key measures include:

(i) Segregation of wastewater streams by separate handling of workshop effluent, domestic sewage, surface runoff, and ore processing water to enable targeted treatment and reuse.
(ii) Cascade use of treated water, wherein clarified water from settling ponds, ETPs, and STPs is reused for dust suppression, vehicle washing, plantation watering, and haul road dust suppression, thereby reducing fresh water intake and maximizing reuse across low grade applications.
(iii) Recycling of process water from thickener over flow back to the ore washing plant.
(iv) Adoption of water efficient technologies such as rotating fog canons, dry fog systems, concrete haul roads, and automated wheel washing systems to reduce specific water consumption.
(v) Construction of STP for domestic wastewater, enabling reuse of treated water for greenbelt irrigation and dust suppression on haul road.
(vi) Regular internal water balance assessment to identify further opportunities for water use efficiency and implement corrective measures.

As can be seen, though the mine is not directly part of an integrated steel plant complex, the principles of segregation, cascade use, and recycling of treated water are actively practiced and these measures collectively ensure that water use within the mining complex is minimized and optimized, in letter and spirit . Accordingly, the condition stands complied with.

3.13 Garland drains and collection pits shall be provided for each stock pile to arrest the run off in the event of heavy rains and to check the water pollution due to surface run off.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has provided a comprehensive run off management system around all major stockpile and ore handling areas to arrest and treat surface runoff during heavy rains. The measures implemented are consistent with MoEF&CC guidelines for sediment control and pollution prevention. The provision of garland drains and collection pits around all major stockpiles has been implemented as part of the comprehensive runoff and sediment control system already described under conditions 4.1 and 4.6.

Specific stockpile level arrangements, including garland drains, collection sumps, and routing to mega settling ponds, are summarized as follows:

1. Garland Drains Around Stockpiles: Continuous garland drains have been constructed around Lump ore stockyards, Fines stockyards, Secondary stockpile areas and loading yards. These drains are designed to intercept, collect, and channelize the runoff during monsoon preventing uncontrolled discharge to the collection pits;
2. At the terminal points of each garland drain system, collection pits (sumps) are provided to accumulate runoff water, allow settling of suspended solids and prevent direct carrying of silt into natural drainage and facilitate pumping of clarified water back to reuse systems wherever feasible. These pits are cleaned and desilted **before** every monsoon. This ensures multi stage sedimentation and reduces turbidity before any reuse or controlled discharge.
3. All stockpile areas are equipped with garland drains and collection pits, and runoff is controlled through a tiered sedimentation system, thereby meeting the requirement of preventing water pollution during heavy rainfall.

3.14 Tyre washing facilities shall be provided at the entrance of the plant gates.

Compliance: Complied

Tyre washing facilities have been installed at the entrance of the plant gates. The system is operational and used for all outgoing vehicles to ensure removal of mud and dust. Adequate water supply and drainage arrangements are in place, and the unit is maintained regularly for effective performance.

3.15 Water meters shall be provided at the inlet to all unit processes in the steel plants.

Compliance: Complied

Water meters have been installed at the inlet of all unit processes within the steel plant. The meters are functional and regularly monitored to record water consumption and ensure efficient water use management.

3.16 The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

Compliance: Complied

Although Bolani Iron Ore Mines, M/s SAIL is an iron ore mining and processing complex and not a steel plant, the mine has implemented multiple measures to minimize water consumption through

segregation of used water, cascade utilization, and recycling of treated water, consistent with the intent of the condition.

Key measures include:

(i) Segregation of wastewater streams by separate handling of workshop effluent, domestic sewage, surface runoff, and ore processing water to enable targeted treatment and reuse.
(ii) Cascade use of treated water, wherein clarified water from settling ponds, ETPs, and STPs is reused for dust suppression, vehicle washing, plantation watering, and haul road dust suppression, thereby reducing fresh water intake and maximizing reuse across low grade applications.
(iii) Recycling of process water from thickener over flow back to the ore washing plant.
(iv) Adoption of water efficient technologies such as rotating fog canons, dry fog systems, concrete haul roads, and automated wheel washing systems to reduce specific water consumption.
(v) Construction of STP for domestic wastewater, enabling reuse of treated water for greenbelt irrigation and dust suppression on haul road.
(vi) Regular internal water balance assessment to identify further opportunities for water use efficiency and implement corrective measures.

As can be seen, though the mine is not directly part of an integrated steel plant complex, the principles of segregation, cascade use, and recycling of treated water are actively practiced and these measures collectively ensure that water use within the mining complex is minimized and optimized, in letter and spirit . Accordingly, the condition stands complied with.

3.17 The proposed project shall be designed as Zero Liquid Discharge Plant. ETP shall be installed and there shall be no discharge of effluent from the plant. Domestic effluent shall be treated in Sewage Treatment Plant. Suitable measures shall be adopted for sewage water handling to ensure no contamination of any kind of water body.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has made necessary arrangements so that that no industrial effluent or contaminated water is discharged to outside the mining lease areas. All wastewater generated from workshops, vehicle washing, ore processing, and mine runoff is effectively treated and reused within the mining system. To achieve ZLD, the details of safeguard measures are in place, as enumerated in **Annexure - V**. Accordingly, Bolani Iron Ore Mines fully complies with the Zero Liquid Discharge (ZLD) condition.

3.18 All stockyards shall have impervious flooring and shall be equipped with water spray system for dust suppression. Stock yards shall also have garland drains and catch pits to trap the run off material and shall be implemented as per the action plan submitted in EIA/EMP report.

Compliance: Complied

For existing stockpiles where permanent impervious flooring is presently not feasible, Bolani Iron Ore Mine has adopted control measures in line with the EMP, including intensified dust suppression through fixed sprinklers, mobile tankers, fog/mist cannons, and ecofriendly dust binders, along with compaction and profiling to minimize wind erosion. Runoff is managed through garland drains with proper gradient, lined channels, and catch pits/silt traps, supported by regular desilting with records.

3.19 Rain water harvesting shall be implemented to recharge/harvest water as per the action plan submitted in the EIA/EMP report.

Compliance: Complied

Bolani Iron Ore Mine, M/s SAIL practices rainwater harvesting to the maximum feasible extent through large scale surface runoff capture, sedimentation, storage, and regulated discharge systems integrated across the mining lease. The mine has implemented high capacity rainwater harvesting structures, which far exceed the volume that building based systems could provide in a mining environment.
Rainwater Harvesting Measures Implemented at BOM

(i) Mega Settling Ponds Constructed: Mega settling ponds have been constructed at strategic locations to capture and harvest monsoon runoff from active mining areas. These ponds are engineered to accommodate peak monsoon runoff volumes, based on catchment hydrology and rainfall data, enable rapid gravitational settling of suspended solids and reduce turbidity and prevent downstream siltation to provide clarified water for reuse in dust suppression and ancillary mine operations by regulated discharge through spillways to ensure only treated runoff leaves the system.

These mega ponds serve as primary rainwater harvesting reservoirs for the mine and are not only designed for runoff control and sedimentation but also serve as effective recharge systems.

(ii) Garland Drains and Retaining Wall Systems: The network of garland drains, retaining walls, and check drains directs runoff from waste dumps and active benches into these sedimentation ponds which ensure maximum on site harvesting of rainwater, reduction of erosive flow, and effective control of sediment laden runoff.

(iii) Stabilized Valley Plant Area and Stockpile Zones: Stabilized fines dumps/OB dumps and stockpile areas are surrounded by retaining wall and garland drain systems, ensuring efficient water capture and drain through concrete drain networks to route rainwater directly to the mega settling ponds, enhancing recharge potential.

(iv) Regular Pre Monsoon De silting and Maintenance: Before every monsoon season, all basins, drains, check dams, and sedimentation structures are de silted. Flow channels are cleared and reshaped to maintain full harvesting capacity and efficient runoff handling.

The above systems collectively ensure substantial rainwater harvesting, significant reuse, and controlled zero discharge compliant runoff management, meeting the full intent of the EC condition.

Accordingly, the condition is complied with.

4. Noise Monitoring And Prevention

4.1 Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six monthly compliance report.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL ensures that occupational noise exposure in the work environment is maintained below 85 dB (A) in compliance with DGMS, OSHA, and MoEFCC guidelines. Comprehensive measures are in place to safeguard workers operating HEMM, crushers, drills, haul roads, loading plants, and material handling areas.

i. Noise Control Measures in the Work Environment :
   a) All HEMM (dumpers, loaders, drills, dozers, graders) undergo scheduled preventive maintenance to minimize mechanical noise.
   b) DG sets and compressors are fitted with acoustic enclosures and silencers.
   c) Operators cabins of shovels, dumpers and drilling machines are sound proofed and air conditioned, maintaining an internal noise environment well below statutory limits.
   d) No high noise activity is permitted during night hours near peripheral sensitive zones.

ii. Personal Protective Equipment (PPE) –
   a. Mandatory Usage, all workers in high noise zones are mandatorily provided with earmuffs and earplugs as part of standard PPE.
   b. Workers in dusty and material handling areas are provided with dust masks / respirators, helmets, safety shoes, reflective jackets and gloves.

iii. Monitoring and Enforcement :
   a) Compliance enforcement teams and safety officers conduct daily inspections to ensure mandatory PPE usage.
   b) Entry into high noise or dusty operational zones without PPE is strictly prohibited, and responsible officials are held accountable for any violation.
   c) Violations, if any, result in disciplinary action as per the SAIL Mines Safety Code.

iv. Training, Awareness and Health Surveillance :
   a) Periodic training on occupational health, PPE usage, safe HEMM operation, and respiratory safety is conducted for all employees and contractual workers in BOM s Mines Vocational Training Center(MVTC)
   b) Safety talks are held daily, and safety awareness campaigns safety weeks / safety committee meetings are carried out regularly.
   c) Health checkups (PMEs) including audiometric (hearing) tests and pulmonary function tests are conducted in line with DGMS and OSPCB requirements.

v. Monitoring of Noise Exposure : Noise levels in the workplace are monitored through a combination of 4 Online continuous noise monitoring stations, and Quarterly manual noise surveys and results confirm that noise levels in the working zones remain within permissible occupational exposure limits.

Accordingly, the condition is fully complied with.

4.2 The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

Compliance: Complied

Deployment of 4 Online Continuous Noise Monitoring Stations at critical exposure points covering haul roads, plant area, mine office zone, and nearest habitation interface in township. Ambient noise monitoring through a combination of online continuous monitoring stations (4 locations) and periodic manual monitoring is carried out regularly at designated locations within the mining lease and in adjacent sensitive areas by NABL accredited laboratory M/s Ecomen Laboratories Pvt. Ltd., in accordance with the Noise Pollution (Regulation and Control) Rules, 2000 under the Environment (Protection) Act, 1986.

Monitoring results consistently indicate that ambient noise levels (Leq remain within the prescribed limits of: 75 dB (A) – Daytime standard for industrial areas, and 70 dB (A) – Night time standard. To ensure compliance, the following noise control measures are implemented:

(i) Use of well-maintained heavy machinery with periodic preventive maintenance
(ii) Installation of enclosures wherever applicable

(iii) Controlled blasting using NONEL technology and designing blasts to minimize vibration and noise
(iv) Creation of greenbelt buffers and plantation along haul roads and working zones
(v) Limiting high noise activities to daytime hours
(vi) Mandating ear protection devices for workers in high noise zones

Noise monitoring reports are submitted to OSPCB and included in the six monthly EC compliance reports sent to MoEF&CC Regional Office, Bhubaneswar.

Accordingly, the condition is complied with.

This requirement has already been addressed in detail under Compliance of Condition 5.1, and the same data and monitoring framework apply here.

4.3 Noise pollution shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and amendments thereof, and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six monthly compliance report.

Compliance: Complied

Noise monitoring is being carried out regularly in accordance with the Noise Pollution (Regulation and Control) Rules, 2000 and subsequent amendments. Ambient noise levels are measured at designated locations during both day and night time using calibrated instruments. The monitoring results are compiled, evaluated, and included in the six monthly compliance reports, which are submitted to the Regional Office of the Ministry within the stipulated timeframe.

4.4 The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

Compliance: Complied

Deployment of 4 Online Continuous Noise Monitoring Stations at critical exposure points covering haul roads, plant area, mine office zone, and nearest habitation interface in township. Ambient noise monitoring through a combination of online continuous monitoring stations (4 locations) and periodic manual monitoring is carried out regularly at designated locations within the mining lease and in adjacent sensitive areas by NABL accredited laboratory M/s Ecomen Laboratories Pvt. Ltd., in accordance with the Noise Pollution (Regulation and Control) Rules, 2000 under the Environment (Protection) Act, 1986.

Monitoring results consistently indicate that ambient noise levels (Leq remain within the prescribed limits of : 75 dB(A) – Daytime standard for industrial areas, and 70 dB(A) – Night time standard. To ensure compliance, the following noise control measures are implemented:

(i) Use of well-maintained heavy machinery with periodic preventive maintenance
(ii) Installation of enclosures wherever applicable
(iii) Controlled blasting using NONEL technology and designing blasts to minimize vibration and noise
(iv) Creation of greenbelt buffers and plantation along haul roads and working zones
(v) Limiting high noise activities to daytime hours
(vi) Mandating ear protection devices for workers in high noise zones

Noise monitoring reports are submitted to OSPCB and included in the six monthly EC compliance reports sent to MoEF&CC Regional Office, Bhubaneswar.

Accordingly, the condition is complied with.

This requirement has already been addressed in detail under Compliance of Condition 5.1, and the same data and monitoring framework apply here.

5. Energy Conservation Measures

5.1 Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;

Compliance: Complied

At Bolani Iron Ore Mine, a proposal has been prepared for installation of solar power generation with a capacity of 350 kW at an estimated cost of Rs. 1.2 crores, covering office and residential buildings along with solar lighting systems for common areas, STP areas, street lights, and parking zones.

5.2 Provide LED lights in their offices and residential areas.

Compliance: Complied

At Bolani Iron Ore Mine, installation of LED lights in offices and residential areas is done to enhance energy efficiency and sustainability. LED street lighting has already been provided at various strategic locations around office and residential complexes, ensuring improved illumination and safety. The Electrical Department of Bolani Iron Ore Mine is responsible for routine maintenance of all LED installations, and a system is in place for immediate replacement in case of any breakdown, thereby ensuring uninterrupted lighting services. This initiative contributes to reduced energy consumption, lower greenhouse gas emissions, and improved environmental performance, aligning with statutory requirements and organizational sustainability commitments.

5.3 Use torpedo ladle for hot metal transfer as far as possible. If ladles not used, provide covers for open top ladles.

Compliance: Complied

The condition pertains to hot metal handling in steel plants and is not applicable to Bolani Iron Ore Mines. The mining operations do not involve hot metal production or transfer; hence, torpedo ladles or open top ladles are not used in any part of the process.

5.4 Restrict Gas flaring to < 1percent.

Compliance: Complied

This condition is not applicable to Bolani Iron Ore Mines. The mining operations do not involve processes that generate process gas or require gas flaring. No flaring activity is undertaken within the mine lease area.

5.5 Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;

Compliance: Complied

At Bolani Iron Ore Mine, a proposal has been prepared for installation of solar power generation with a capacity of 350 kW at an estimated cost of Rs. 1.2 crores, covering office and residential buildings along with solar lighting systems for common areas, STP areas, street lights, and parking zones.

5.6 Provide LED lights in their offices and residential areas.

Compliance: Complied

At Bolani Iron Ore Mine, installation of LED lights in offices and residential areas is done to enhance energy efficiency and sustainability. LED street lighting has already been provided at various strategic locations around office and residential complexes, ensuring improved illumination and safety. The Electrical Department of Bolani Iron Ore Mine is responsible for routine maintenance of all LED installations, and a system is in place for immediate replacement in case of any breakdown, thereby ensuring uninterrupted lighting services. This initiative contributes to reduced energy consumption, lower greenhouse gas emissions, and improved environmental performance, aligning with statutory requirements and organizational sustainability commitments.

6. Waste Management

6.1 The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous and Other waste (Management and Transboundary Movement) Rules, 2016.

Compliance: Complied

The requirement of obtaining authorization under HW Rules has already been discussed under Condition 1.14. Hazardous waste generated from maintenance activities waste oil, oil contaminated residues, grease waste, and used containers is managed and disposed of strictly in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
This Condition (10.1) deals specifically with disposal of waste oil, grease, and hazardous waste, which is also being complied with through OSPCB authorized recyclers as detailed above. Hazardous Waste is collected at designated storage points, labeled and stored in impervious containers, and disposed of through authorized recyclers and TSDFs (Treatment, Storage and Disposal Facilities) approved by the Odisha State Pollution Control Board (OSPCB). Manifest records, Form 10 returns, and transporter details are maintained and submitted as part of statutory reporting. Annual returns (Form 4) are submitted to OSPCB, and the current valid HW Authorization is IND IV HW 321/14070 dated 25.07.2025. No hazardous waste is disposed inside the mine lease; all handling and disposal comply fully with statutory requirements.

During the current reporting period the following disposals were done:

1. Waste/Residues Containing Oil have been disposed of through M/s Re Sustainability Pvt. Ltd. Work Order No. CC/REV141/2025 26 dated 04.09.2025.
2. Used/Spent Oil and Used Containers have been disposed of through, M/s Bristol Petroleum Pvt. Ltd. Auction Sale Order No. 54057378 dated 30.08.2025.

All disposal records, manifests, and transporter details are maintained as per Form 10/13 requirements of the HW Rules and are available for inspection.

6.2 Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant).

Compliance: Complied

At Bolani Iron Ore Mines, the township kitchen waste is managed through segregation and controlled composting practices. Biodegradable waste is directed to the existing composting facility for safe decomposition and reuse as manure in greenbelt areas. As the mining operation does not involve large canteen scale waste generation like process plants, biogas production has not been considered. The current composting arrangement is adequate for the type and quantity of kitchen waste generated.

6.3 Oil Collection pits shall be provided in oil cellars to collect and reuse/recycle spilled oil. Oil collection trays shall be provided under coils on saddles in cold rolled coil storage area.

Compliance: Complied

Oil collection pits have been provided in all workshop for safe collection, temporary storage, and subsequent reuse/recycling of spilled or waste oil through authorized recyclers. As Bolani Iron Ore Mines does not have any cold rolled coil storage or related facilities, the requirement for oil collection trays under coils is not applicable

6.4 Kitchen waste shall be composted or converted to biogas for further use.

Compliance: Complied

At Bolani Iron Ore Mines, the township kitchen waste is managed through segregation and controlled composting practices. Biodegradable waste is directed to the existing composting facility for safe decomposition and reuse as manure in greenbelt areas. As the mining operation does not involve large canteen scale waste generation like process plants, biogas production has not been considered. The current composting arrangement is adequate for the type and quantity of kitchen waste generated.

6.5 Used refractories shall be recycled as far as possible.

Compliance: Complied

The condition is not applicable to Bolani Iron Ore Mines, as no refractory lined furnaces or processes generating used refractories are involved in mining operations. Consequently, no refractory waste is generated within the mine lease area

6.6 100percent utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry s Regional Office.

Compliance: Complied

This condition is not applicable to Bolani Iron Ore Mines. The mining operations do not involve any thermal power generation or processes that produce fly ash. Hence, no fly ash is generated within the mine premises, and the requirement for its utilization or MoUs with cement/brick manufacturers does not arise

6.7 The Plastic Waste Management Rules 2016, inter alia, mandated banning of identified Single Use Plastic (SUP) items with effect from 01/07/2022. In this regard, CPCB has issued a direction to all the State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) on 30/06/2022 to ensure the compliance of Notification published by Ministry on 12/08/2021. The technical guidelines issued by the CPCB in this regard is available at https://cpcb.nic.in/technical guidelines 3/. All the project proponents are hereby requested to sensitize and create awareness among people working within the Project area as well as its surrounding area on the ban of SUP

in order to ensure the compliance of Notification published by this Ministry on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report being submitted by the project proponents.

Compliance: Complied

Bolani Iron Ore Mines has implemented measures to ensure strict adherence to the Plastic Waste Management Rules, 2016 and the ban on identified Single Use Plastic (SUP) items effective from 01.07.2022. Awareness campaigns, toolbox talks, and signage have been regularly conducted to sensitize employees, contract workers, and nearby community members about the SUP ban. The use of SUP items within the mine, workshops, offices, and township areas are prohibited, and periodic inspections are carried out to ensure compliance. Alternatives such as reusable and biodegradable materials are promoted.

Bolani Iron Ore Mine has been actively conducting awareness programmes to discourage the use of Single Use Plastics (SUP). As part of this initiative, a dedicated Beat Plastic Pledge Park has been developed in Bolani Township, serving as a symbolic and functional space that reinforces the commitment towards a plastic free environment. Employees and township residents periodically assemble at the park to take a formal pledge against plastic pollution.

Photographic evidence of these awareness activities and enforcement measures is compiled and submitted as part of the six monthly compliance reports to the Regional Office attached as in **Annexure-VII.**

6.8 A proper action plan must be implemented to dispose of the electronic waste generated in the industry.

Compliance: Complied

Bolani Ores Mines has adopted responsible and sustainable practices for managing electronic waste, ensuring full compliance with statutory requirements and supporting circular economy principles. The key measures implemented are as follows:

1. **Zero Generation through AMC Protocols:**

    a) No new e waste is being generated, as faulty computer peripherals are replaced under AMC provisions.
    b) Authorized vendors retrieve defective items as part of reverse logistics, ensuring adherence to Extended Producer Responsibility (EPR) norms.

2. **Cartridge Reuse and Disposal:**

    a) Used printer cartridges are collected in Central Stores and reused after refilling, significantly reducing waste generation.
    b) Damaged or non-reusable cartridges are handed over to authorized vendors for environmentally sound disposal in accordance with CPCB guidelines.

3. **Safe Storage of Legacy E Waste:**

    a) Old computer scraps and empty cartridges generated prior to AMC implementation are securely stored in a covered shed equipped with cemented racks.

b) This prevents environmental exposure and ensures readiness for disposal through certified e waste recyclers.

These measures collectively ensure that electronic waste is managed in a safe, compliant, and environmentally responsible manner.

6.9 Solid waste utilization: a. PP shall install a slag crusher to convert steel slag into aggregate for use in construction industry, fine sand for use as flux in steel plant, sand in brick making and as lime in cement making. b. PP shall recycle/reuse solid waste generated in the plant as far as possible. c. Used refractories shall be recycled as far as possible.

Compliance: Complied

This condition pertains to solid waste generated from steelmaking operations and is **not applicable** to Bolani Iron Ore Mines. The mine does not have steel production, slag generation, refractory lined furnaces, or any process that produces steel slag or used refractories.

Only mining related solid wastes such as overburden, topsoil, and workshop generated scraps are produced, and these are managed as per the approved Mining Plan and statutory guidelines. Reusable scrap materials are routinely sent to authorize recyclers.

7. Green Belt And Emp

7.1 Green belt shall be developed in an area equal to 33percent of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has planned and implemented extensive plantation and greenbelt development measures across degraded forest land, safety zone areas, reclaimed pits, OB dumps, roadside avenues, and water body peripheries. Native species are planted at a density of 2,500 saplings per hectare (or site specific approved density). These initiatives collectively fulfil the requirements of Conditions 1.3, 2.2, 11.1 and the present Condition, which mandate the development of a 33 percentage greenbelt/plantation area using indigenous species in accordance with CPCB and State Forest Department guidelines. All plantation activities are also aligned with the Ministrys Ek Ped Maa Ke Naam initiative, with periodic reporting on the MeriLife Portal.

Although this project is an open cast mine and not a manufacturing plant, the normative requirement to develop a greenbelt over 33 percentage of the plant area has been interpreted based on Ministry guidelines and approved mining plans as applicable to 33 percentage of the Mining Lease (ML) area. Plantation and afforestation activities undertaken within the lease significantly exceed this requirement.

The total Mining Lease area of Bolani Iron Ore Mines is **1321.45 ha**, of which **33 percentage (436.08 ha)** is required to be developed as greenbelt. Plantation/afforestation schemes for achieving this target were earlier prepared in consultation with the Divisional Forest Officer (DFO), Keonjhar, and technically approved by the Regional Chief Conservator of Forests (RCCF), Rourkela. These approved plans have already been submitted to the Ministry through previous EC compliance reports.

As per the approved land use plan:

1. **412.41 ha** has been earmarked as undisturbed zone, comprising:

a) 339.21 ha of virgin forest area, and
b) 73.20 ha of statutory safety zone area.

2. An **additional 23.67 ha** is available for reclamation and plantation over mined out pits, OB dumps, and vacant forest kisam/rakhita patches within and up to 100 m beyond the ML boundary, in consultation with DFO, Keonjhar, as per approved schemes.
3. Non mineralized areas within the lease, including natural vegetation patches and previously developed plantations, are being systematically maintained and included in the 33percent greenbelt coverage.

Under the Ministry's Ek **Ped Maa Ke Naam – II**. initiative, all future plantations including gap planting, release of plants, and survival monitoring will be undertaken strictly within the earmarked greenbelt areas, and details will be periodically uploaded on the **MeriLife portal**, as mandated under the OM dated 24.07.2024.

Key compliance:

i. Plantation of native species recommended by CPCB and State Forest Department (Jamun, Karanj, Neem, Sirish, Chakunda, Gamhar, Pipal, etc.) to enhance ecological stability and micro climatic improvement.
ii. Scientific afforestation on backfilled areas, reclaimed benches, OB dump slopes, and a long haul and approach roads.
iii. Peripheral greenbelt development around colony, office areas, approach roads, loading plant boundary, and safety zone belts in line with CPCB dust attenuation norms.
iv. Annual plantation programmes under CSR, Mines Environment Plan, and the Ek Ped Maa Ke Naam campaign to progressively strengthen green cover.
v. Regular survival monitoring and maintenance through watering, mulching, soil amendments, and gap filling.

Thus, development of greenbelt/plantation equivalent to 33 percentage of the Mining Lease area using native species is being complied with.

7.2 The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has initiated the process for preparing a comprehensive Greenhouse Gas (GHG) Emissions Inventory covering Scope 1 and Scope 2 emissions from mining operations, ore handling, fuel consumption, and supporting activities.

The work for preparation of the GHG inventory and formulation of a long term GHG reduction programme including carbon sequestration through plantation activities is presently under tendering/engagement of an expert agency, in line with MoEF&CC requirements.

Once finalized, the GHG inventory and reduction roadmap shall be submitted to MoEF&CC as part of the EC compliance documentation.

8. Water Quality Monitoring And Preservation In Case Of Beneficiation Plant

8.1 Tailing management plan shall be implemented as included in EIA report.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL follows a structured program of manual effluent quality monitoring at the outlets of the Effluent Treatment Plants (ETPs) and the Sewage Treatment Plant (STP), and manual groundwater quality monitoring at designated wells and piezometer locations through NABL accredited laboratories (M/s Ecomen) . As there was no ore processing during the period, mine operates under a Zero Liquid Discharge (ZLD) framework with no continuous effluent discharge, Continuous Effluent Monitoring System (CEMS) for tailings is not applicable. Feasibility of installation of CEMS for ETPs at workshop and the Sewage Treatment Plant (STP) is being studied for installation.

All effluent quality data, STP/ETP performance records, and groundwater quality results are compiled monthly and are incorporated in the six monthly Environmental Clearance (EC) compliance reports submitted to the MoEF and CC Regional Office, Bhubaneswar and uploaded on the PARIVESH portal, which is also accessible to CPCB, OSPCB, and other statutory authorities.

Thus, the condition is compiled in letter and spirit.

8.2 Tailings from Iron Ore beneficiation plant shall be dewatered in filter press and no slime /tailing pond shall be permitted.

Compliance: Complied

At present, the wet beneficiation (washing) plant at Bolani Iron Ore Mines, M/s SAIL has remained nonoperational since 2017, and therefore no tailings or slime are being generated. Accordingly, no discharge has been made to the existing tailing pond during this period.

For future operations, Bolani Iron Ore Mines proposes to adopt a closed loop water recirculation system to minimize freshwater consumption and ensure Zero Liquid Discharge (ZLD). As part of this strategy, the feasibility of installing a filter press–based tailings dewatering system is currently being studied by CET, Ranchi (SAIL).

The feasibility study will assess:

i. Complete dewatering of tailings to avoid wet disposal,
ii. Recovery and reuse of process water through a closed loop system,
iii. Compatibility with the existing tailing/slime management infrastructure, and
iv. Compliance with MoEF and CC/CPCB requirements.

The filter press system will be installed in due course and integrated with the proposed recirculation system. This will ensure that, upon resumption of beneficiation, tailings are handled in a dry form, thereby eliminating the need for fresh wet tailing disposal to the pond.

Thus, the condition is currently complied with, and the necessary actions are underway to ensure full compliance before the beneficiation plant becomes operational.

9. Public Hearing And Human Health Issues

9.1 Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.

Compliance: Complied

9.2 The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.

Compliance: Complied

9.3 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, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Compliance: Complied

Bolani Iron Ore Mine, M/s SAIL ensures that, as and when required during construction of large projects, construction labour engaged during project related civil and infrastructure works are provided with temporary housing facilities within the site, equipped with all necessary infrastructure. Facilities include fuel for cooking, mobile toilets, safe drinking water, medical health care, and crèche facilities. All statutory welfare provisions for regular workers and departmental contract workers are fully in place, including safe drinking water facilities, first aid centres, medical services through Bolani Hospital, sanitation facilities, and resting shelters near operational zones.

9.4 Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL conducts Periodic Medical Examination (PME) and occupational health surveillance of all workers including direct employees, contract workers, and HEMM operators at regular intervals as per the requirements of the Factories Act, Mines Rules, and DGMS guidelines.

The occupational health check-ups cover respiratory health, audiometry, vision tests, lung function tests, chest X ray, blood and urine analysis, and other mandatory diagnostic parameters for early detection of occupational diseases at Bolani Hospital .

A dedicated Occupational Health Centre (OHC) maintains digital and physical medical records of all PME reports, which are updated continuously and preserved as required under statutory norms. Workers found with any medical concerns are referred for further examination and advised restricted duties wherever necessary.

Thus, the requirement for regular occupational health surveillance and record maintenance stands fully complied with.

9.5 Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has prepared and implemented a comprehensive Emergency Preparedness Plan (EPP) based on the Hazard Identification and Risk Assessment (HIRA) and the Disaster Management Plan (DMP), as mandated under statutory requirements. These documents form an integral part of the Bolani mines ISO 45001:2018 Occupational Health and Safety Management System, and standard operating procedures are periodically reviewed based on internal audits, mock drills, and risk mitigation requirements.

Regular mock drills (fire, slope failure, blasting incident, electrical emergency, medical emergency, etc.) are conducted in coordination with CISF, the Mines Rescue Team, and the Safety Department, and records of the same are maintained. Emergency response teams have been designated, and safety signage, communication systems, first aid stations, and emergency facilities have been provided in all operational areas.

Continuous strengthening of the EPP is under process as part of continual improvement under ISO protocols, ensuring full alignment with DGMS guidelines and MoEF&CC expectations.

Thus, the condition is complied with and implementation is ongoing as per HIRA–DMP requirements.

9.6 The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms.

Compliance: Complied

This condition is not applicable to Bolani Iron Ore Mines. The mining operations do not involve any high temperature process areas such as furnaces, kilns, or hot metal handling zones. The work environment is predominantly open cast and ambient in nature, with no designated high temperature work zones.

Standard occupational safety measures such as including provision of PPE, drinking water, shaded rest areas, and summer season advisories are followed as part of routine worker welfare practices.

9.7 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, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Compliance: Complied

9.8 Occupational health surveillance of the workers shall be done on a regular basis and records maintained.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL conducts Periodic Medical Examination (PME) and occupational health surveillance of all workers including direct employees, contract workers, and HEMM operators at regular intervals as per the requirements of the Factories Act, Mines Rules, and DGMS guidelines.

The occupational health check-ups cover respiratory health, audiometry, vision tests, lung function tests, chest X ray, blood and urine analysis, and other mandatory diagnostic parameters for early detection of occupational diseases at Bolani Hospital .

A dedicated Occupational Health Centre (OHC) maintains digital and physical medical records of all PME reports, which are updated continuously and preserved as required under statutory norms. Workers found with any medical concerns are referred for further examination and advised restricted duties wherever necessary.

Thus, the requirement for regular occupational health surveillance and record maintenance stands fully complied with.

9.9 All the commitments made towards socio econmic development of the nearby villages shall be satisfactorily implemented. The action plan based on the social impact assessment study of the project as per the EMP in accordance to the Ministry s OM dated 30.09.2020 shall be strictly implemented and progress shall be submitted to the Regional Office of MoEF andCC. PP shall adopt nearby villages and prepare and implement a robust plan to develop them into model villages in next 10 years.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL is continuously implementing all socio economic development commitments for nearby villages as outlined in the approved EMP and in accordance with the Ministrys OM dated 30.09.2020. The social impact–based action plan covers livelihood enhancement, healthcare services, drinking water supply, education support, women empowerment, and village level infrastructure development.

Since the present EC dated 24.07.2025 is an amendment to the existing Environmental Clearance, all Public Hearing (PH) commitments made earlier remain valid and are under continuous implementation. Most commitments have already been fulfilled, while the remaining items being routine and ongoing in nature continue to be implemented regularly, such as road maintenance, water supply, dust suppression, health camps, and community welfare measures.

All PH commitments are being executed in alignment with MoEFCC O.M. No. 22 65/2017 IA.III dated 30.09.2020, and regularly being adhered to. The expenditures incurred for such activities are made over and above statutory environmental management costs, consistent with Corporate Environment Responsibility (CER) requirements.

Implementation of the remaining actionable items will be completed within three years, and progress is reported through the six monthly EC compliance submissions to the MoEFCC Regional Office and uploaded on the PARIVESH portal.

Thus, the stipulation under this condition stands complied with.

10. Corporate Environment Responsibility

10.1 The Project Proponent shall submit the time bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF andCC Office Memorandum No.22 65/2017 IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

Compliance: Complied

In accordance with MoEF andCC O.M. No. 22 65/2017 IA.III dated 30.09.2020, Bolani Iron Ore Mines, M/s SAIL prepared and submitted a time bound Public Hearing Action Plan to the MoEF andCC Regional Office, Bhubaneswar within the stipulated six month period from the date of the EC amendment (24.07.2025). The plan captures all commitments made during the Public Hearing and those deliberated by the EAC.

All activities identified in the time bound action plan have been fully completed within the prescribed timelines. In addition, several commitments such as road maintenance, water supply, health services, dust suppression, and CSR based community support are regular, recurring obligations and continue

to be implemented on an ongoing basis as part of routine operations and community development programmes.

Progress on both completed and ongoing Public Hearing commitments are documented by our CSR department and submitted in the six monthly EC compliance reports submitted to the MoEF andCC Regional Office and uploaded on the PARIVESH portal.

Thus, the requirement for preparation, submission, and implementation of the time bound action plan stands fully complied with, with ongoing activities being continued as part of regular commitments.

10.2 The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest I wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF andCC as a part of six monthly report.

Compliance: Complied

Steel Authority of India Limited (SAIL), the parent organization of Bolani Iron Ore Mines, has a Board approved Environmental Policy that outlines the companys commitment to environmental protection, resource conservation, statutory compliance, and continual improvement. The policy includes Standard Operating Procedures (SOPs) and internal control mechanisms to ensure proper checks and balances for identifying, reporting, and addressing any infringements, deviations, or violations of environmental, forest, or wildlife norms/conditions.

A defined reporting and escalation mechanism is in place across SAIL, wherein any noncompliance, deviation, or environmental incident is reported through the Mines Environmental Cell to senior management and, where required, to the Board level committees and statutory authorities. Stakeholder communication protocols are also established in line with corporate governance requirements.

The Board Resolution approving the Environmental Policy, along with the policy document, is submitted to the MoEF&CC Regional Office as part of the six monthly Environmental Clearance (EC) compliance reports.

Thus, the condition regarding adoption and implementation of a Board approved Environmental Policy, along with an established reporting system, stands complied with.

10.3 A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

Compliance: Complied

In compliance with the requirement, Bolani Iron Ore Mines, M/s SAIL has established a dedicated Environmental departments at both the Project Level and Corporate (SAIL HQ) Level, staffed with qualified environmental professionals. The departments functions under the direct supervision of senior executives, ensuring statutory compliance, resource allocation, and reporting to the Head of the Organization. At Mines level, a dedicated Environment Management Cell functions as an independent unit under the Head of Environment and Lease, reporting directly to the Chief General Manager (Mines). The EMS is staffed with qualified and experienced personnel, including a General Manager

(Environment and Lease), AGM (Mining–E and L), Mining Foreman, and Mining Mate and with outsourced staffs. The cell is responsible for day to day environmental monitoring, compliance management, reporting, and communications for implementation of all statutory environmental safeguards as stipulated under the EC, CTO, and Forest/Mining regulations. Further, necessary proposal is under process for recruitment of multidisciplinary qualified personnel s for induction into environmental management section.

10.4 Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has prepared a detailed road map of Environmental Management Plan (EMP) Action Plan, incorporating all EC conditions and assigning clear responsibilities through a structured responsibility matrix.

The Environmental Clearance (EC) compliance framework at Bolani Iron Ore Mines, M/s SAIL operates through a structured multi-level responsibility system involving all functional HODs under the overall supervision of the Chief General Manager (Mines) and Executive Director (Mines). Environmental compliance activities are coordinated by the Environment Lease Department, supported by Mining, Mechanical, Electrical, Civil, Projects, HR, Safety, Medical, and Finance departments as per domain specific responsibilities. Year wise financial provisions for environmental protection measures including dust suppression, water management, plantation, monitoring, waste management, and infrastructure are earmarked under a separate environment budget, which is not diverted for any other purpose. Progress on implementation of each EMP component is reviewed internally and the year wise implementation status is reported regularly to the MoEFCC Regional Office through the Six Monthly EC Compliance Reports, along with supporting documentation and expenditure details.

10.5 Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL conducts a self-environmental audit annually as part of its internal Environmental Management System (EMS) for ISO certification by external audit team i.e. TUV NORD CERT Gmbh , covering statutory compliance, performance of environmental control measures, monitoring results, and status of EC/CTE/CTO conditions. Audit observations are reviewed by the CGM (Mines) and corrective actions are assigned to respective HODs for closure. Thus, the requirement of periodic self-audit and third party audit is complied with and will continue to be followed systematically.

10.6 All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL adheres to the applicable recommendations of the Charter on Corporate Responsibility for Environmental Protection (CREP) relevant to mineral beneficiation operations. Although the wet beneficiation plant has remained nonoperational since 2017, all CREP

mandated environmental safeguards such as zero liquid discharge, controlled handling of ore fines, effective dust suppression, solid waste management, and energy efficient practices are implemented in the operational material handling, crushing, and screening units.

The Charter on Corporate Responsibility for Environment Protection (CREP) issued by CPCB prescribes a set of environmental performance commitments for the mineral beneficiation sector, particularly focused on water conservation, zero discharge, tailings management, air pollution control, energy efficiency, and waste minimization. Although the wet beneficiation plant at Bolani Iron Ore Mines has remained nonoperational since 2017, the mine continues to maintain compliance with the CREP principles through the following measures:

1. Zero Liquid Discharge and Water Conservation

iii. No process effluent is generated, as the washing plant is non-functional as of now.
iv. Recirculation system is proposed to be installed for reuse of water to make it ZLD.

2. Tailing/Slime Management

iv. A 75 ha tailing pond exists in the adjoining 6.90 sq. miles ML for historic slime storage.
v. No fresh slurry is generated since 2017; the pond remains stable and is monitored.
vi. The pond is surrounded by hillocks and engineered embankments ensuring long retention time and zero escape of solids.

3. Air Pollution Control Measures (Mining + Beneficiation Area)

v. Rotating fog cannons, mobile mist cannons, dry fog systems at primary crusher hopper, and fixed water sprinklers across haul roads are deployed
vi. Conveyor systems from F G mining area are covered, and truck movement is controlled through tarpaulin cover, wheel washing, and CISF checks.
vii. Four CAAQMS and ten fugitive monitoring stations monitor PM_{10}, $PM_{2.5}$, NO_2, SO_2 and CO.
viii. Dust masks, PPE, and noise control systems are provided to all workers.

4. Energy Conservation and Process Optimization

iv. Energy efficient equipments with periodic maintenance.
v. Conveyor based ore movement reduces fuel based haulage.
vi. LED lights installed in mines and plant area.

5. Waste Minimization and Hazardous Waste Management

iii. Hazardous wastes (used oil, residue contaminated waste, oil soaked cotton, etc.) are disposed through authorized recyclers (Re Sustainability Pvt. Ltd., Bristol Petroleum Pvt. Ltd.).
iv. No process sludge or beneficiation waste is generated.

6. Occupational Health and Safety Measures

iv. Regular medical check-ups, noise and dust exposure monitoring.
v. PPE is mandatory; safety audits are carried out periodically.
vi. Emergency preparedness plan includes mock drills and first aid facilities.

7. Greenbelt Development and Ecological Restoration

iv. Plantation over degraded forest land, OB dumps, reclaimed pits, safety zones, and roadside avenues under the 33percent greenbelt commitment.
v. Ek Ped Maa Ke Naam action plan under implementation and uploaded on MeriLife portal.
vi. Native species at 2500 saplings/ha as per CPCB guidelines.

Even though no beneficiation operations are currently in use, Bolani Iron Ore Mines fully complies with the applicable principles of the CREP Charter through robust mining sector environmental controls, zero discharge initiatives, structured waste management, and a comprehensive greenbelt and restoration programme.

The same was earlier discussed.

11. Miscellaneous

11.1 The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent s website permanently.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has complied with the requirement to publicize the Environmental Clearance (EC) and its conditions. The EC amendment dated 24.07.2025 was prominently advertised in two local newspapers, including one in the vernacular language, within seven days of its issuance, as stipulated.

Further, the Environmental Clearance along with all conditions and safeguards has been uploaded and permanently displayed on the official SAIL website / RMD website for public access. The information remains accessible at all times as required.

Thus, the condition regarding public disclosure of the Environmental Clearance stands fully complied with.

11.2 The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

Compliance: Complied.

Copies of the Environmental Clearance (EC) letter were published in The Times of India and The Samaja newspapers, and duly distributed to the respective Panchayat, Tehsil Office, and the Office of the District Collector.

11.3 44) The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half yearly basis.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL uploads the status of compliance of all stipulated Environmental Clearance (EC) conditions on the official SAIL/RMD website. The monitored environmental data covering air, water, noise, groundwater, and other relevant parameters is also uploaded and updated on a half yearly basis, in line with MoEF&CC requirements.

The six monthly EC compliance reports submitted to the MoEF&CC Regional Office are simultaneously made available on the website for public access, ensuring full transparency.

Accordingly, the condition stands fully complied with.

11.4 The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL monitors all prescribed ambient air quality criteria pollutants PM10,PM2.5,SO2,NOX AND CO through a network of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and manual ambient air monitoring stations, as detailed under Conditions 3.6 and 3.9. The monitored data is digitally displayed at a public display unit installed near the main gate of the mine for real time public disclosure. The same data is also uploaded on the official SAIL/Bolani Mines webpage, ensuring transparency. As the mining operations do not have stacks or process emission sources, stack emission monitoring is not applicable. All ambient air quality results are additionally submitted to the regulatory authorities through the six monthly EC compliance reports.

Thus, the condition stands fully complied with.

11.5 The project proponent shall submit six monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL submits the six monthly Environmental Clearance (EC) compliance reports regularly within the prescribed timelines. The reports are uploaded on the Ministry s PARIVESH portal (environment clearance portal) in accordance with the provisions of the EIA Notification, 2006 and subsequent amendments. Copies of the same are also submitted to the MoEF&CC Regional Office, Bhubaneswar and the Odisha State Pollution Control Board (OSPCB) for records. The compliance reporting process is system driven and monitored through the Environment Management Cell (EMC) to ensure timely and accurate submission every cycle.

11.6 The project proponent shall submit the environmental statement for each financial year in Form Vto the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

Compliance: Complied.

Project proponent is being submitted the environmental statement for each financial year in Form V to the concerned State Pollution Control Board before 30th September of each year as prescribed under the Environment (Protection) Rules, 1986, and amended subsequently and put on the website of the company has also uploaded in Online Consent Management and Monitoring System of SPCB Portal.

11.7 The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.

Compliance: Complied

The project proponent has duly informed the Regional Office of the Ministry of Environment, Forest and Climate Change (MoEF&CC) regarding the date of financial closure and final approval of the project by the concerned authorities.

Further, intimation has also been provided upon commencement of land development work and initiation of production operations.

11.8 The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL strictly complies with all stipulations prescribed by the Odisha State Pollution Control Board (OSPCB) and the State Government. All operations including air quality management, water management, waste handling, noise control, mine environment, and statutory reporting are carried out in full conformity with the valid CTO/CTE conditions and directives issued by OSPCB, the Directorate of Mines, Forest Department, and other State authorities.

Compliance records, monitoring reports, and returns are submitted within prescribed timelines, and periodic inspections by State authorities are duly facilitated. Any recommendations or corrective instructions issued are promptly implemented to ensure continual adherence to regulatory requirements.

11.9 The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has ensured strict adherence to all commitments and recommendations made in the EIA/EMP report, during the Public Hearing, and in the presentation before the Expert Appraisal Committee (EAC). These commitments have been integrated into the Environmental Management Plan (EMP) and are under regular implementation. Progress is monitored by the Environmental Cell and reported to the MoEF&CC Regional Office through six monthly compliance submissions. Public hearing commitments (employment, health facilities, water supply, infrastructure support, plantation, and community welfare) are under regular fulfillment, with year wise action plans executed within stipulated timelines

11.10 No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF andCC).

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL confirms that no further expansion, modification, enhancement of capacity, or alteration of mining and ore handling facilities has been undertaken beyond what is approved under the existing Environmental Clearance and its amendments.

Any future expansion, modernization, technological modification, additional infrastructure, or increase in production/throughput shall be initiated only after obtaining prior approval from the Ministry of Environment, Forest and Climate Change (MoEF&CC), in strict compliance with the EIA Notification, 2006 and its amendments.

The condition is being fully complied with.

11.11 The above conditions will be enforced inter alia, under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL complies with all provisions of the Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Environment (Protection) Act, 1986, and the Public Liability Insurance Act, 1991, including all applicable rules, amendments, notifications, and directions issued thereunder.

Compliance is also ensured with all relevant orders, directives, and judgments of the Hon'ble Supreme Court, High Courts, NGT, and other competent Courts of Law pertaining to environmental protection and mining operations.

Thus, the condition stands fully complied with

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

Compliance: Complied

The condition is noted. Any appeal against the EC, if applicable, shall be preferred before the Hon'ble National Green Tribunal within the prescribed period under Section 16 of the NGT Act, 2010

11.13 The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent s website permanently.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has fully complied with the requirement to publicize the Environmental Clearance (EC) and its stipulated conditions. The EC amendment dated 24.07.2025 was prominently advertised in two local newspapers, including one in the vernacular language, within seven days of issuance, as mandated.

In addition, copies of the EC letter were submitted to the MoEF andCC Regional Office, District Industries Centre, and the Collector's/Tehsildar s Office within the required seven day timeframe. The EC was formally submitted on 26.07.2025. The EC document was also displayed at the mine premises for the mandatory 30 day period.

Further, the Environmental Clearance along with all conditions and safeguards has been uploaded and permanently displayed on the official SAIL/RMD website for continuous public access, ensuring full transparency.

Thus, the condition regarding public disclosure and statutory circulation of the Environmental Clearance stands fully complied with.

11.14 The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has complied with the requirement to circulate copies of the Environmental Clearance (EC) to the Heads of local bodies, including Panchayats and Municipal authorities, in addition to the relevant Government offices. The EC copies were submitted within the stipulated timeframe following the issuance of the EC amendment dated 24.07.2025.

These authorities have been requested to display the EC for 30 days from the date of receipt, as required under the EC conditions and MoEF&CC guidelines.

Thus, the condition regarding submission and public display of the Environmental Clearance stands fully complied with.

11.15 The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half yearly basis.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL uploads the status of compliance of all stipulated Environmental Clearance (EC) conditions on the official SAIL/RMD website. The monitored environmental data including air quality, water quality, noise levels, groundwater quality, and other relevant parameters is also uploaded and updated on a half yearly basis, in accordance with MoEF&CC requirements.

The six monthly EC compliance reports submitted to the MoEF&CC Regional Office are simultaneously uploaded on the website, ensuring complete transparency and public accessibility.

Accordingly, the condition stands fully complied with.

11.16 The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL monitors all prescribed ambient air quality criteria pollutants PM10, PM2.5, SO2and NOX through a network of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and manual ambient monitoring stations, as applicable to mining operations.
The monitored data is:

i. Displayed at a public digital display board installed near the mine s main gate for easy public access, and
ii. Uploaded on the official SAIL website as part of routine environmental transparency.

As the mine does not operate any process stacks or emission chimneys, stack emission monitoring is not applicable to this project. All monitored data is also submitted through the six monthly Environmental Clearance compliance reports to the MoEFCC Regional Office.

Thus, the condition is fully complied with.

11.17 Action plan for developing connecting and internal road in terms of MSA as per IRC guidelines shall be implemented.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has prepared and implemented an Action Plan for strengthening and development of connecting and internal roads in accordance with Maximum Safe Axle (MSA) load requirements and IRC guidelines applicable to mining and heavy vehicle movement. Key measures implemented include:

i. Regular grading, compaction, and maintenance of internal roads to ensure safe movement of dumpers, tippers, and HEMM.
ii. Improvement of approach and connecting roads in coordination with local authorities to handle mining traffic load.
iii. Dust suppression arrangements (water sprinkling, misting systems) along all major road stretches.
iv. Installation of signage, speed control measures, and lighting at critical junctions for road safety.

The Action Plan is under continuous implementation and reviewed periodically to ensure compliance with IRC design criteria and safe traffic operation.

Thus, the condition stands complied with.

11.18 The project proponent shall submit six monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL submits the six monthly Environmental Clearance (EC) compliance reports to the Ministry of Environment, Forest and Climate Change (MoEF&CC) and uploads the same on the Environmental Clearance (EC) portal of the Ministry (PARIVESH), as required.

The reports include:

i. Status of compliance of all stipulated EC conditions,
ii. Monitoring results for air, water, noise, groundwater, and other environmental parameters, and Supporting documents, photographs, and analytical data.

These six monthly reports are uploaded within the prescribed timelines and remain accessible on the MoEF&CC portal for public and regulatory review.

Thus, the condition stands fully complied with.

11.19 The project proponent shall submit the environmental statement for each financial year in Form V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

Compliance: Complied.

Project proponent is being submitted the environmental statement for each financial year in Form V to the concerned State Pollution Control Board before 30th September of each year as prescribed under the Environment (Protection) Rules, 1986, and amended subsequently and put on the website of the company has also uploaded in Online Consent Management and Monitoring System of SPCB Portal.

11.20 The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL submits the six monthly Environmental Clearance (EC) compliance reports in the prescribed format to the Ministry of Environment, Forest and Climate Change (MoEF&CC). The same reports are also uploaded on the MoEF&CC Environmental Clearance Portal (PARIVESH) within the stipulated timelines.

The uploaded reports include the status of compliance with all EC conditions along with monitored environmental data, analytical results, photographs, and supporting documents.

Thus, the condition stands fully complied with.

11.21 The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL fully abides by all commitments and recommendations made in the EIA/EMP report, those made during the Public Hearing, and the assurances provided during the presentation to the Expert Appraisal Committee (EAC).

These commitments have been integrated into the mines Environmental Management Plan (EMP) and are under continuous implementation. Key areas include environmental safeguards, pollution control measures, socio economic development commitments, community welfare initiatives, and mitigation measures identified through impact assessment.

Progress on the implementation of all such commitments is monitored by the Environmental Cell and reported regularly through the six monthly EC compliance submissions to the MoEF&CC Regional Office and uploaded on the PARIVESH portal.

Accordingly, the condition stands fully complied with.

11.22 The recommendations of the approved Site Specific Wildlife Management Plan (in case of involvement of Schedule I species) shall be implemented in consultation with the State Forest

Department. The implementation report shall be furnished along with the six monthly compliance report to the concerned Regional Office of the MoEF and CC.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL has implemented the recommendations of the approved Site Specific Wildlife Management Plan (SSWMP) in consultation with the State Forest Department, as the mining lease involves the presence of Schedule I species in the region.

Key measures implemented include habitat improvement works, biodiversity conservation activities, installation of signages, awareness programmes for workers and local communities, and coordination with forest officials for monitoring wildlife movement and mitigation.

The progress and implementation status of the SSWMP are regularly furnished to the MoEF&CC Regional Office as part of the six monthly EC compliance reports, along with supporting documents and photographs.

Thus, the condition stands fully complied with.

11.23 The PP shall put all the environment related expenditure, expenditure related to Action Plan on the PH issues, and other commitments made in the EIA / EMP Report etc. in the company web site for the information to public/public domain. The PP shall also put the information on the left over funds allocated to EMP and PH as committed in the earlier ECs and shall be carried out and spent in next three years, in the company web site for the information to public/public domain.

Compliance: Complied

Bolani Iron Ore Mine, M/s SAIL ensures uploading of all environment related expenditures, including those related to the Environmental Management Plan (EMP), Public Hearing (PH) Action Plan, and other commitments made in the EIA/EMP Report, on the official SAIL/RMD website for public information.

Details of year wise expenditure, activity wise progress, and implementation status are updated on a regular (half yearly) basis in alignment with MoEF&CC requirements.

Information on unspent / leftover funds from earlier EC mandated EMP and Public Hearing commitments, along with the plan for their utilization in the upcoming three years, is also disclosed on the company website to ensure complete public domain transparency.

These disclosures are maintained as part of the six monthly EC compliance reporting systems and remain accessible to stakeholders at all times.

Thus, the condition stands fully complied with.

11.24 No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF andCC).

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL confirms that no expansion, modification, or alteration of mining operations, production capacity, infrastructure, or facilities has been undertaken without obtaining

prior approval from the Ministry of Environment, Forest and Climate Change (MoEF&CC), as required under the EIA Notification, 2006 and subsequent amendments.

Any future expansion or modification will be carried out only after securing prior Environmental Clearance from MoEF&CC.

Thus, the condition stands fully complied with.

11.25 Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL ensures that all data, documents, monitoring results, and compliance information submitted to the MoEF&CC, CPCB, OSPCB, and other statutory authorities are accurate, factual, and verified. No false or fabricated information is submitted at any stage.

All environmental monitoring is carried out through NABL accredited laboratories, and records are maintained transparently. Internal verification and multi-level review mechanisms are in place to ensure authenticity of all data before submission.

Bolani Iron Ore Mine fully understands that concealing facts or submitting fabricated data may lead to revocation of the Environmental Clearance and action under the Environment (Protection) Act, 1986, and therefore adheres strictly to truthful and transparent reporting.

Thus, the condition stands fully complied with.

11.26 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL ensures that all data, documents, monitoring results, and compliance information submitted to the MoEF&CC, CPCB, OSPCB, and other statutory authorities are accurate, factual, and verified. No false or fabricated information is submitted at any stage.

All environmental monitoring is carried out through NABL accredited laboratories, and records are maintained transparently. Internal verification and multi-level review mechanisms are in place to ensure authenticity of all data before submission.

The project proponent fully understands that concealing facts or submitting fabricated data may lead to revocation of the Environmental Clearance and action under the Environment (Protection) Act, 1986, and therefore adheres strictly to truthful and transparent reporting.

Thus, the condition stands fully complied with.

11.27 The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL acknowledges that the Ministry of Environment, Forest and Climate Change (MoEF&CC) reserves the right to impose additional conditions as and when deemed necessary.

The project proponent commits that any such additional conditions, if stipulated in the future, will be implemented promptly and within the prescribed timelines. Necessary resources, monitoring mechanisms, and internal controls are in place to ensure timely compliance with all directives issued by the Ministry.

Thus, the condition is complied with, and the Mine remains prepared to implement any further conditions in a time bound manner.

11.28 The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

Compliance: Complied

Bolani Iron Ore Mines, M/s SAIL extends full cooperation to the officers of the MoEF&CC Regional Office during all compliance monitoring visits and inspections. All requisite data, documents, monitoring reports, and clarifications related to Environmental Clearance conditions are furnished promptly as and when requested.

Six monthly EC compliance reports, monitoring results, photographs, and supporting records are regularly submitted to the Regional Office and uploaded on the PARIVESH portal to facilitate transparent and continuous monitoring.

Thus, the condition stands fully complied with.

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

Compliance: Complied Duly noted for compliance.

The condition regarding the right to appeal before the National Green Tribunal (NGT) is duly noted. Bolani Iron Ore Mines, M/s SAIL acknowledges that any appeal against this Environmental Clearance may be filed before the NGT within 30 days, as provided under Section 16 of the National Green Tribunal Act, 2010.

Thus, the stipulation is acknowledged and complied with.

12. Green Belt

12.1 The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration by trees.

Compliance: Being Complied.

Bolani Iron Ore Mines, M/s SAIL has initiated the process for preparing a comprehensive Greenhouse Gas (GHG) Emissions Inventory covering Scope 1 and Scope 2 emissions from mining operations, ore handling, fuel consumption, and supporting activities.

The work for preparation of the GHG inventory and formulation of a long term GHG reduction programme including carbon sequestration through plantation activities is presently under tendering/engagement of an expert agency, in line with MoEF&CC requirements.

Once finalized, the GHG inventory and reduction roadmap shall be submitted to MoEF&CC as part of the EC compliance documentation.

12.2 Project proponent shall submit a study report on Decarbonisation program, which would essentially consist of company s carbon emissions, carbon budgeting/ balancing, carbon sequestration activities and carbon capture, use and storage and offsetting strategies. Further, the report shall also contain time bound action plan to reduce its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitor able with defined time frames.

Compliance: Being Complied

Bolani Iron Ore Mines, M/s SAIL has initiated action toward fulfilling the decarburization related requirements stipulated under this condition. As a first step, the Mine has already begun the process of engaging a qualified expert agency for preparation of a comprehensive Greenhouse Gas (GHG) Emissions Inventory under Condition 12.1. The findings of this inventory will form the baseline input for the wider Decarbonisation Programme Study Report mandated under Condition 12.2.

Following finalization of the GHG inventory, the BOM will undertake preparation of the detailed Decarbonisation Programme, which will include carbon budgeting and balancing, carbon sequestration and offsetting measures, pathways for progressive energy transition, and a time bound, measurable action plan for reducing carbon intensity across operations and supply chains.

The complete Decarbonisation Programme Study Report will be prepared and submitted to MoEF&CC within the stipulated timeline, and progress will be reflected in the six monthly EC compliance reports.
Thus, compliance actions have been initiated, and the requirement under this condition is being progressively addressed.

12.3 Greening and Paving shall be implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL has implemented extensive greening and surface stabilization measures within the mine lease to control soil erosion and fugitive dust from exposed areas.
Plantation has been carried out along haul roads, OB dump slopes, reclaimed benches, safety zones, and other open patches to enhance ground cover and natural soil binding.

In parallel, paving, compacting, and lateralizing of internal roads, working areas, and frequently used pathways are being undertaken on a continuous basis, ensuring effective dust suppression and safer vehicle movement. These measures are supported by regular watering, maintenance of greenbelt areas, and mulching practices.
Thus, the condition stands complied with, with greening and surface stabilization activities being carried out on an on-going basis.

13. Environment Management

13.1 The project proponent shall comply with the provisions contained in this Ministry s OM vide F.No. 22 65/2017 IA.III dated 30/09/2020. As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages based on the socio economic survey and undertake community developmental activities in consultation with the village Panchayat and the District Administration as committed.

Compliance: Complied.

Bolani Iron Ore Mine, M/s SAIL has complied with the provisions of the Ministry s Office Memorandum (OM) vide F. No. 22 65/2017 IA.III dated 30/09/2020 regarding Corporate Environment Responsibility (CER). As part of the CER commitment, the company has identified nearby villages based on a socio economic survey and, in consultation with the local Gram Panchayats and District Administration, has undertaken various community development initiatives. The activities include improvement of basic infrastructure, provision of safe drinking water, health and sanitation programs, educational support, skill development training, and environmental awareness campaigns. The implementation and progress of CSR activities are periodically reviewed to ensure effective execution and alignment with community needs. Records, photographs, and expenditure details related to CER activities are maintained and submitted to the Regional Office of MoEF&CC as part of the six monthly compliance reports.

13.2 The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF andCC as a part of six monthly report.

Compliance: Complied.

A comprehensive Environmental Policy, duly approved by the Board. The policy outlines the companys commitment to environmental protection, sustainable development, and compliance with all applicable environmental, forest, and wildlife regulations. Standard Operating Procedures have been established under this policy to ensure proper checks and balances for monitoring compliance and identifying any infringements, deviations, or violations of environmental norms and conditions. A defined reporting and escalation mechanism is in place for prompt communication of such issues to senior management, the Board, and relevant stakeholders. A copy of the Board Resolution approving the Environmental Policy has been submitted to the Ministry of Environment, Forest and Climate Change (MoEF&CC) as part of the six monthly compliance report.

13.3 A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

Compliance: Complied.

A dedicated Environmental Cell has been established at Bolani Iron Ore Mines, M/s SAIL, functioning as a separate section with qualified personnel under the leadership of the Head (Environment and Lease), who reports directly to the Chief General Manager (Mines). The Environmental Cell consists of a General Manager (Environment and Lease), MSc Tech in Applied Geology and M Tech in Environmental Science and Engineering; an AGM (Min–E andL) with a B.Tech in Mining; a Mining Foreman with a Diploma in Mining; and a Mining Mate holding a Graduate qualification along with a PG Diploma in Environmental Sustainable Development for coordination, monitoring, and implementation of all environmental safeguards. Additionally, proposal

under process for recruitment of further multidisciplinary professionals to strengthen the Environmental Cell and enhance its environmental management and compliance capabilities.

13.4 Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Integrated Regional Office of the MoEF andCC.

Compliance: Complied.

Bolani Iron Ore Mines, M/s SAIL conducts annual performance testing of all installed pollution control systems, including dust suppression arrangements, water sprinkling systems, dry fog units, sedimentation/treatment facilities, and other environmental control measures used in mining operations by the ISO internal audit team and respective HODs . The efficiency and functionality of these systems are evaluated through systematic inspections and performance checks, and necessary maintenance or upgrades are undertaken wherever required. The results of these performance assessments are compiled and submitted to the Integrated Regional Office of MoEF andCC as part of the six monthly Environmental Clearance compliance reporting. Thus, the condition is being duly complied with.

30/11/2025

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

ANNEXURE-I

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/67/2025-26 dated.07.07.2025 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 '**July-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. 21.12.2012 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-2025-26 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	$22^0$6'31.68''N	$85^0$19'34.41''E
Karo Near Lease Boundary		SWQ-2	$22^0$7'26.27'' N	$85^0$21'52.95''E
Karo River Intake		SWQ-3	$22^0$5.13.02' N	$85^0$19'57.88''E

Jhikaria nallah before joining Karo		SWQ-4	22⁰5′22.50″ N	85⁰19′10.05″E
Drinking Water Quality				
Mount Club Tap Water	Monthly Once	DW-1	22⁰6′56.24″ N	85⁰19′58.21″E
Karo Guest House Tap Water		DW-2	22⁰5′36.68″ N	85⁰20′32.09″E
Effluent Waste Water				
Oil Catch Pit Water Bottom Garage	Monthly Once	EWW-1	22⁰6′27.11″ N	85⁰19′37.62″E
Oil Catch pit water G-Area		EWW-2	22⁰6′1.83′′N	85⁰18′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	22O 05′ 27.20″N	85O 19′27.13″E
Bolani Gouda Basti-Well water		GWQ-2	22O 05′40.97″N	85O 20′2.45″E
Balagoda Village-Well water		GWQ-3	22O 05′57.02″N	85O 20′27.41″E

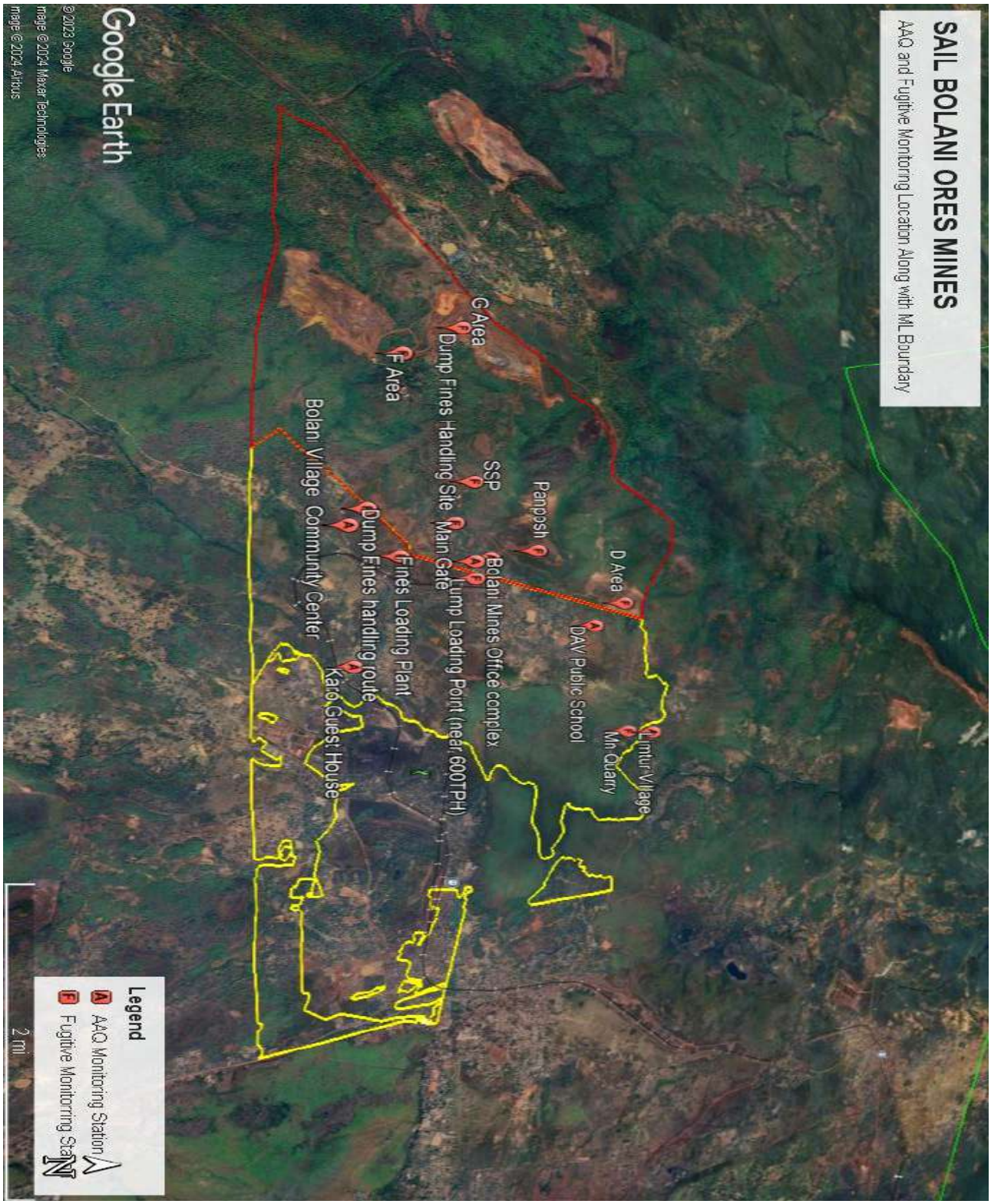
2.5 Weather/Meteorology

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 July-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	63.2	52.8	58.01	25.5	18.1	21.64
2.	Dav Public School	A2	60.8	49.1	55.48	24.7	17.3	21.19
3.	Main Gate	A3	67.8	59.6	64.14	26.9	20.0	23.69
4.	Bolani Mines Office Complex	A4	64.9	56.1	60.27	24.9	18.1	21.20
5.	Limtur Village	A5	63.90	55.60	59.76	23.40	15.0	18.74
6.	Karo Guest House	A6	62.90	55.60	59.72	24.00	15.0	19.51
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	22.9	15.3	19.02	21.0	16.5	18.75
2.	Dav Public School	A2	21.9	14.1	17.94	20.0	15.4	17.84
3.	Main Gate	A3	24.5	17.2	20.63	22.8	18.2	20.55
4.	Bolani Mines Office Complex	A4	22.7	16.2	19.77	21.9	17.1	19.43
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)

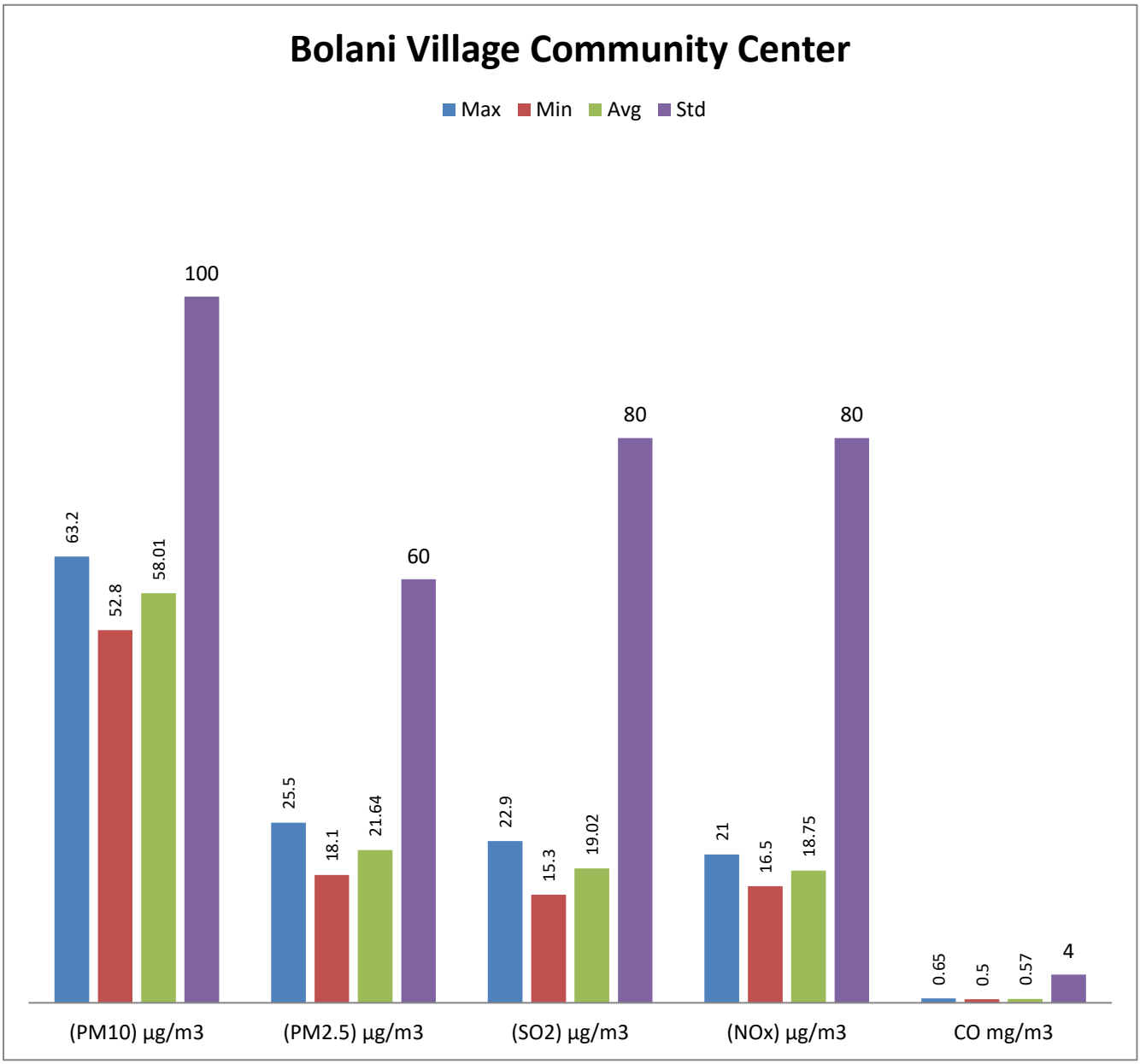
Table No. 3.1(c): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	CO		
			Max.	Min.	Avg.
1.	Bolani Village Community Center	A1	0.65	0.50	0.57
2.	Dav Public School	A2	0.58	0.49	0.54
3.	Main Gate	A3	0.61	0.52	0.56
4.	Bolani Mines Office Complex	A4	0.59	0.50	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 **63.2** µg/m³ whereas minimum concentration was observed **52.8** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **18.1** µg/m³ to **25.5** µg/m³, SO_2 concentration ranges between **15.3** µg/m³ to **22.9** µg/m³, NO_x as (NO_2) concentration ranges between **16.5** µg/m³ to **21.0** µg/m³ and CO concentration ranges between **0.50** mg/m³ to **0.65** mg/m³ was observed during the month



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/150
Test Report Issue date: 02.08.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY 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.	01.07.2025	56.1	25.3	16.7	19.3	0.58
2.	02.07.2025	52.8	21.4	15.6	16.5	0.53
3.	03.07.2025	57.8	24.1	15.9	18.8	0.64
4.	04.07.2025	53.8	24.2	22.2	19.0	0.59
5.	05.07.2025	58.8	22.5	16.9	19.5	0.58
6.	06.07.2025	58.4	21.9	20.8	17.0	0.58
7.	07.07.2025	55.4	22.7	18.9	20.2	0.50
8.	08.07.2025	60.6	24.2	15.3	19.1	0.60
9.	09.07.2025	53.8	18.8	21.4	17.9	0.56
10.	10.07.2025	56.2	18.9	19.5	17.3	0.52
11.	11.07.2025	55.0	22.1	18.4	18.2	0.64
12.	12.07.2025	61.1	21.0	17.0	20.3	0.60
13.	13.07.2025	62.5	18.1	16.2	20.9	0.59
14.	14.07.2025	60.3	21.8	17.5	19.3	0.51
15.	15.07.2025	60.4	22.0	19.1	18.6	0.55
16.	16.07.2025	63.2	22.2	19.8	17.3	0.57
17.	17.07.2025	53.8	25.1	20.9	16.9	0.52
18.	18.07.2025	56.2	19.9	16.3	21.0	0.55
19.	19.07.2025	54.4	18.1	18.9	20.3	0.61
20.	20.07.2025	52.8	18.9	22.9	18.4	0.51
21.	21.07.2025	59.7	21.6	20.6	16.9	0.62
22.	22.07.2025	61.6	18.7	18.2	18.7	0.57
23.	23.07.2025	57.0	21.0	22.2	20.8	0.59
24.	24.07.2025	59.6	23.6	21.4	18.3	0.53
25.	25.07.2025	61.9	25.5	20.9	19.1	0.63
26.	26.07.2025	55.4	22.9	20.6	18.6	0.64
27.	27.07.2025	60.2	19.8	18.5	19.5	0.65
28.	28.07.2025	55.2	21.9	20.9	18.8	0.61
29.	29.07.2025	59.3	19.9	16.8	17.6	0.54
30.	30.07.2025	62.0	20.8	22.2	19.2	0.52
31.	31.07.2025	62.9	22.0	17.1	17.8	0.51
Average		**58.0**	**21.6**	**19.0**	**18.7**	**0.57**

Note- No_x is Given as No_2

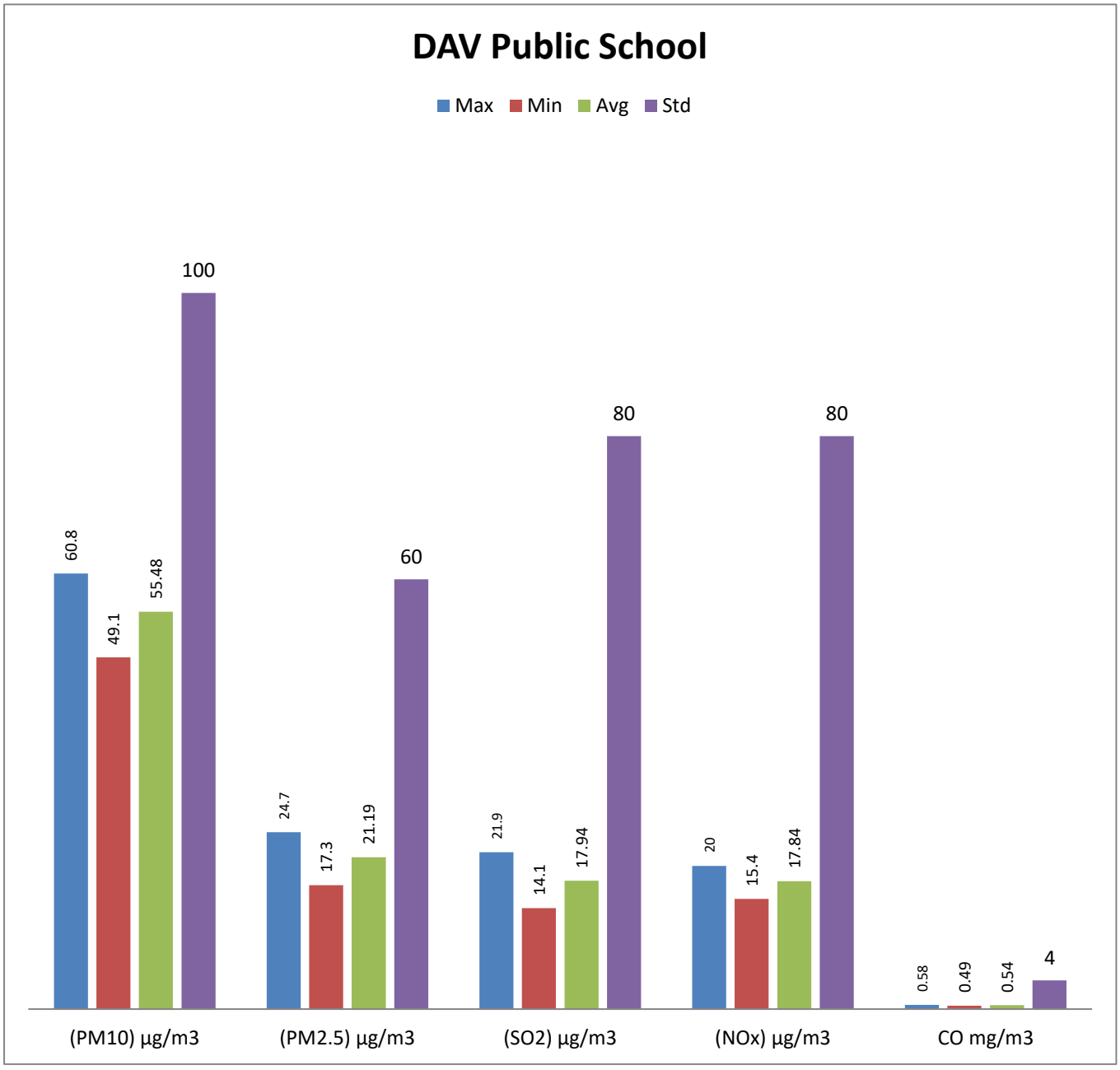
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **60.8** µg/m³ whereas minimum concentration was observed **49.1** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **17.3** µg/m³ to **24.7** µg/m³, SO_2 concentration ranges between **14.1** µg/m³to **21.9** µg/m³, NO_x as (NO_2) concentration ranges between **15.4** µg/m³ to **20.0** µg/m³ and CO concentration ranges between **0.49** mg/m³ to **0.58** mg/m³ was observed during the month



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/151
Test Report Issue date: 02.08.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY 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.	01.07.2025	59.8	19.1	14.1	15.9	0.50
2.	02.07.2025	53.1	21.1	19.8	19.6	0.51
3.	03.07.2025	50.7	17.8	17.0	17.5	0.58
4.	04.07.2025	52.3	21.4	18.3	17.9	0.52
5.	05.07.2025	50.2	23.5	16.9	17.5	0.52
6.	06.07.2025	53.7	17.3	14.9	16.6	0.49
7.	07.07.2025	54.6	18.6	17.4	15.9	0.58
8.	08.07.2025	57.5	23.5	17.1	17.1	0.58
9.	09.07.2025	51.2	18.6	18.1	16.1	0.56
10.	10.07.2025	54.5	20.0	20.3	18.7	0.58
11.	11.07.2025	59.7	22.9	21.6	19.3	0.55
12.	12.07.2025	59.7	18.3	18.5	17.8	0.55
13.	13.07.2025	56.9	24.2	19.0	15.8	0.52
14.	14.07.2025	57.6	17.4	21.8	20.0	0.55
15.	15.07.2025	52.3	19.5	20.7	16.1	0.53
16.	16.07.2025	49.1	24.7	17.8	16.8	0.53
17.	17.07.2025	60.5	24.5	18.4	19.6	0.50
18.	18.07.2025	55.8	22.0	21.9	19.9	0.57
19.	19.07.2025	60.5	17.4	21.0	19.8	0.51
20.	20.07.2025	52.4	22.8	19.8	17.5	0.52
21.	21.07.2025	55.0	24.5	15.2	19.2	0.50
22.	22.07.2025	59.0	23.3	15.9	16.8	0.56
23.	23.07.2025	60.8	23.7	18.4	16.8	0.56
24.	24.07.2025	56.5	20.0	16.1	19.6	0.57
25.	25.07.2025	58.2	19.8	16.8	18.5	0.58
26.	26.07.2025	55.3	22.8	15.2	15.4	0.56
27.	27.07.2025	57.1	20.1	18.1	18.6	0.52
28.	28.07.2025	49.2	17.3	18.0	17.8	0.52
29.	29.07.2025	59.1	22.5	18.2	19.5	0.58
30.	30.07.2025	54.1	23.8	15.7	16.5	0.51
31.	31.07.2025	53.4	24.6	14.1	18.8	0.54
Average		**55.5**	**21.2**	**17.9**	**17.8**	**0.54**

Note- No_x is Given as No_2

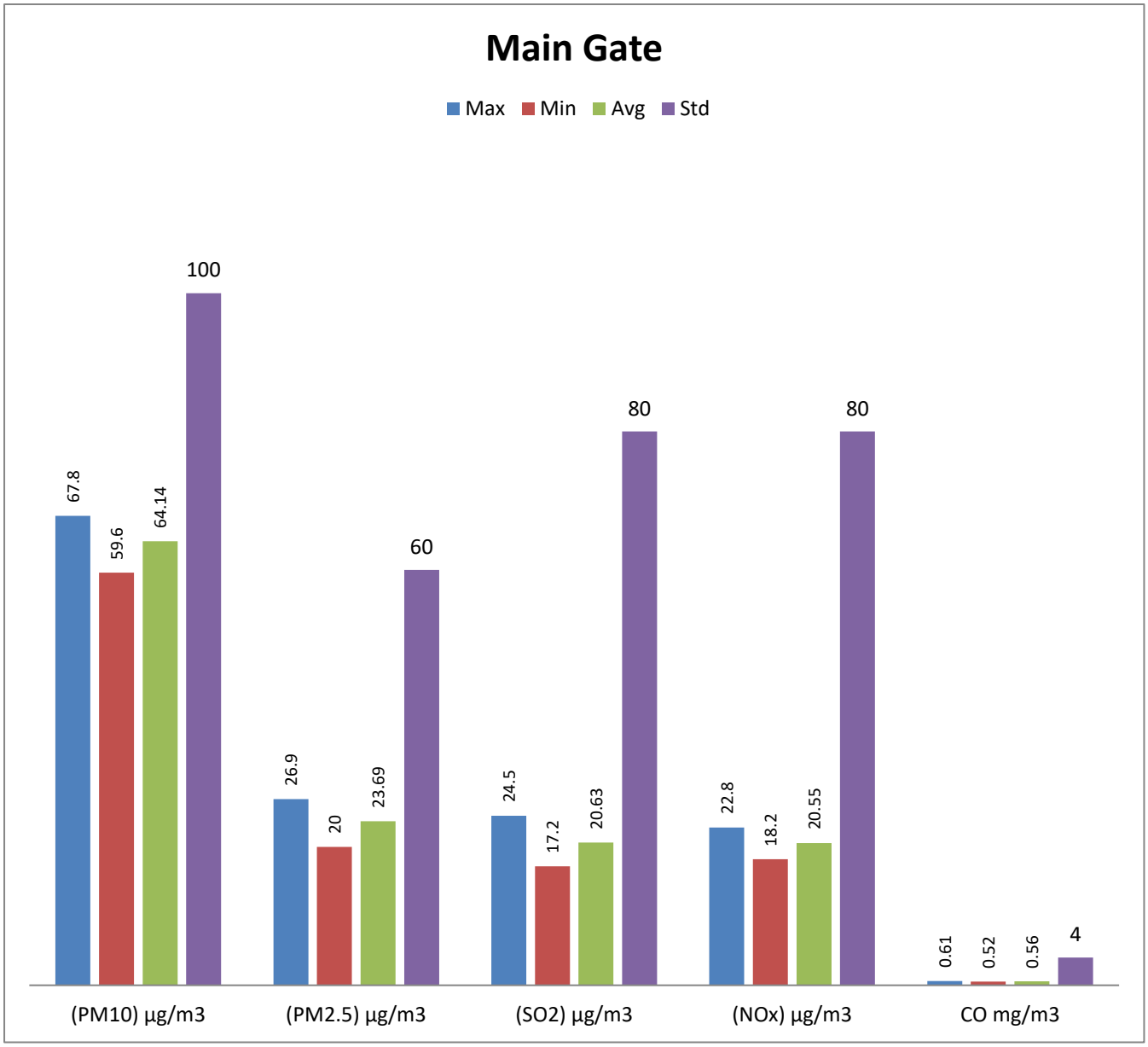
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **67.8** µg/m³ whereas minimum concentration was observed **59.6** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **20.0** µg/m³ to **26.9** µg/m³, SO_2 concentration ranges between **17.2** µg/m³to **24.5** µg/m³, NO_x as (NO_2) concentration ranges between **18.2** µg/m³ to **22.8** µg/m³ and CO concentration ranges between **0.52** mg/m³ to **0.61** mg/m³ was observed during the month



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/152
Test Report Issue date: 02.08.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY 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.	01.07.2025	63.7	20.8	18.1	18.2	0.53
2.	02.07.2025	61.8	26.5	21.3	19.9	0.52
3.	03.07.2025	59.9	25.7	18.9	22.8	0.59
4.	04.07.2025	67.0	25.3	20.8	18.8	0.55
5.	05.07.2025	61.1	24.0	24.1	22.8	0.55
6.	06.07.2025	67.8	24.9	19.3	19.2	0.61
7.	07.07.2025	67.7	26.9	22.4	20.3	0.56
8.	08.07.2025	63.5	21.8	18.4	22.8	0.59
9.	09.07.2025	59.6	21.5	17.7	21.5	0.53
10.	10.07.2025	65.7	25.8	21.8	22.5	0.54
11.	11.07.2025	66.1	21.1	20.9	20.8	0.57
12.	12.07.2025	67.4	26.6	21.0	19.9	0.58
13.	13.07.2025	60.3	24.7	19.0	20.3	0.52
14.	14.07.2025	65.8	26.6	17.2	20.2	0.61
15.	15.07.2025	65.3	24.3	23.2	19.8	0.57
16.	16.07.2025	61.4	20.1	23.5	19.3	0.54
17.	17.07.2025	61.8	25.9	21.1	18.6	0.56
18.	18.07.2025	65.2	21.7	18.5	22.0	0.59
19.	19.07.2025	61.4	22.2	23.4	18.2	0.54
20.	20.07.2025	66.2	20.8	22.7	22.7	0.56
21.	21.07.2025	60.1	24.3	19.7	21.8	0.56
22.	22.07.2025	61.3	23.1	23.1	22.5	0.53
23.	23.07.2025	67.8	20.0	20.6	22.1	0.58
24.	24.07.2025	65.0	23.1	24.5	20.7	0.57
25.	25.07.2025	66.0	25.9	17.8	18.9	0.61
26.	26.07.2025	64.4	20.8	24.5	18.6	0.61
27.	27.07.2025	63.9	26.4	18.6	21.8	0.54
28.	28.07.2025	67.4	22.0	19.3	20.3	0.55
29.	29.07.2025	63.7	21.9	20.0	18.7	0.53
30.	30.07.2025	64.3	23.0	18.7	21.5	0.56
31.	31.07.2025	65.6	26.6	19.4	19.7	0.55
Average		**64.1**	**23.7**	**20.6**	**20.6**	**0.56**

Note- No_x is Given as No_2

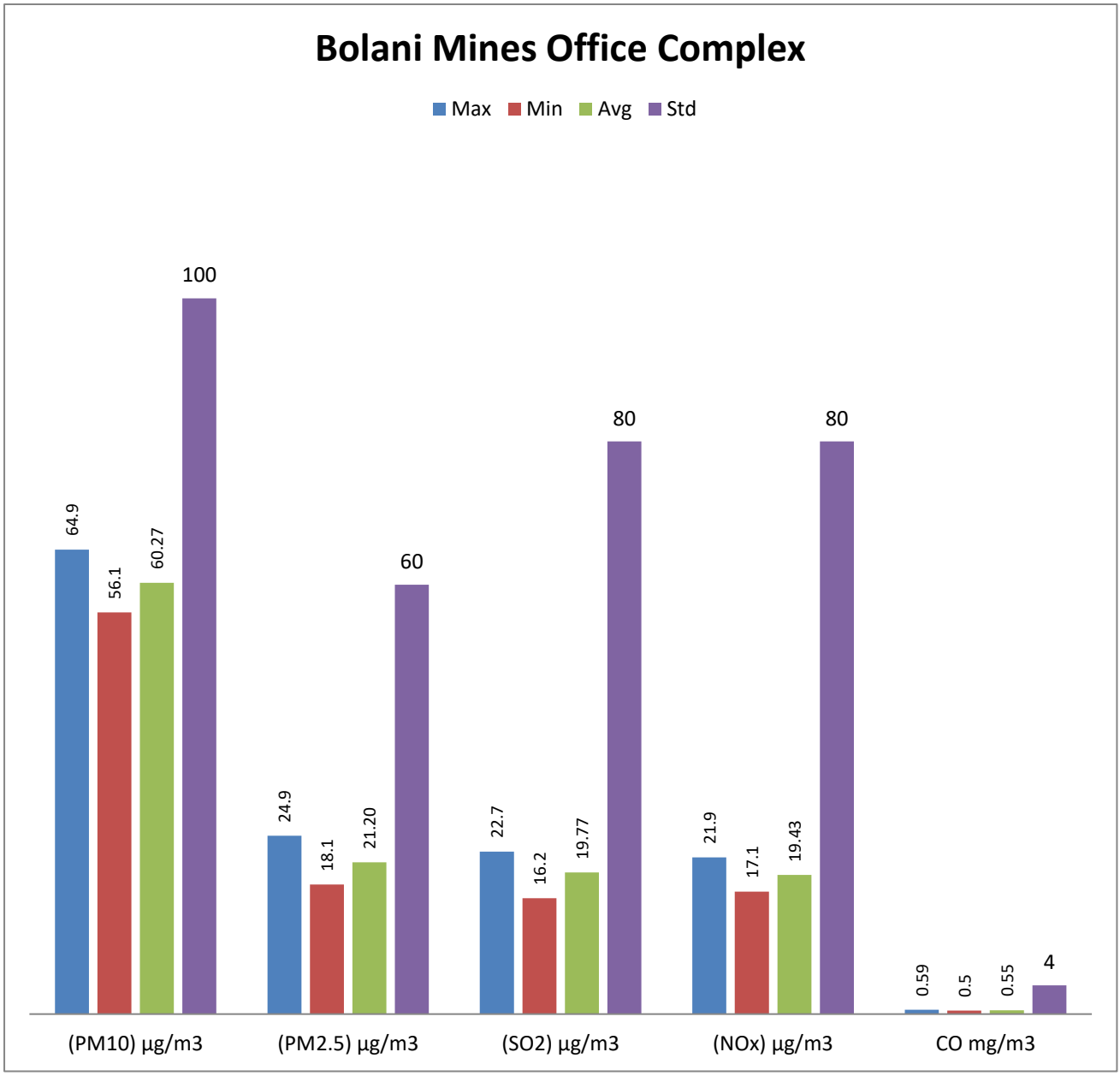
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **64.9** µg/m³ whereas minimum concentration was observed **56.1** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **18.1** µg/m³ to **24.9** µg/m³, SO_2 concentration ranges between **16.2** µg/m³to **22.7** µg/m³, NO_x as (NO_2) concentration ranges between **17.1** µg/m³ to **21.9** µg/m³ and CO concentration ranges between **0.50** mg/m³ to **0.59** mg/m³ was observed during the month



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/153
Test Report Issue date: 02.08.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY 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.	01.07.2025	64.9	20.4	22.4	19.9	0.52
2.	02.07.2025	59.4	18.1	20.1	17.4	0.55
3.	03.07.2025	60.8	19.0	21.0	17.8	0.52
4.	04.07.2025	63.2	23.9	21.9	20.0	0.55
5.	05.07.2025	63.6	18.1	17.6	21.3	0.54
6.	06.07.2025	58.3	24.7	22.7	18.9	0.55
7.	07.07.2025	60.2	24.9	19.2	17.5	0.59
8.	08.07.2025	63.1	22.2	19.5	21.2	0.55
9.	09.07.2025	56.1	19.4	19.8	17.7	0.53
10.	10.07.2025	64.1	22.9	21.8	19.7	0.55
11.	11.07.2025	58.3	21.7	19.5	20.5	0.55
12.	12.07.2025	59.6	21.0	21.6	20.7	0.56
13.	13.07.2025	57.6	20.5	21.4	19.4	0.57
14.	14.07.2025	57.0	21.4	19.9	20.4	0.56
15.	15.07.2025	56.8	21.4	21.2	18.0	0.57
16.	16.07.2025	62.2	22.9	17.1	19.5	0.52
17.	17.07.2025	59.4	19.2	17.9	17.4	0.59
18.	18.07.2025	60.9	24.4	21.2	17.3	0.56
19.	19.07.2025	61.1	22.5	16.2	19.4	0.52
20.	20.07.2025	60.6	19.9	22.0	17.1	0.52
21.	21.07.2025	57.6	19.5	18.8	20.7	0.52
22.	22.07.2025	63.7	20.2	19.1	17.2	0.59
23.	23.07.2025	62.3	23.4	18.5	20.4	0.53
24.	24.07.2025	58.7	21.5	18.6	21.1	0.55
25.	25.07.2025	60.0	19.9	20.9	19.6	0.52
26.	26.07.2025	57.5	20.9	21.6	21.6	0.53
27.	27.07.2025	62.4	21.8	17.5	21.9	0.52
28.	28.07.2025	56.6	18.1	18.0	21.6	0.50
29.	29.07.2025	61.2	20.8	16.5	17.2	0.56
30.	30.07.2025	64.6	21.2	18.6	18.4	0.58
31.	31.07.2025	56.5	21.3	20.7	21.4	0.54
Average		**60.3**	**21.2**	**19.8**	**19.4**	**0.54**

Note- No_x is Given as No_2

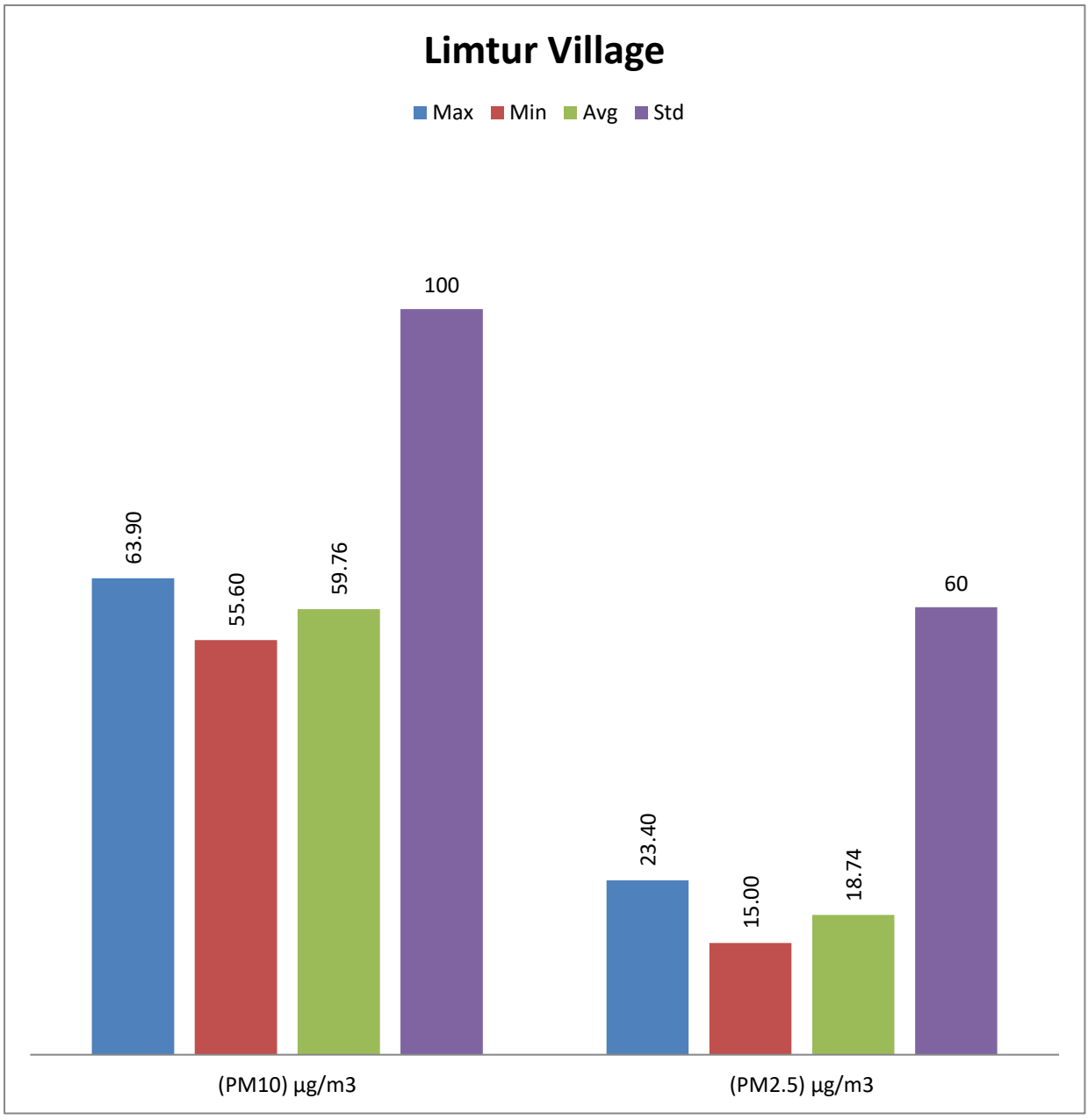
----End of Report----

Ecomen Laboratories Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **63.9** µg/m^3 whereas minimum concentration was observed **55.6** µg/m^3 and $PM_{2.5}$ concentration ranges between **15.0** µg/m^3 to **23.4** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/154
Test Report Issue date: 02.08.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY 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.	01.07.2025	62.7	22.4
2.	02.07.2025	62.4	22.5
3.	03.07.2025	56.6	17.3
4.	04.07.2025	56.6	21.6
5.	05.07.2025	55.6	15.9
6.	06.07.2025	62.7	16.4
7.	07.07.2025	56.5	17.8
8.	08.07.2025	60.3	16.1
9.	09.07.2025	58.4	20.0
10.	10.07.2025	60.4	19.8
11.	11.07.2025	62.8	16.4
12.	12.07.2025	58.6	21.4
13.	13.07.2025	61.4	22.8
14.	14.07.2025	61.8	23.4
15.	15.07.2025	63.9	19.0
16.	16.07.2025	59.6	15.3
17.	17.07.2025	60.1	19.5
18.	18.07.2025	58.0	15.0
19.	19.07.2025	63.8	15.0
20.	20.07.2025	56.4	19.8
21.	21.07.2025	62.2	15.7
22.	22.07.2025	58.6	15.6
23.	23.07.2025	56.5	19.1
24.	24.07.2025	60.5	21.9
25.	25.07.2025	62.7	20.2
26.	26.07.2025	63.4	17.9
27.	27.07.2025	56.2	15.9
28.	28.07.2025	61.7	20.8
29.	29.07.2025	55.9	18.9
30.	30.07.2025	57.7	21.5
31.	31.07.2025	58.7	15.9
Average		**59.8**	**18.7**

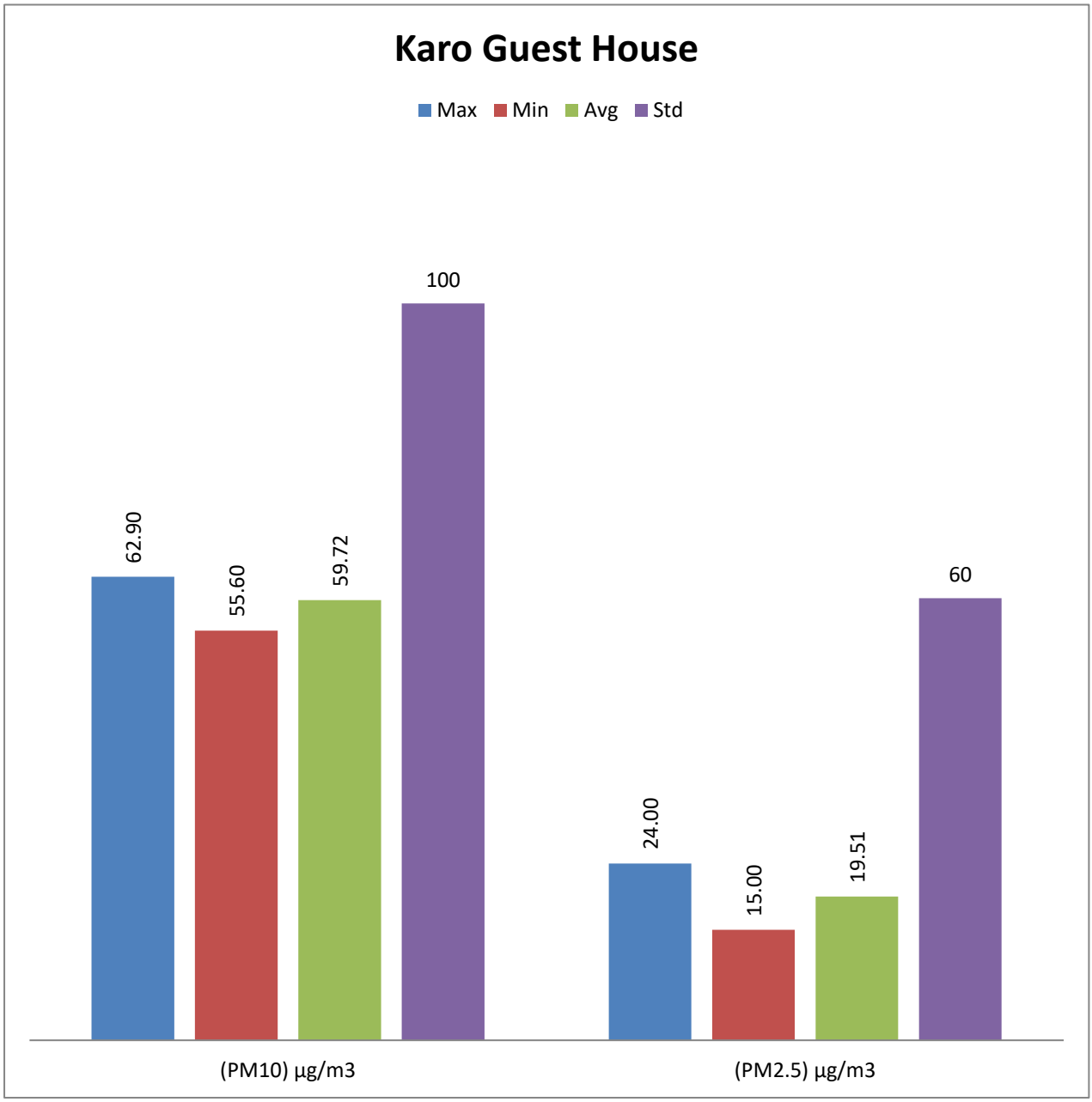
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **62.9** µg/m^3 whereas minimum concentration was observed **55.6** µg/m^3 and $PM_{2.5}$ concentration ranges between **15.0** µg/m^3 to **24.0** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/155
Test Report Issue date: 02.08.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY 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.	01.07.2025	55.7	21.2
2.	02.07.2025	62.9	17.4
3.	03.07.2025	60.3	17.1
4.	04.07.2025	60.7	22.0
5.	05.07.2025	61.2	17.8
6.	06.07.2025	62.7	21.2
7.	07.07.2025	58.8	24.0
8.	08.07.2025	56.0	17.7
9.	09.07.2025	59.2	15.7
10.	10.07.2025	58.6	24.0
11.	11.07.2025	62.0	19.6
12.	12.07.2025	62.3	19.5
13.	13.07.2025	59.4	20.9
14.	14.07.2025	57.4	19.9
15.	15.07.2025	55.6	24.0
16.	16.07.2025	59.7	19.4
17.	17.07.2025	62.2	23.2
18.	18.07.2025	60.5	15.3
19.	19.07.2025	60.1	18.1
20.	20.07.2025	57.8	23.3
21.	21.07.2025	60.8	22.9
22.	22.07.2025	58.3	19.2
23.	23.07.2025	59.8	16.1
24.	24.07.2025	58.1	15.9
25.	25.07.2025	61.6	15.0
26.	26.07.2025	56.3	19.0
27.	27.07.2025	57.7	15.5
28.	28.07.2025	58.5	19.8
29.	29.07.2025	62.7	20.8
30.	30.07.2025	62.5	23.1
31.	31.07.2025	61.9	16.2
Average		**59.7**	**19.5**

----End of Report----

Ecomen Laboratories Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

3.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring:

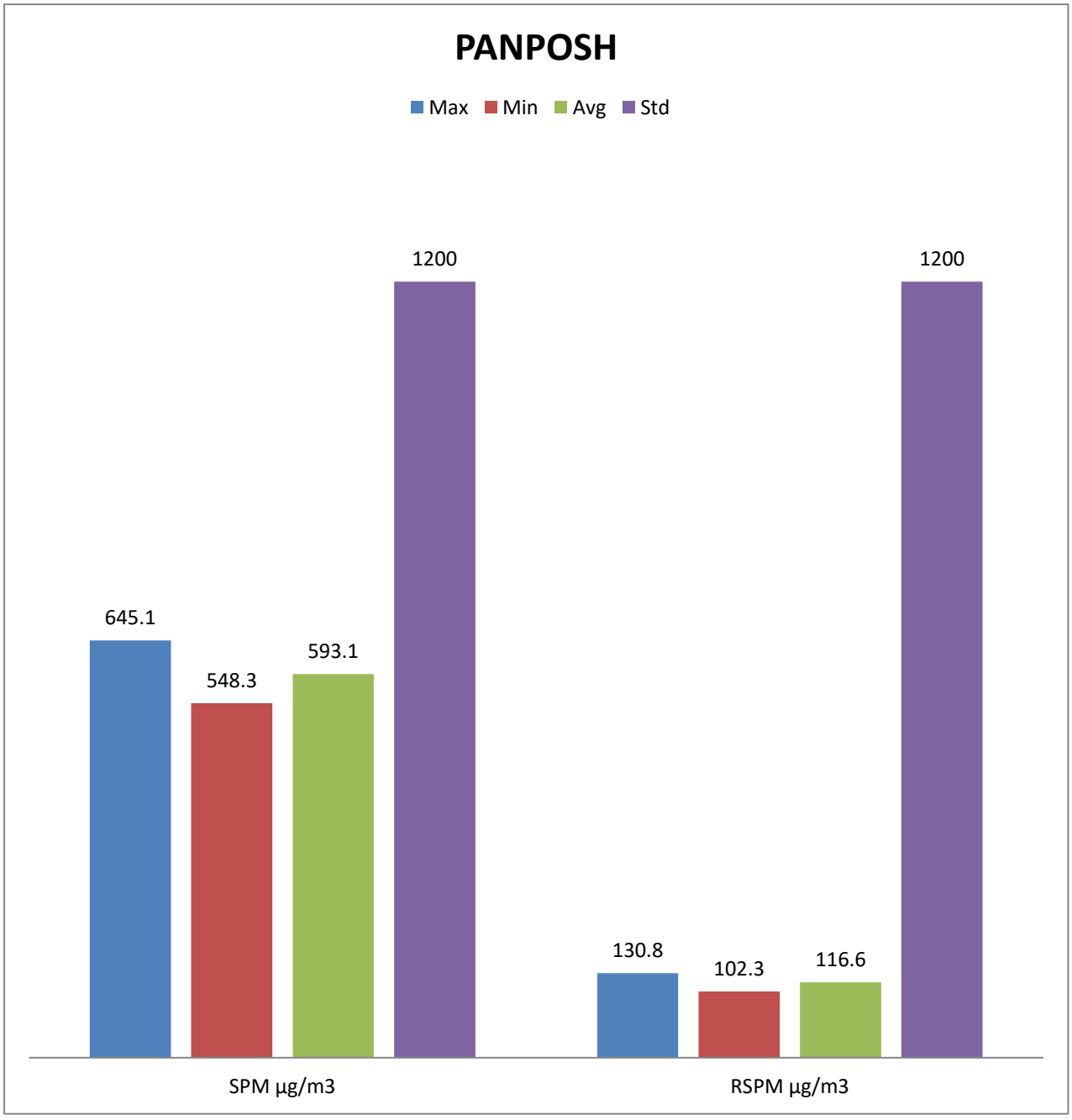
The Summarized results of Work Zone Air Quality/Fugitive Dust Emission for the month of July-2025 are given in the **Table below**

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	645.1	548.3	593.1	130.8	102.3	116.6
2.	D Area	F2	634.8	548.6	594.1	131.7	100.0	115.3
3.	F Area	F3	624.6	540.1	587.4	128.3	102.7	113.6
4.	G Area	F4	627.4	545.8	579.9	127.4	100.6	111.2
5.	Lump Loading Point (near 600TPH)	F5	619.4	531.4	570.3	126.5	98.6	112.6
6.	Fines Loading (20 Area)	F6	646.8	562.1	608.4	132.3	101.8	117.4
7.	Dump Fines handling route	F7	613.6	527.2	565.5	125.0	96.8	108.7
8.	SSP	F8	614.7	535.0	567.5	128.2	100.1	111.7
9.	Dump Fines Handling Site	F9	621.5	541.5	577.5	128.6	98.6	111.9
10.	Mn Quarry	F10	635.1	540.2	580.1	132.4	98.2	112.5
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 **645.1** µg/m^3 whereas minimum concentration was observed **548.3** µg/m^3 and RSPM concentration ranges between **102.3** µg/m^3 to **130.8** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/150
Test Report Issue date: 02.08.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	Panposh	555.3	114.3
2.	02-07-2025	Panposh	548.8	105.5
3.	03-07-2025	Panposh	623.6	130.8
4.	04-07-2025	Panposh	557.9	116.5
5.	05-07-2025	Panposh	641.3	126.3
6.	06-07-2025	Panposh	552.9	114.2
7.	07-07-2025	Panposh	560.6	112.6
8.	08-07-2025	Panposh	582.1	107.7
9.	09-07-2025	Panposh	615.2	128.0
10.	10-07-2025	Panposh	585.5	109.1
11.	11-07-2025	Panposh	551.1	103.4
12.	12-07-2025	Panposh	625.9	125.4
13.	13-07-2025	Panposh	621.4	130.0
14.	14-07-2025	Panposh	645.1	130.7
15.	15-07-2025	Panposh	637.3	130.0
16.	16-07-2025	Panposh	564.4	102.3
17.	17-07-2025	Panposh	556.3	102.3
18.	18-07-2025	Panposh	599.9	121.7
19.	19-07-2025	Panposh	623.8	117.6
20.	20-07-2025	Panposh	621.3	117.7
21.	21-07-2025	Panposh	548.3	104.7
22.	22-07-2025	Panposh	612.1	119.3
23.	23-07-2025	Panposh	597.1	119.8
24.	24-07-2025	Panposh	608.2	117.5
25.	25-07-2025	Panposh	576.4	107.3
26.	26-07-2025	Panposh	615.4	128.5
27.	27-07-2025	Panposh	569.3	110.4
28.	28-07-2025	Panposh	618.1	119.3
29.	29-07-2025	Panposh	618.6	114.8
30.	30-07-2025	Panposh	569.9	108.4
31.	31-07-2025	Panposh	582.0	119.8
Average			**593.1**	**116.6**

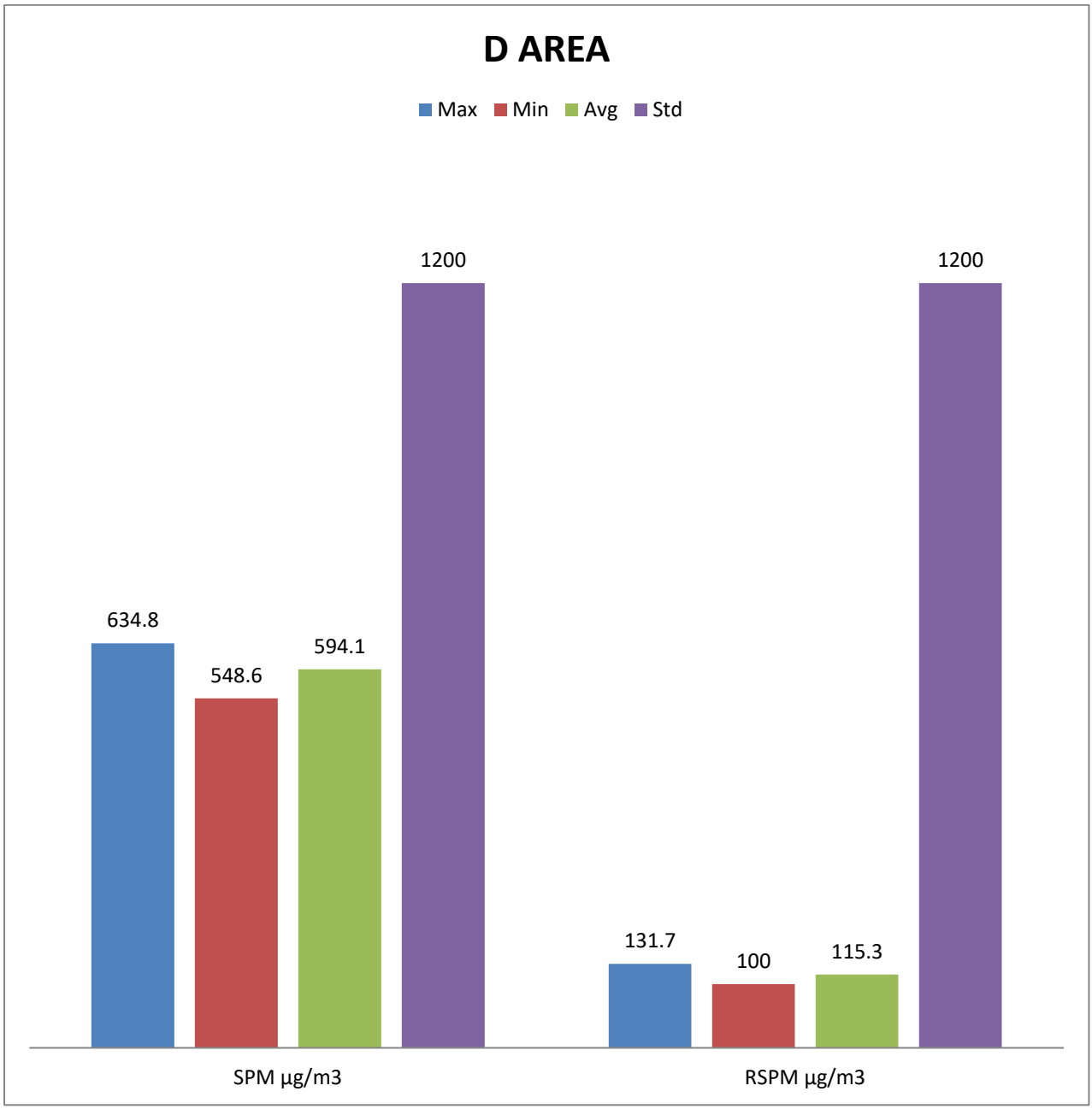
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **634.8** µg/m^3 whereas minimum concentration was observed **548.6** µg/m^3 and RSPM concentration ranges between **100.0** µg/m^3 to **131.7** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/151
Test Report Issue date: 02.05.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	D Area	594.3	115.4
2.	02-07-2025	D Area	606.1	121.1
3.	03-07-2025	D Area	623.3	128.3
4.	04-07-2025	D Area	550.3	100.0
5.	05-07-2025	D Area	611.4	126.9
6.	06-07-2025	D Area	554.5	109.6
7.	07-07-2025	D Area	634.7	123.7
8.	08-07-2025	D Area	555.0	101.0
9.	09-07-2025	D Area	587.5	118.9
10.	10-07-2025	D Area	612.0	113.3
11.	11-07-2025	D Area	576.8	104.5
12.	12-07-2025	D Area	616.9	123.6
13.	13-07-2025	D Area	550.6	105.0
14.	14-07-2025	D Area	591.2	109.1
15.	15-07-2025	D Area	560.5	105.6
16.	16-07-2025	D Area	629.7	131.7
17.	17-07-2025	D Area	548.6	108.3
18.	18-07-2025	D Area	599.6	117.7
19.	19-07-2025	D Area	634.8	128.5
20.	20-07-2025	D Area	607.7	122.4
21.	21-07-2025	D Area	631.0	125.6
22.	22-07-2025	D Area	585.7	108.7
23.	23-07-2025	D Area	558.1	113.6
24.	24-07-2025	D Area	586.3	110.5
25.	25-07-2025	D Area	623.8	116.0
26.	26-07-2025	D Area	612.6	118.5
27.	27-07-2025	D Area	575.1	106.0
28.	28-07-2025	D Area	612.2	119.4
29.	29-07-2025	D Area	593.2	108.3
30.	30-07-2025	D Area	584.5	111.5
31.	31-07-2025	D Area	608.4	120.4
Average			**594.1**	**115.3**

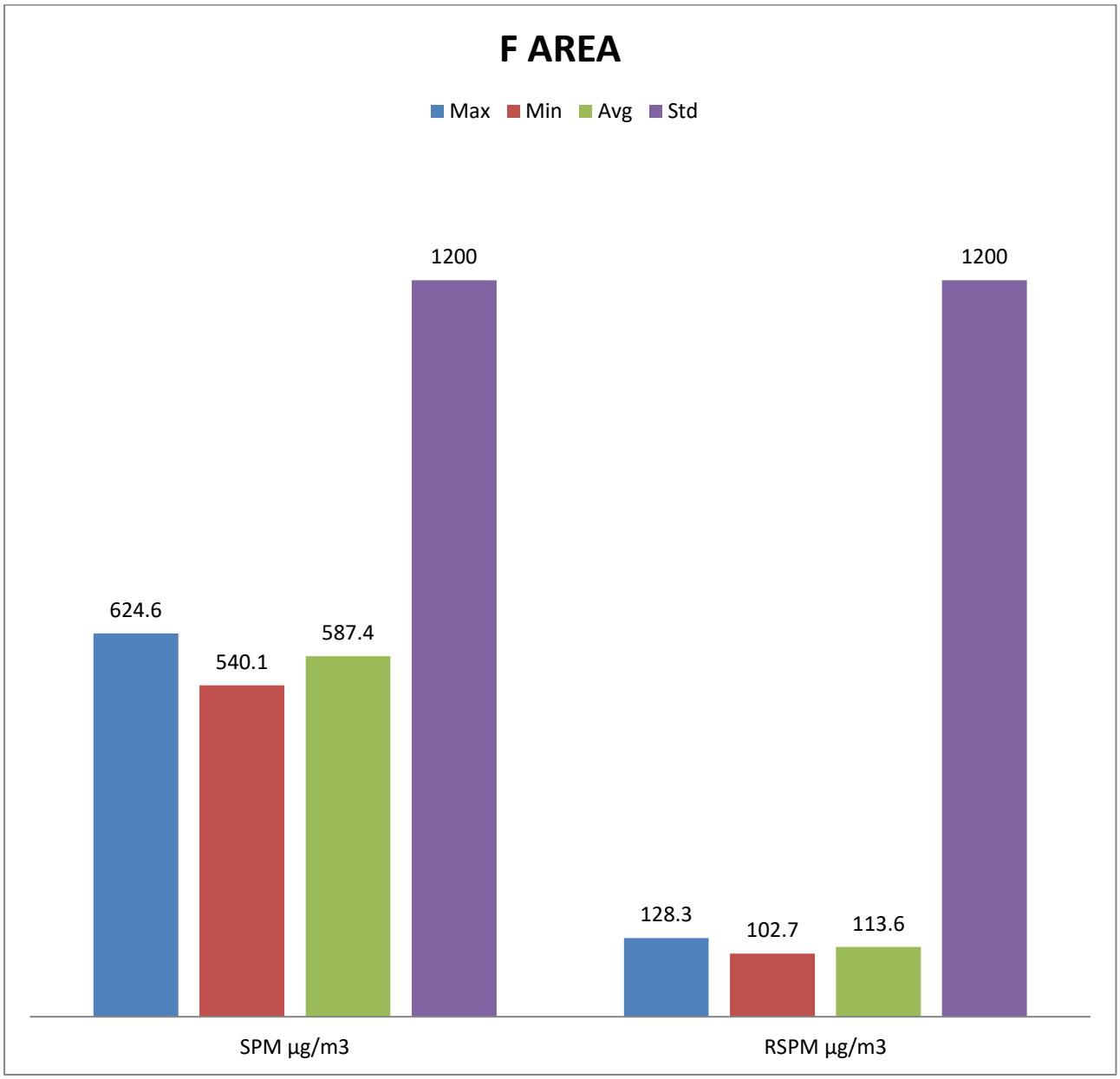
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **624.6** µg/m^3 whereas minimum concentration was observed **540.1** µg/m^3 and RSPM concentration ranges between **102.7** µg/m^3 to **128.3** µg/m^3 during the month



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/152
Test Report Issue date: 02.08.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	F Area	587.2	119.1
2.	02-07-2025	F Area	617.1	128.3
3.	03-07-2025	F Area	605.6	122.8
4.	04-07-2025	F Area	618.4	116.9
5.	05-07-2025	F Area	552.0	112.9
6.	06-07-2025	F Area	555.1	111.3
7.	07-07-2025	F Area	568.4	107.2
8.	08-07-2025	F Area	581.5	106.0
9.	09-07-2025	F Area	572.3	116.2
10.	10-07-2025	F Area	612.6	111.5
11.	11-07-2025	F Area	568.7	107.7
12.	12-07-2025	F Area	608.2	111.2
13.	13-07-2025	F Area	622.4	117.2
14.	14-07-2025	F Area	615.7	119.4
15.	15-07-2025	F Area	619.5	127.5
16.	16-07-2025	F Area	579.3	117.1
17.	17-07-2025	F Area	577.3	115.6
18.	18-07-2025	F Area	554.7	113.3
19.	19-07-2025	F Area	606.8	113.0
20.	20-07-2025	F Area	553.0	107.1
21.	21-07-2025	F Area	624.6	118.4
22.	22-07-2025	F Area	572.8	103.4
23.	23-07-2025	F Area	622.4	117.5
24.	24-07-2025	F Area	571.5	103.6
25.	25-07-2025	F Area	618.6	119.6
26.	26-07-2025	F Area	540.1	102.7
27.	27-07-2025	F Area	566.6	103.6
28.	28-07-2025	F Area	621.8	116.3
29.	29-07-2025	F Area	559.0	105.0
30.	30-07-2025	F Area	549.0	113.9
31.	31-07-2025	F Area	585.8	117.6
Average			**587.4**	**113.6**

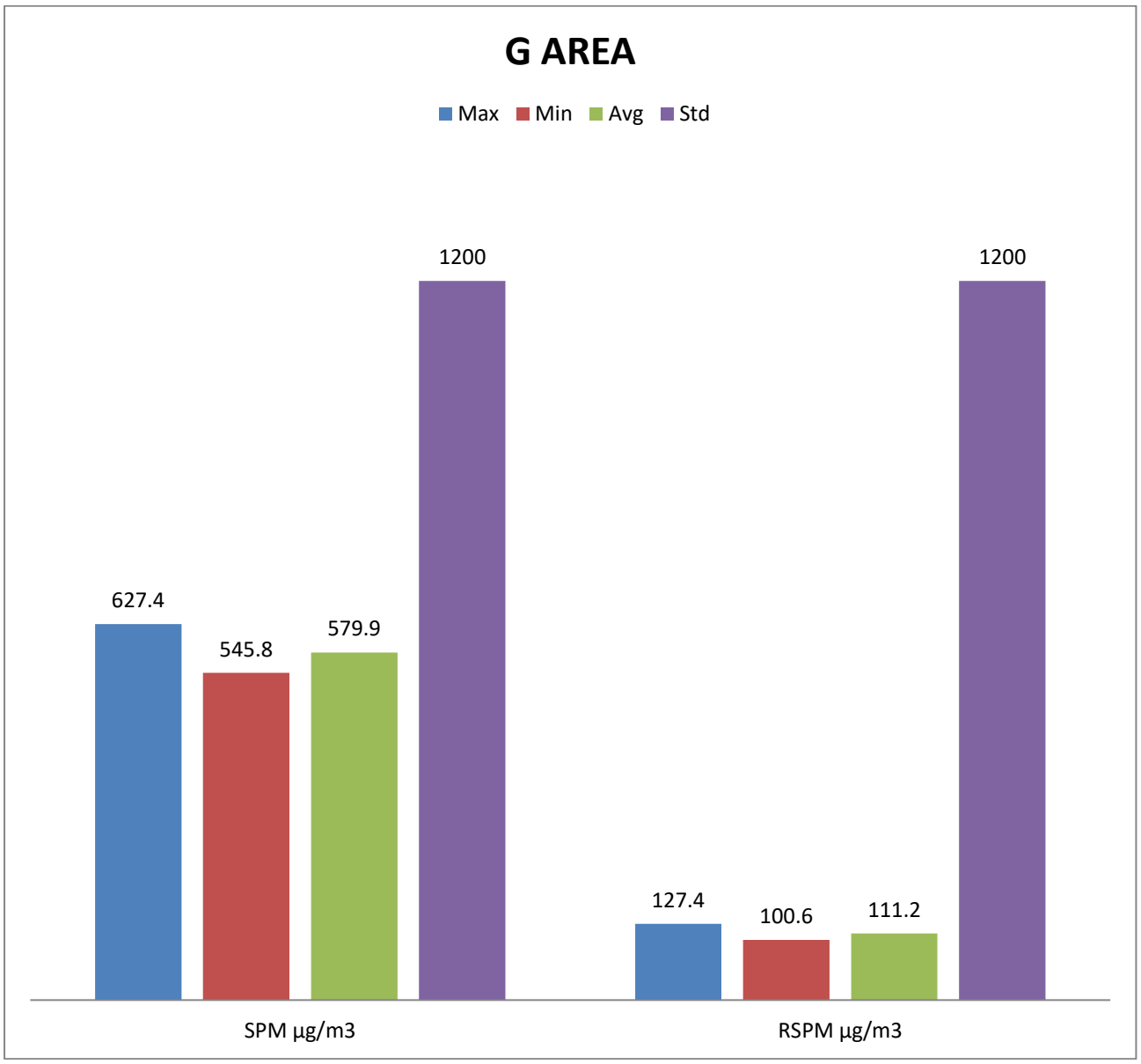
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **627.4** µg/m^3 whereas minimum concentration was observed **545.8** µg/m^3 and RSPM concentration ranges between **100.6** µg/m^3 to **127.4** µg/m^3 during the month



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/153
Test Report Issue date: 02.08.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	G Area	559.3	104.2
2.	02-07-2025	G Area	597.4	113.6
3.	03-07-2025	G Area	587.4	115.0
4.	04-07-2025	G Area	545.8	107.0
5.	05-07-2025	G Area	547.7	111.7
6.	06-07-2025	G Area	608.8	123.8
7.	07-07-2025	G Area	546.8	111.3
8.	08-07-2025	G Area	551.1	103.8
9.	09-07-2025	G Area	625.9	114.3
10.	10-07-2025	G Area	612.6	117.5
11.	11-07-2025	G Area	554.8	103.9
12.	12-07-2025	G Area	570.4	116.9
13.	13-07-2025	G Area	553.8	106.2
14.	14-07-2025	G Area	577.6	116.0
15.	15-07-2025	G Area	589.9	107.1
16.	16-07-2025	G Area	608.0	121.3
17.	17-07-2025	G Area	553.2	100.6
18.	18-07-2025	G Area	627.4	125.7
19.	19-07-2025	G Area	547.3	108.4
20.	20-07-2025	G Area	554.5	102.3
21.	21-07-2025	G Area	622.4	127.4
22.	22-07-2025	G Area	594.9	119.0
23.	23-07-2025	G Area	573.8	103.3
24.	24-07-2025	G Area	582.5	113.8
25.	25-07-2025	G Area	593.1	107.1
26.	26-07-2025	G Area	617.7	119.1
27.	27-07-2025	G Area	552.4	108.8
28.	28-07-2025	G Area	563.1	101.5
29.	29-07-2025	G Area	590.4	107.1
30.	30-07-2025	G Area	594.2	107.1
31.	31-07-2025	G Area	572.9	103.5
Average			**579.9**	**111.2**

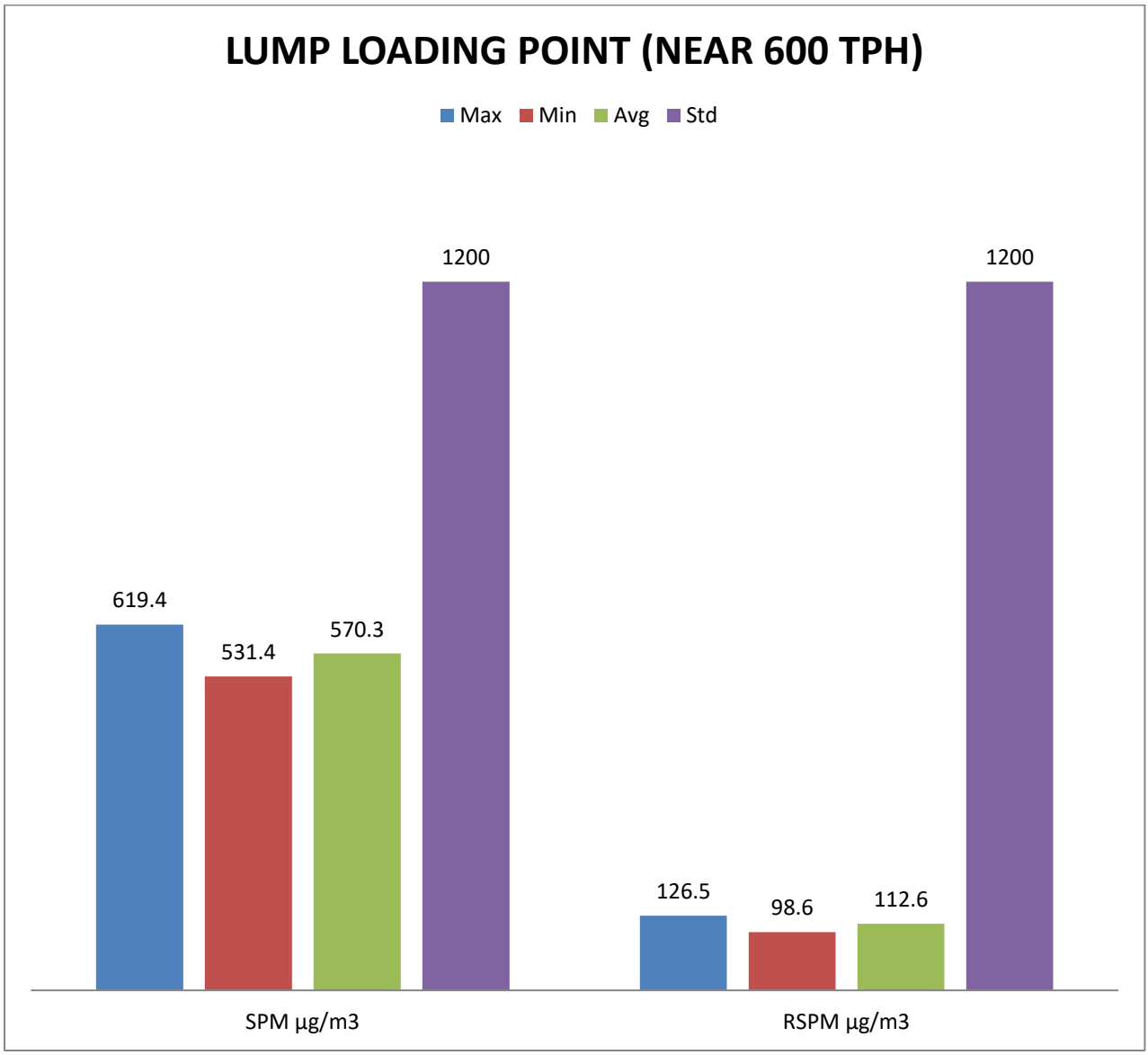
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **619.4** µg/m^3 whereas minimum concentration was observed **531.4** µg/m^3 and RSPM concentration ranges between **98.6** µg/m^3 to **126.5** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/154
Test Report Issue date: 02.05.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	Lump Loading Point (Near 600 TPH)	604.4	125.5
2.	02-07-2025	Lump Loading Point (Near 600 TPH)	533.3	109.5
3.	03-07-2025	Lump Loading Point (Near 600 TPH)	576.6	112.6
4.	04-07-2025	Lump Loading Point (Near 600 TPH)	551.1	104.1
5.	05-07-2025	Lump Loading Point (Near 600 TPH)	580.2	107.5
6.	06-07-2025	Lump Loading Point (Near 600 TPH)	581.4	115.3
7.	07-07-2025	Lump Loading Point (Near 600 TPH)	561.9	118.0
8.	08-07-2025	Lump Loading Point (Near 600 TPH)	597.4	125.5
9.	09-07-2025	Lump Loading Point (Near 600 TPH)	536.9	112.7
10.	10-07-2025	Lump Loading Point (Near 600 TPH)	611.3	116.0
11.	11-07-2025	Lump Loading Point (Near 600 TPH)	579.4	108.5
12.	12-07-2025	Lump Loading Point (Near 600 TPH)	560.8	113.5
13.	13-07-2025	Lump Loading Point (Near 600 TPH)	615.7	126.5
14.	14-07-2025	Lump Loading Point (Near 600 TPH)	549.8	103.9
15.	15-07-2025	Lump Loading Point (Near 600 TPH)	531.4	99.7
16.	16-07-2025	Lump Loading Point (Near 600 TPH)	602.8	119.1
17.	17-07-2025	Lump Loading Point (Near 600 TPH)	544.6	113.8
18.	18-07-2025	Lump Loading Point (Near 600 TPH)	569.1	104.6
19.	19-07-2025	Lump Loading Point (Near 600 TPH)	557.1	115.6
20.	20-07-2025	Lump Loading Point (Near 600 TPH)	619.4	120.4
21.	21-07-2025	Lump Loading Point (Near 600 TPH)	550.8	100.2
22.	22-07-2025	Lump Loading Point (Near 600 TPH)	533.8	102.1
23.	23-07-2025	Lump Loading Point (Near 600 TPH)	581.7	118.4
24.	24-07-2025	Lump Loading Point (Near 600 TPH)	538.9	108.7
25.	25-07-2025	Lump Loading Point (Near 600 TPH)	583.3	119.9
26.	26-07-2025	Lump Loading Point (Near 600 TPH)	612.4	119.2
27.	27-07-2025	Lump Loading Point (Near 600 TPH)	535.8	110.1
28.	28-07-2025	Lump Loading Point (Near 600 TPH)	617.9	118.2
29.	29-07-2025	Lump Loading Point (Near 600 TPH)	587.7	113.2
30.	30-07-2025	Lump Loading Point (Near 600 TPH)	533.0	109.1
31.	31-07-2025	Lump Loading Point (Near 600 TPH)	538.9	98.6
Average			**570.3**	**112.6**

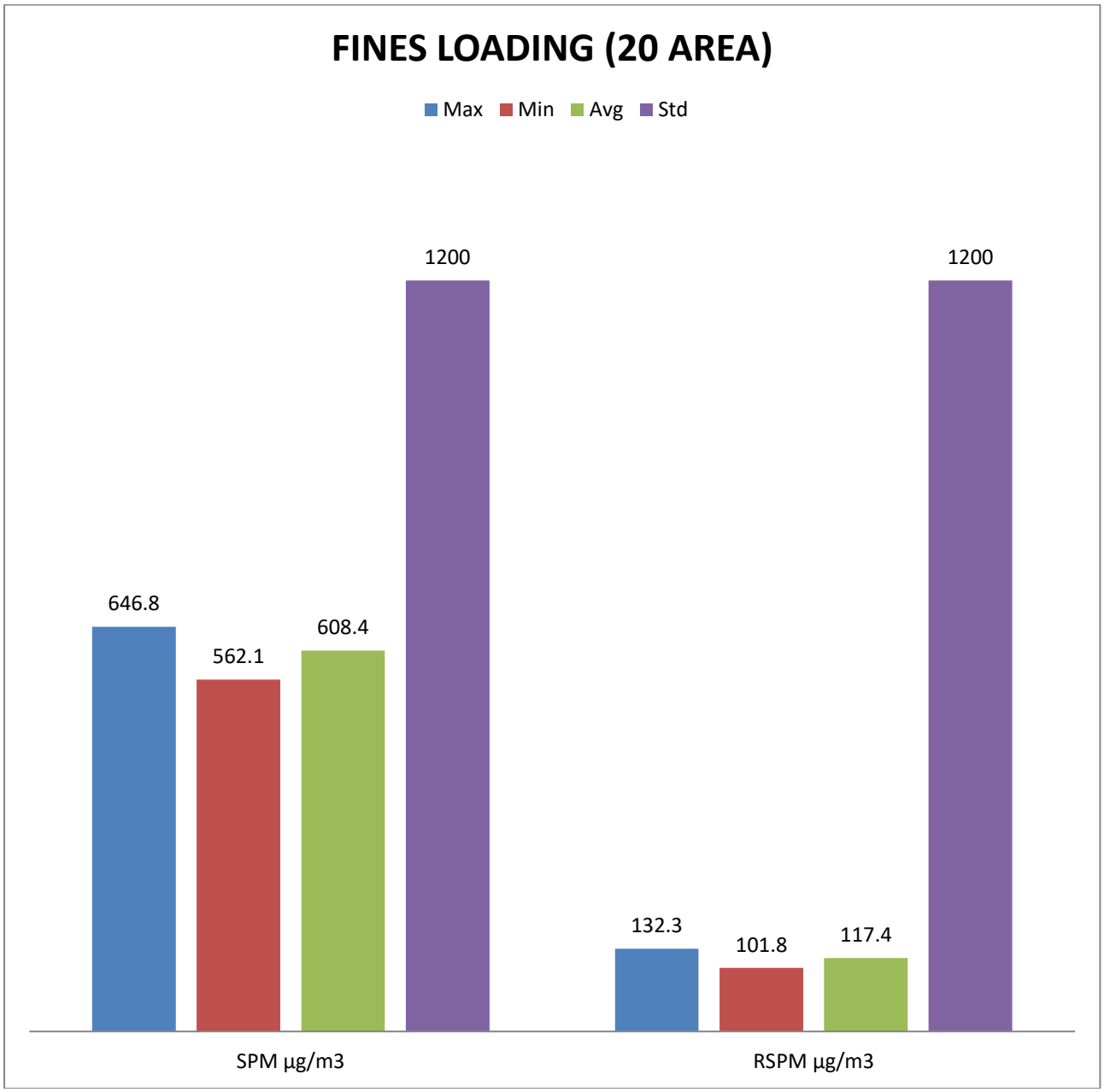
----End of Report----

Ecomen Laboratories Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **646.8** µg/m^3 whereas minimum concentration was observed **562.1** µg/m^3 and RSPM concentration ranges between **101.8** µg/m^3 to **117.4** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/155
Test Report Issue date: 02.08.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	Fines Loading (20 area)	646.8	117.6
2.	02-07-2025	Fines Loading (20 area)	598.7	108.2
3.	03-07-2025	Fines Loading (20 area)	624.2	125.4
4.	04-07-2025	Fines Loading (20 area)	602.3	116.2
5.	05-07-2025	Fines Loading (20 area)	628.7	124.5
6.	06-07-2025	Fines Loading (20 area)	641.3	117.9
7.	07-07-2025	Fines Loading (20 area)	562.1	106.4
8.	08-07-2025	Fines Loading (20 area)	564.3	101.8
9.	09-07-2025	Fines Loading (20 area)	567.3	104.1
10.	10-07-2025	Fines Loading (20 area)	612.7	117.4
11.	11-07-2025	Fines Loading (20 area)	563.2	106.6
12.	12-07-2025	Fines Loading (20 area)	632.6	128.5
13.	13-07-2025	Fines Loading (20 area)	604.4	123.0
14.	14-07-2025	Fines Loading (20 area)	632.5	121.5
15.	15-07-2025	Fines Loading (20 area)	620.0	119.9
16.	16-07-2025	Fines Loading (20 area)	580.2	110.9
17.	17-07-2025	Fines Loading (20 area)	631.3	132.3
18.	18-07-2025	Fines Loading (20 area)	606.2	117.6
19.	19-07-2025	Fines Loading (20 area)	619.7	116.8
20.	20-07-2025	Fines Loading (20 area)	633.7	116.3
21.	21-07-2025	Fines Loading (20 area)	566.8	107.8
22.	22-07-2025	Fines Loading (20 area)	592.8	117.3
23.	23-07-2025	Fines Loading (20 area)	612.1	123.6
24.	24-07-2025	Fines Loading (20 area)	628.4	121.1
25.	25-07-2025	Fines Loading (20 area)	628.0	116.7
26.	26-07-2025	Fines Loading (20 area)	590.8	120.4
27.	27-07-2025	Fines Loading (20 area)	582.5	109.6
28.	28-07-2025	Fines Loading (20 area)	637.3	118.0
29.	29-07-2025	Fines Loading (20 area)	646.2	125.6
30.	30-07-2025	Fines Loading (20 area)	594.7	122.9
31.	31-07-2025	Fines Loading (20 area)	609.0	122.7
Average			**608.4**	**117.4**

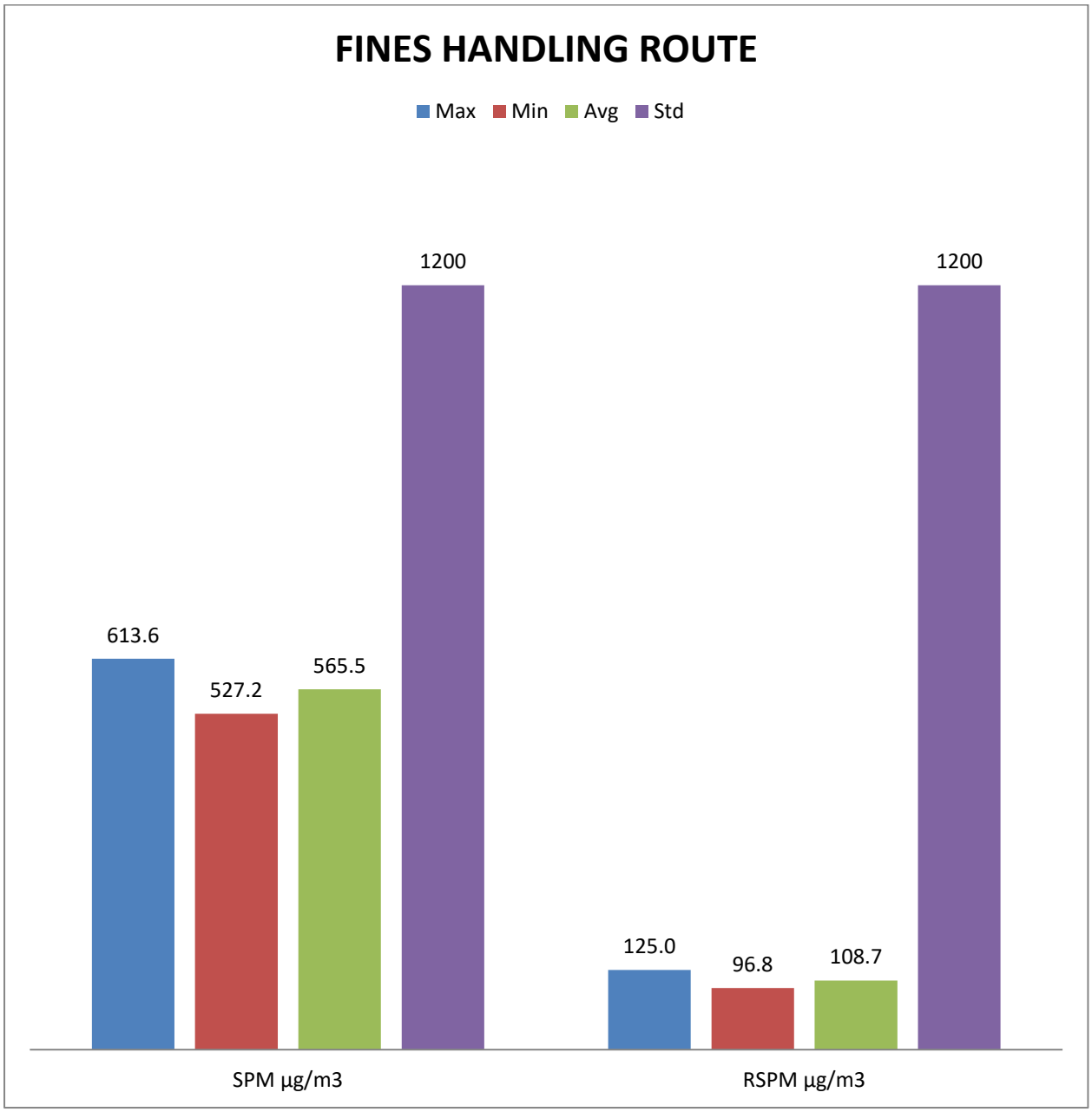
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **613.6** µg/m^3 whereas minimum concentration was observed **527.2** µg/m^3 and RSPM concentration ranges between **96.8** µg/m^3 to **125.0** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/156
Test Report Issue date: 02.05.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	Fines Handling Route	550.9	102.5
2.	02-07-2025	Fines Handling Route	527.3	99.2
3.	03-07-2025	Fines Handling Route	547.7	102.1
4.	04-07-2025	Fines Handling Route	536.2	96.8
5.	05-07-2025	Fines Handling Route	557.4	114.3
6.	06-07-2025	Fines Handling Route	590.7	114.8
7.	07-07-2025	Fines Handling Route	598.2	116.4
8.	08-07-2025	Fines Handling Route	613.6	112.7
9.	09-07-2025	Fines Handling Route	565.1	102.8
10.	10-07-2025	Fines Handling Route	540.3	101.3
11.	11-07-2025	Fines Handling Route	583.3	110.5
12.	12-07-2025	Fines Handling Route	534.0	103.1
13.	13-07-2025	Fines Handling Route	565.7	112.9
14.	14-07-2025	Fines Handling Route	587.0	120.6
15.	15-07-2025	Fines Handling Route	596.0	111.9
16.	16-07-2025	Fines Handling Route	576.9	112.7
17.	17-07-2025	Fines Handling Route	575.5	109.0
18.	18-07-2025	Fines Handling Route	569.6	111.7
19.	19-07-2025	Fines Handling Route	546.7	103.1
20.	20-07-2025	Fines Handling Route	589.0	115.5
21.	21-07-2025	Fines Handling Route	550.5	103.7
22.	22-07-2025	Fines Handling Route	549.8	114.3
23.	23-07-2025	Fines Handling Route	565.5	107.6
24.	24-07-2025	Fines Handling Route	539.9	100.0
25.	25-07-2025	Fines Handling Route	608.5	125.0
26.	26-07-2025	Fines Handling Route	544.2	98.1
27.	27-07-2025	Fines Handling Route	568.2	113.7
28.	28-07-2025	Fines Handling Route	559.0	101.3
29.	29-07-2025	Fines Handling Route	561.5	114.4
30.	30-07-2025	Fines Handling Route	527.2	105.2
31.	31-07-2025	Fines Handling Route	605.1	111.3
Average			**565.5**	**108.7**

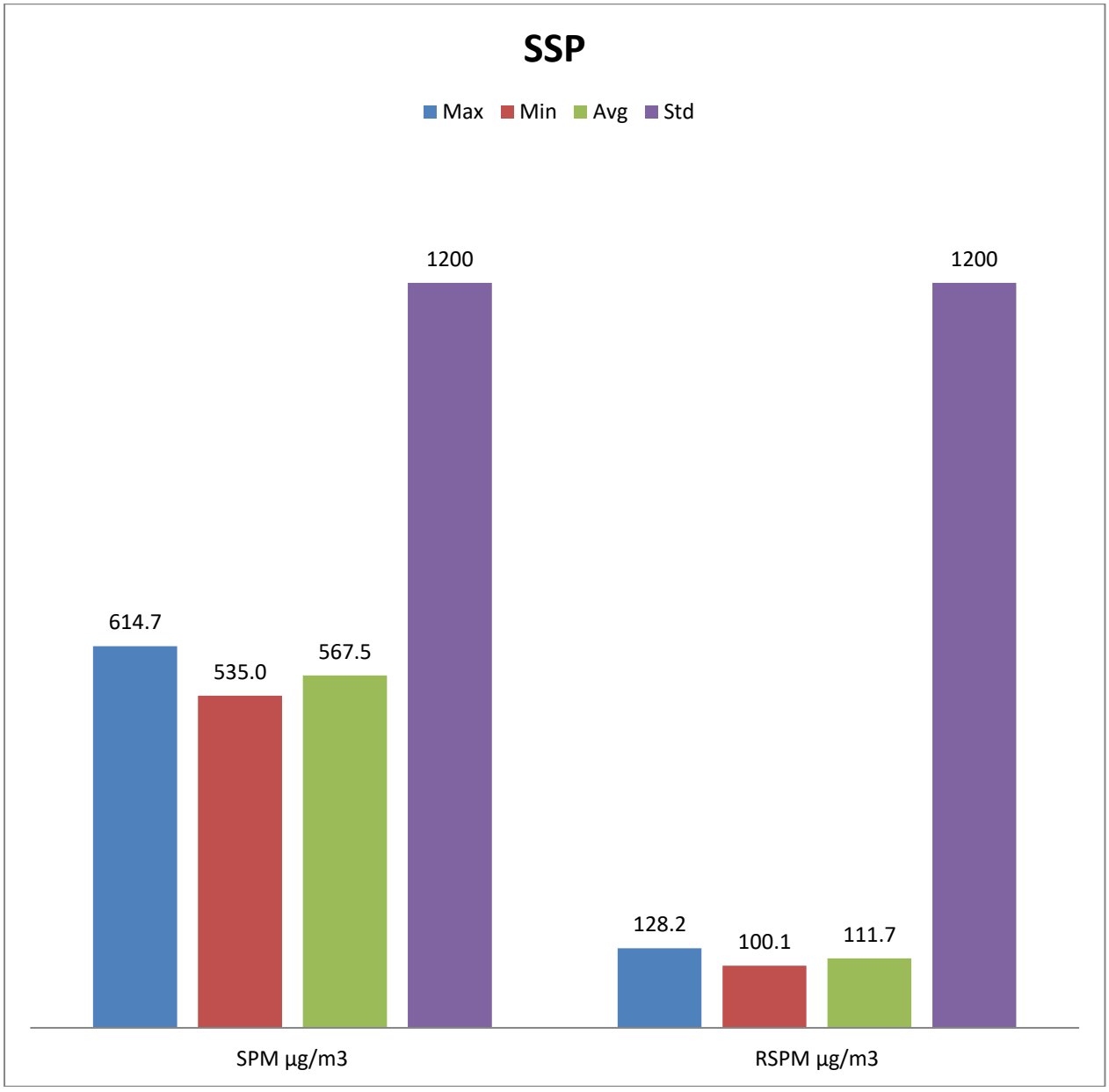
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **614.7** µg/m^3 whereas minimum concentration was observed **535.0** µg/m^3 and RSPM concentration ranges between **100.1** µg/m^3 to **128.2** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/157
Test Report Issue date: 02.08.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	SSP	540.0	107.7
2.	02-07-2025	SSP	597.8	108.8
3.	03-07-2025	SSP	577.6	104.5
4.	04-07-2025	SSP	577.1	109.2
5.	05-07-2025	SSP	548.9	112.6
6.	06-07-2025	SSP	614.6	122.5
7.	07-07-2025	SSP	564.8	108.8
8.	08-07-2025	SSP	602.2	123.0
9.	09-07-2025	SSP	556.2	105.0
10.	10-07-2025	SSP	545.2	100.1
11.	11-07-2025	SSP	548.6	102.1
12.	12-07-2025	SSP	571.2	114.9
13.	13-07-2025	SSP	556.2	110.3
14.	14-07-2025	SSP	559.9	109.6
15.	15-07-2025	SSP	557.5	106.3
16.	16-07-2025	SSP	614.7	128.2
17.	17-07-2025	SSP	565.6	113.9
18.	18-07-2025	SSP	570.1	118.0
19.	19-07-2025	SSP	535.0	110.1
20.	20-07-2025	SSP	561.4	102.5
21.	21-07-2025	SSP	601.8	123.0
22.	22-07-2025	SSP	592.9	118.7
23.	23-07-2025	SSP	570.1	116.1
24.	24-07-2025	SSP	540.5	112.4
25.	25-07-2025	SSP	559.5	116.4
26.	26-07-2025	SSP	559.7	105.9
27.	27-07-2025	SSP	549.8	105.3
28.	28-07-2025	SSP	571.7	107.6
29.	29-07-2025	SSP	561.1	105.9
30.	30-07-2025	SSP	566.7	117.6
31.	31-07-2025	SSP	555.3	116.3
Average			**567.5**	**111.7**

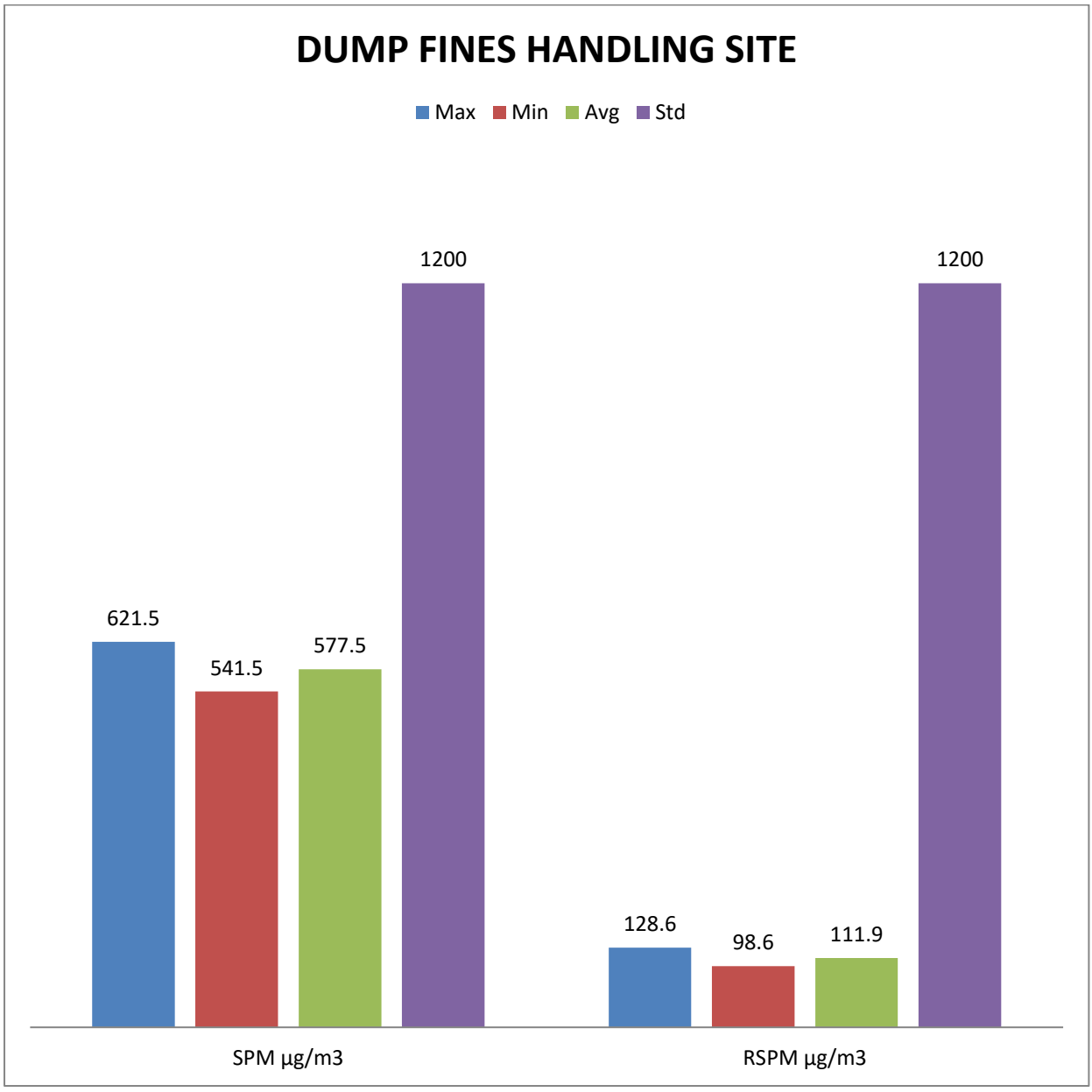
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **621.5** µg/m^3 whereas minimum concentration was observed **541.5** µg/m^3 and RSPM concentration ranges between **98.6** µg/m^3 to **128.6** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/158
Test Report Issue date: 02.08.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	Dump Fines Handling Site	612.1	122.0
2.	02-07-2025	Dump Fines Handling Site	595.1	122.0
3.	03-07-2025	Dump Fines Handling Site	609.3	121.2
4.	04-07-2025	Dump Fines Handling Site	560.9	101.0
5.	05-07-2025	Dump Fines Handling Site	618.9	128.6
6.	06-07-2025	Dump Fines Handling Site	567.0	102.3
7.	07-07-2025	Dump Fines Handling Site	593.0	108.9
8.	08-07-2025	Dump Fines Handling Site	548.0	109.1
9.	09-07-2025	Dump Fines Handling Site	583.1	114.4
10.	10-07-2025	Dump Fines Handling Site	541.5	98.6
11.	11-07-2025	Dump Fines Handling Site	549.2	114.5
12.	12-07-2025	Dump Fines Handling Site	563.9	108.9
13.	13-07-2025	Dump Fines Handling Site	566.3	111.1
14.	14-07-2025	Dump Fines Handling Site	553.4	103.5
15.	15-07-2025	Dump Fines Handling Site	567.1	117.7
16.	16-07-2025	Dump Fines Handling Site	556.7	112.2
17.	17-07-2025	Dump Fines Handling Site	621.5	120.4
18.	18-07-2025	Dump Fines Handling Site	584.6	108.0
19.	19-07-2025	Dump Fines Handling Site	613.0	111.6
20.	20-07-2025	Dump Fines Handling Site	562.2	102.8
21.	21-07-2025	Dump Fines Handling Site	619.4	126.6
22.	22-07-2025	Dump Fines Handling Site	541.9	102.5
23.	23-07-2025	Dump Fines Handling Site	569.6	115.9
24.	24-07-2025	Dump Fines Handling Site	556.4	104.6
25.	25-07-2025	Dump Fines Handling Site	601.1	120.8
26.	26-07-2025	Dump Fines Handling Site	607.9	125.4
27.	27-07-2025	Dump Fines Handling Site	552.3	100.8
28.	28-07-2025	Dump Fines Handling Site	609.7	111.7
29.	29-07-2025	Dump Fines Handling Site	553.8	102.2
30.	30-07-2025	Dump Fines Handling Site	551.9	103.4
31.	31-07-2025	Dump Fines Handling Site	570.4	117.5
Average			**577.5**	**111.9**

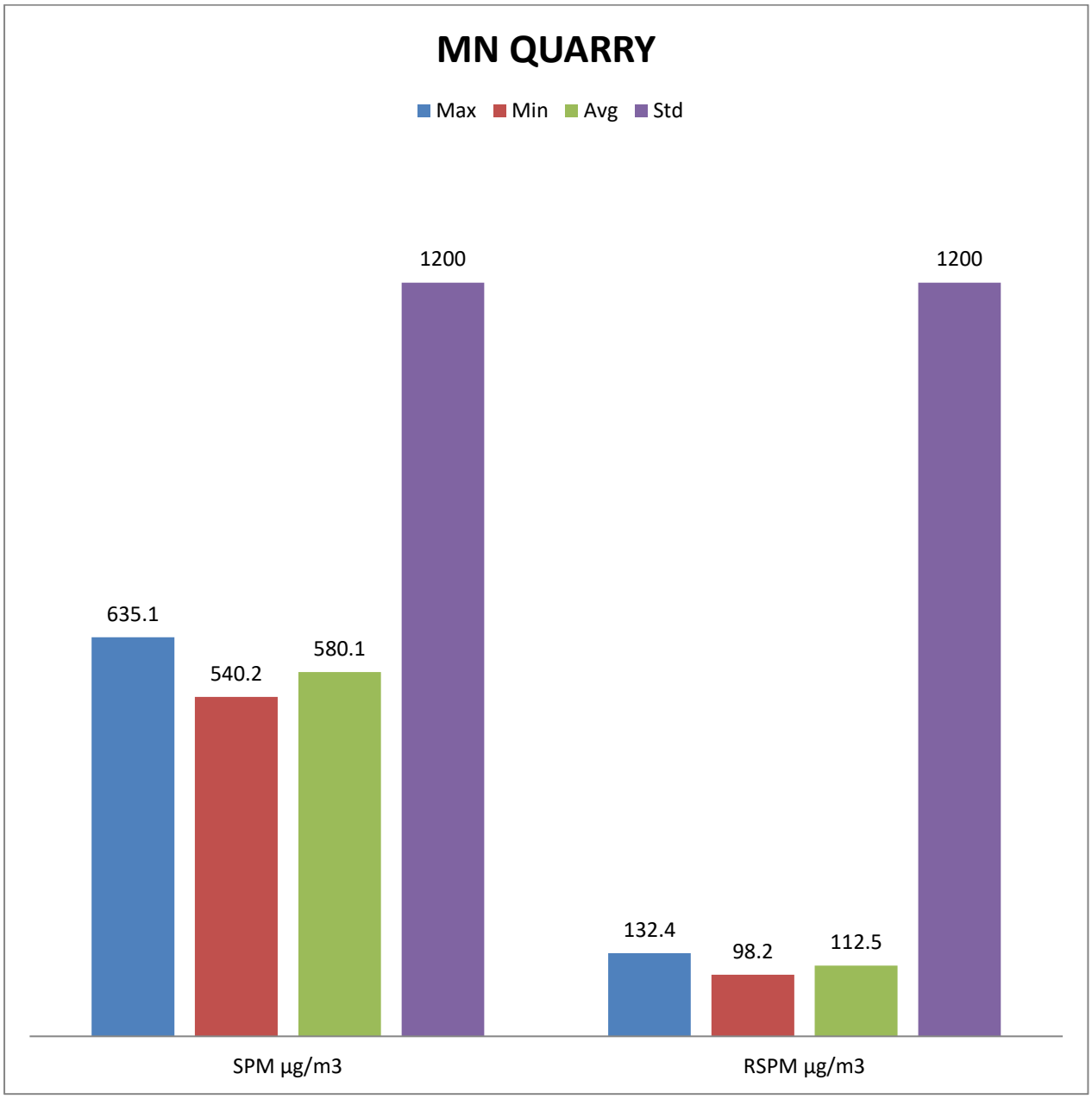
----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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 **635.1** µg/m^3 whereas minimum concentration was observed **540.2** µg/m^3 and RSPM concentration ranges between **98.2** µg/m^3 to **132.4** µg/m^3 during the month.



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/159
Test Report Issue date: 02.08.2025

FUGITIVE EMISSION MONITORING REPORT FOR JULY 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.	01-07-2025	Mn Quarry	591.5	114.9
2.	02-07-2025	Mn Quarry	558.3	111.0
3.	03-07-2025	Mn Quarry	575.0	109.5
4.	04-07-2025	Mn Quarry	578.8	108.0
5.	05-07-2025	Mn Quarry	566.0	113.7
6.	06-07-2025	Mn Quarry	629.2	122.3
7.	07-07-2025	Mn Quarry	545.3	105.8
8.	08-07-2025	Mn Quarry	540.2	112.9
9.	09-07-2025	Mn Quarry	587.1	118.4
10.	10-07-2025	Mn Quarry	558.6	117.2
11.	11-07-2025	Mn Quarry	541.7	101.0
12.	12-07-2025	Mn Quarry	544.7	110.2
13.	13-07-2025	Mn Quarry	555.4	102.8
14.	14-07-2025	Mn Quarry	577.5	117.2
15.	15-07-2025	Mn Quarry	614.0	114.5
16.	16-07-2025	Mn Quarry	635.1	123.2
17.	17-07-2025	Mn Quarry	590.5	108.2
18.	18-07-2025	Mn Quarry	543.2	103.2
19.	19-07-2025	Mn Quarry	548.2	101.5
20.	20-07-2025	Mn Quarry	561.6	111.6
21.	21-07-2025	Mn Quarry	621.7	114.7
22.	22-07-2025	Mn Quarry	541.7	98.2
23.	23-07-2025	Mn Quarry	599.1	115.6
24.	24-07-2025	Mn Quarry	631.8	132.4
25.	25-07-2025	Mn Quarry	561.9	114.9
26.	26-07-2025	Mn Quarry	604.4	119.0
27.	27-07-2025	Mn Quarry	610.1	113.7
28.	28-07-2025	Mn Quarry	601.5	116.5
29.	29-07-2025	Mn Quarry	597.9	113.1
30.	30-07-2025	Mn Quarry	542.4	99.9
31.	31-07-2025	Mn Quarry	628.8	120.9
Average			**580.1**	**112.5**

----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

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

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0087/0373/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Surface Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0373/07/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.61	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	20.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	22.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.2	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.14	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	5.88	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.13	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.04	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	IS 3025 (Part-46, Clause No-5)	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0087/0371/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Surface Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0371/07/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.43	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	28.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	18.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.5	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.14	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	<5	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.10	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.06	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulphide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	IS 3025 (Part-46, Clause No-5)	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0087/0375/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Surface Water		
Sample Registration No.	0087	**Name of Location**	Panpash Nallah
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0375/07/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.46	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	36.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	28.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.5	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	6.22	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.22	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.10	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	IS 3025 (Part-46, Clause No-5)	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0087/0376/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Surface Water		
Sample Registration No.	0087	**Name of Location**	Karo River Intake
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0376/07/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.28	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	32.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	30.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.7	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	6.12	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.08	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	<0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	IS 3025 (Part-46, Clause No-5)	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0087/0373/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	**05.08.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0373/07/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.98	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.10	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.08	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	0.04	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	IS 3025 (Part46, Clause No.5)	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 5210(B) 23rd:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Ecomen Laboratories Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.

CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3

Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka

+91 080 29533368

support@ecomen.in

www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0087/0374/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	**05.08.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0374/07/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.76	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.12	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.10	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	IS 3025 (Part46, Clause No.5)	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 23rd:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By

Technical Manager

(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0087/0375/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Waste Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0375/07/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.68	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540 D	5 -5000	38.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part 58)	1 -1000	20.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	IS 3025 (Part 44)	1 -1000	2.9	30.0
5.	Oil & Grease as O&G	mg/l	IS 3025 (Part39, Clause No.5)	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 4500 F D-24th Ed.: 2023	0.05 -10	0.24	2.0
7.	Nitrate nitrogen	mg/l	APHA 4500 NO2 B-24th Ed.: 2023	5-100	7.0	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.20	-
9.	Arsenic as As	mg/l	APHA 3125-B-23rd Edition: 2017	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	IEC 62321: 2021	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 3125 B-24th Ed.:2023	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 5530 C,D-24th Ed.:2023	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.: 2023	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	IS 3025 (Part46, Clause No.5)	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 3125 B-24th Ed.: 2023	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 3125 B-23rd Ed: 2017	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	4.4	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By

Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0087/0376/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Waste Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0376/07/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.74	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540 D	5 -5000	40.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part 58)	1 -1000	24.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	IS 3025 (Part 44)	1 -1000	3.2	30.0
5.	Oil & Grease as O&G	mg/l	IS 3025 (Part39, Clause No.5)	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 4500 F D-24th Ed.: 2023	0.05 -10	0.21	2.0
7.	Nitrate nitrogen	mg/l	APHA 4500 NO2 B-24th Ed.: 2023	5-100	5.47	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.22	-
9.	Arsenic as As	mg/l	APHA 3125-B-23rd Edition: 2017	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	IEC 62321: 2021	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 3125 B-24th Ed.:2023	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 5530 C,D-24th Ed.:2023	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.: 2023	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	IS 3025 (Part46, Clause No.5)	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 3125 B-24th Ed.: 2023	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 3125 B-23rd Ed: 2017	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	5.2	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

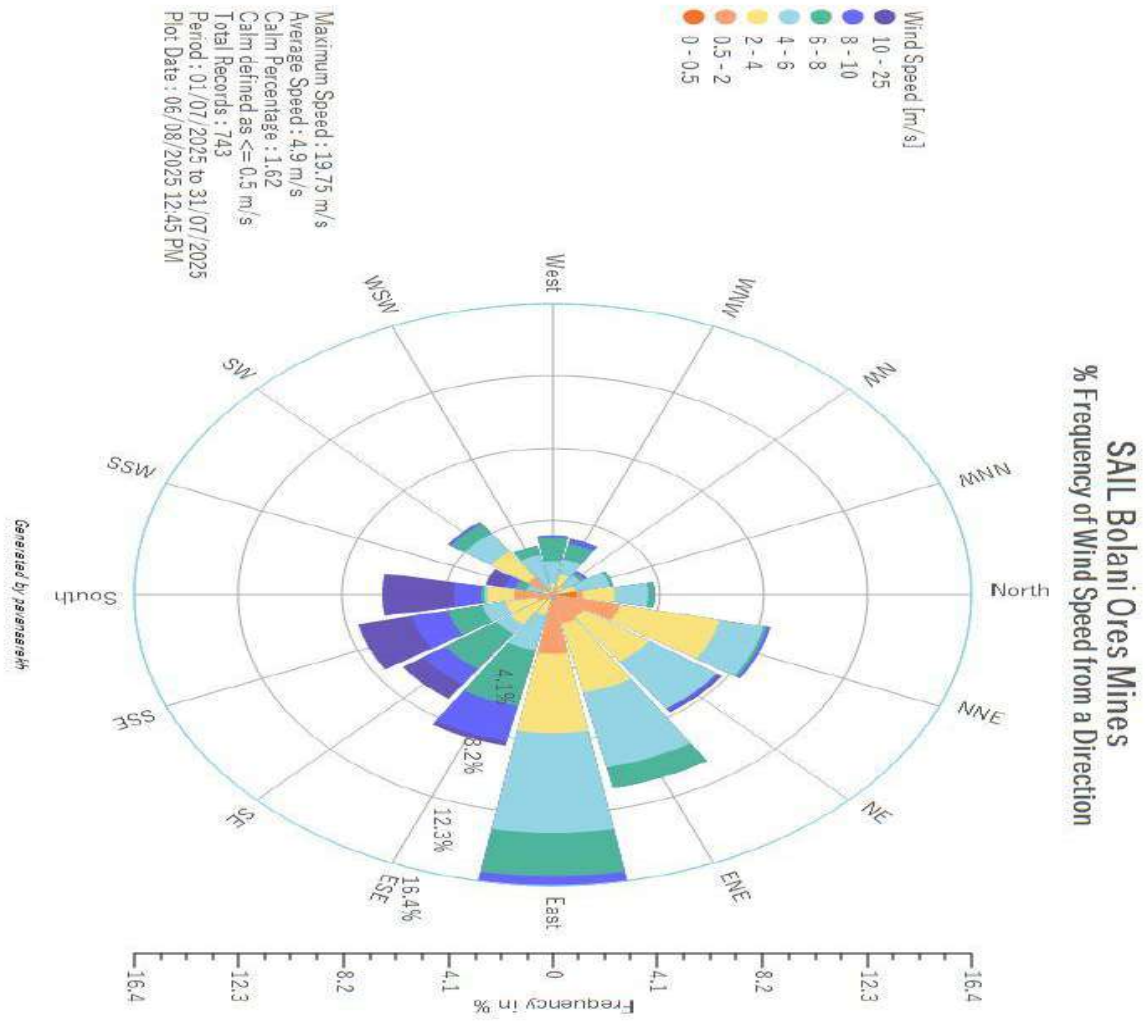
2.4.1 Meteorology

Summarized meteorological data such as temperature, relative humidity, rainfall, and wind speed and wind direction are given in **Table No. 2.4.2.** During the month of 'JULY 2025'the temperature varied from 25.3^{0}C to 37.5^{0}C & Relative Humidity varied from 48.3% to 98.9%. The maximum wind speed recorded during the month was 19.75 m/s and the overall average wind speed is calculated to be 4.9m/s, 1.62% of the time the wind remained calm (<0.5 m/s). The predominant wind direction as observed to be from East (E) direction during the month. The total rainfall observed during the month was 219 & 15 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 JULY 2025 are given below.

Table No. 2.4.2: Results of Site Specific Meteorological Data

Parameters		**JULY, 2025**
Temperature (^{0}C)	Maximum	37.5
	Minimum	25.3
	Average	28.94
Relative Humidity (%)	Maximum	98.9
	Minimum	48.3
	Average	85.07
Wind Speed(m/s)	Maximum	19.75
	Average	4.9
Wind Direction (%)	N	4.04
	NNE	8.74
	NE	8.07
	ENE	11.18
	E	16.42
	ESE	8.75
	SE	7.13
	SSE	7.8
	S	6.73
	SSW	2.68
	SW	4.97
	WSW	2.82
	W	3.36
	WNW	3.23
	NW	1.61
	NNW	2.42
	CALM	1.62
Rainfall(mm)	Monthly Total	219
	No. of rainy days	15

Figure No.2: Wind Rose (24 hrly) During the Month of JULY' 2025



Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AWS/66
Test Report Issue date: 02.08.2025

METEROLOGICAL MONITORING REPORT FOR JULY 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 (℃)		Relative Humidity (%)		Wind Speed (m/s)		Rainfall (mm)
	Max.	Min.	Max.	Min.	Max.	Min.	
01.07.2025	30.1	26.8	98.1	71.5	14.3	0	4.2
02.07.2025	28.4	25.8	91.1	76.8	19.8	0	6.2
03.07.2025	29.1	25.5	98.8	80.0	11.3	0	25.6
04.07.2025	31.4	25.8	98.8	69.4	8.75	0	12.6
05.07.2025	34.2	27.1	89.3	60.9	10.5	0	0.4
06.07.2025	34.5	27.2	86.8	56.2	9.25	0	0
07.07.2025	37.4	25.7	98.8	50.1	12.8	0	38.6
08.07.2025	36.6	25.3	98.7	51.2	9.5	0	0
09.07.2025	37.4	26.0	98.7	48.3	6.0	0	0
10.07.2025	37.5	26.1	98.7	51.1	12.3	0	0
11.07.2025	36.5	27.2	90.5	53.6	10.3	0	0
12.07.2025	34.5	27.4	88.8	59.3	13.3	0	0
13.07.2025	35.8	26.5	86.7	53.3	10.3	0	0
14.07.2025	36.9	26.4	98.8	54.5	10.8	0	31.0
15.07.2025	33.5	26.8	98.8	65.2	6.5	0	1.8
16.07.2025	35.5	26.6	98.8	55.4	6.25	0	2.8
17.07.2025	35.2	27.2	98.8	59.5	5.75	0	0
18.07.2025	35.0	26.3	98.8	57.8	9.5	0	0.6
19.07.2025	30.4	26.9	98.9	76.8	7.75	0	11.2
20.07.2025	31.8	26.1	98.9	78.6	9.5	0	2.8
21.07.2025	34.0	27.0	98.8	66.0	5.5	0	14.0
22.07.2025	34.7	26.2	98.8	61.3	4.75	0	5.2
23.07.2025	33.1	25.9	98.8	70.1	9.5	0	0.2
24.07.2025	30.4	25.8	98.8	78.2	8.75	0	1.0
25.07.2025	32.2	25.6	98.8	69.6	13.8	0	0
26.07.2025	35.8	26.9	98.8	57.2	15.0	0	5.6
27.07.2025	31.7	26.0	98.9	77.4	18.3	0	38.0
28.07.2025	36.8	26.2	98.9	53.1	5.75	0	5.0
29.07.2025	33.3	26.4	98.8	64.3	4.5	0	1.2
30.07.2025	31.1	27.0	98.8	73.6	8.0	0	0
31.07.2025	32.1	27.2	98.7	69.9	19.3	0	11.0

----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

2.5 Surface Flow Rate (Nallah/Stream):

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/SWF/56
Test Report Issue date: 02.08.2025

SURFACE FLOW RATE MONITORING REPORT FOR JULY 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	0.72
Jhikaria nallah	SWFM2	0.45
Panposh Nallah	SWFM3	0.42

----End of Report----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Midhun G)

SAIL BOLANI ORES MINES(RSP)

ENVIRONMENTAL MONITORING

REPORT

AUGUST 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/67/2025-26 dated.07.07.2025 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 '**August-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. 21.12.2012 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-2025-26 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	$22^0$6'31.68''N	$85^0$19'34.41''E
Karo Near Lease Boundary		SWQ-2	$22^0$7'26.27'' N	$85^0$21'52.95''E
Karo River Intake		SWQ-3	$22^0$5.13.02' N	$85^0$19'57.88''E

Jhikaria nallah before joining Karo		SWQ-4	22⁰5'22.50" N	85⁰19'10.05"E
Drinking Water Quality				
Mount Club Tap Water	Monthly Once	DW-1	22⁰6'56.24" N	85⁰19'58.21"E
Karo Guest House Tap Water		DW-2	22⁰5'36.68" N	85⁰20'32.09"E
Effluent Waste Water				
Oil Catch Pit Water Bottom Garage	Monthly Once	EWW-1	22⁰6'27.11" N	85⁰19'37.62"E
Oil Catch pit water G-Area		EWW-2	22⁰6'1.83''N	85⁰18'24.16''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	22O 05' 27.20"N	85O 19'27.13"E
Bolani Gouda Basti-Well water		GWQ-2	22O 05'40.97"N	85O 20'2.45"E
Balagoda Village-Well water		GWQ-3	22O 05'57.02"N	85O 20'27.41"E

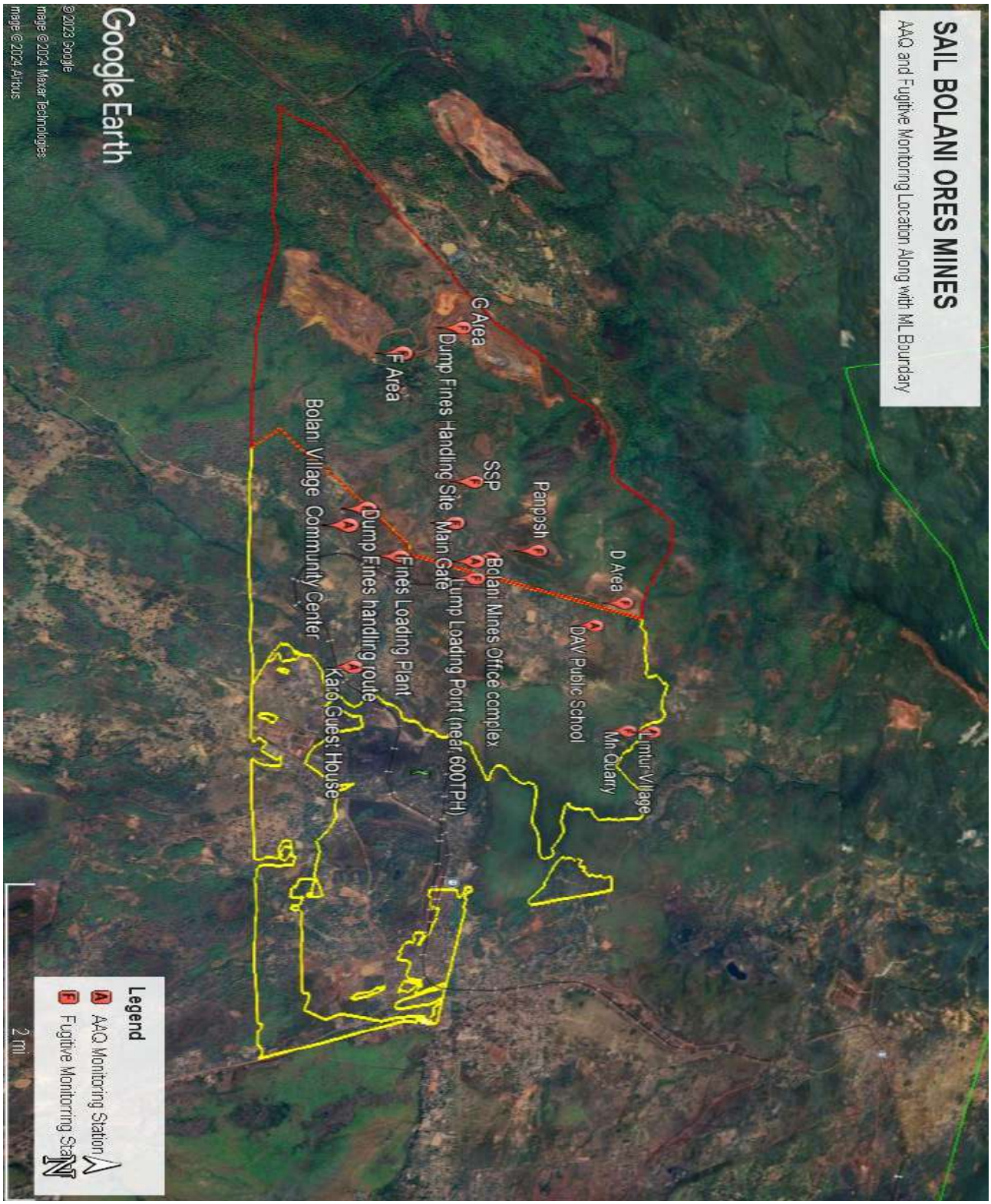
2.5 Weather/Meteorology

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 August-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	58.0	50.4	54.51	23.0	15.2	19.09
2.	Dav Public School	A2	57.6	50.2	54.16	22.9	15.3	19.51
3.	Main Gate	A3	58.0	50.1	53.86	22.9	15.4	19.48
4.	Bolani Mines Office Complex	A4	57.9	50.3	53.65	22.6	15.5	19.66
5.	Limtur Village	A5	57.8	50.1	54.40	22.9	15.5	20.06
6.	Karo Guest House	A6	57.9	50.2	53.95	22.9	15.3	19.67
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	18.8	16.1	17.34	18.9	15.1	16.84
2.	Dav Public School	A2	18.8	16.1	17.63	18.9	15.1	16.95
3.	Main Gate	A3	19.0	16.1	17.57	19.0	15.1	17.23
4.	Bolani Mines Office Complex	A4	19.0	16.1	17.48	18.9	15.0	16.99
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)

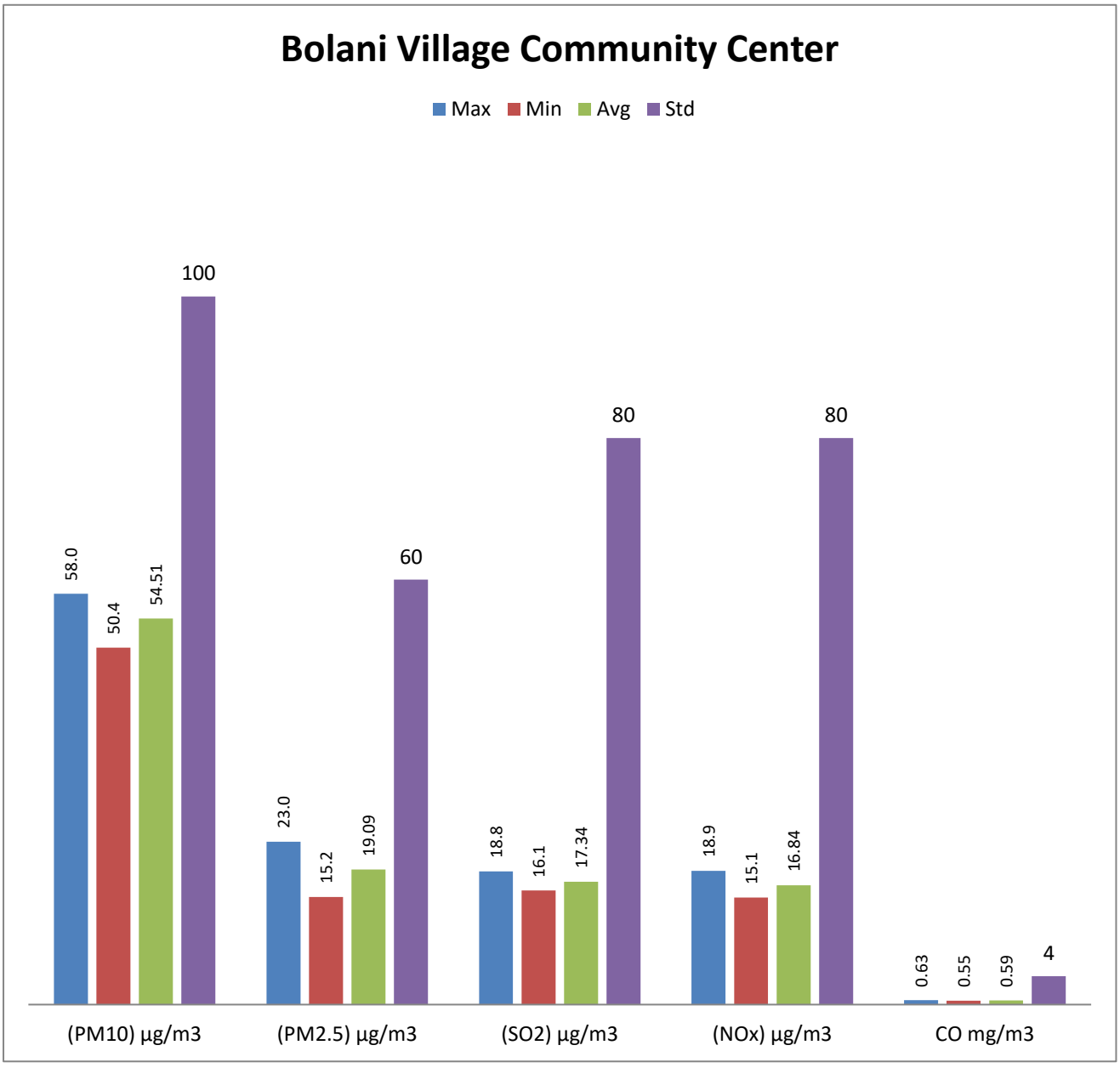
Table No. 3.1(c): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	CO		
			Max.	Min.	Avg.
1.	Bolani Village Community Center	A1	0.63	0.55	0.59
2.	Dav Public School	A2	0.64	0.55	0.60
3.	Main Gate	A3	0.63	0.55	0.59
4.	Bolani Mines Office Complex	A4	0.64	0.55	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 **58.0** µg/m³ whereas minimum concentration was observed **50.4** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **15.2** µg/m³ to **23.0** µg/m³, SO_2 concentration ranges between **16.1** µg/m³ to **18.8** µg/m³, NO_x as (NO_2) concentration ranges between **15.1** µg/m³ to **18.9** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.63** mg/m³ was observed during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/160
Test Report Issue date: 02.09.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST 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/m^3	Particulate Matter ($PM_{2.5}$) µg/m^3	Sulphur Di-oxide (SO_2) µg/m^3	Nitrogen Oxides (NO_x) µg/m^3	Carbon mono-oxides as CO mg/m^3
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.	01.08.2025	50.7	21.4	18.1	16.5	0.61
2.	02.08.2025	51.0	18.0	16.1	15.3	0.58
3.	03.08.2025	50.4	20.5	18.6	16.4	0.59
4.	04.08.2025	57.5	20.9	18.2	15.6	0.63
5.	05.08.2025	54.2	20.1	16.6	18.4	0.57
6.	06.08.2025	56.5	19.4	16.5	17.0	0.62
7.	07.08.2025	57.3	23.0	17.8	16.7	0.63
8.	08.08.2025	56.6	18.5	16.1	18.1	0.56
9.	09.08.2025	54.5	22.9	16.6	15.6	0.58
10.	10.08.2025	50.8	18.3	18.8	16.8	0.59
11.	11.08.2025	52.1	21.6	16.4	16.6	0.61
12.	12.08.2025	53.7	21.6	17.7	17.6	0.60
13.	13.08.2025	50.5	21.2	16.2	17.0	0.60
14.	14.08.2025	56.4	20.0	16.4	15.5	0.55
15.	15.08.2025	52.3	18.9	18.4	17.5	0.57
16.	16.08.2025	57.8	18.6	16.7	15.3	0.63
17.	17.08.2025	54.0	17.5	18.3	16.3	0.55
18.	18.08.2025	56.9	17.0	18.2	16.6	0.56
19.	19.08.2025	50.7	16.5	17.2	18.8	0.62
20.	20.08.2025	57.7	18.5	16.1	16.5	0.58
21.	21.08.2025	54.2	15.4	17.1	16.3	0.61
22.	22.08.2025	57.2	18.5	16.5	15.7	0.62
23.	23.08.2025	58.0	17.5	16.8	17.5	0.62
24.	24.08.2025	56.1	15.2	17.7	17.7	0.58
25.	25.08.2025	57.4	16.3	17.5	15.1	0.56
26.	26.08.2025	51.9	18.6	18.0	18.5	0.61
27.	27.08.2025	54.0	19.4	18.3	17.7	0.56
28.	28.08.2025	54.3	18.0	17.6	17.2	0.56
29.	29.08.2025	54.7	20.5	18.2	16.5	0.58
30.	30.08.2025	55.4	18.7	17.0	16.9	0.56
31.	31.08.2025	55.0	19.4	17.8	18.9	0.57
Average		**54.5**	**19.1**	**17.3**	**16.8**	**0.59**

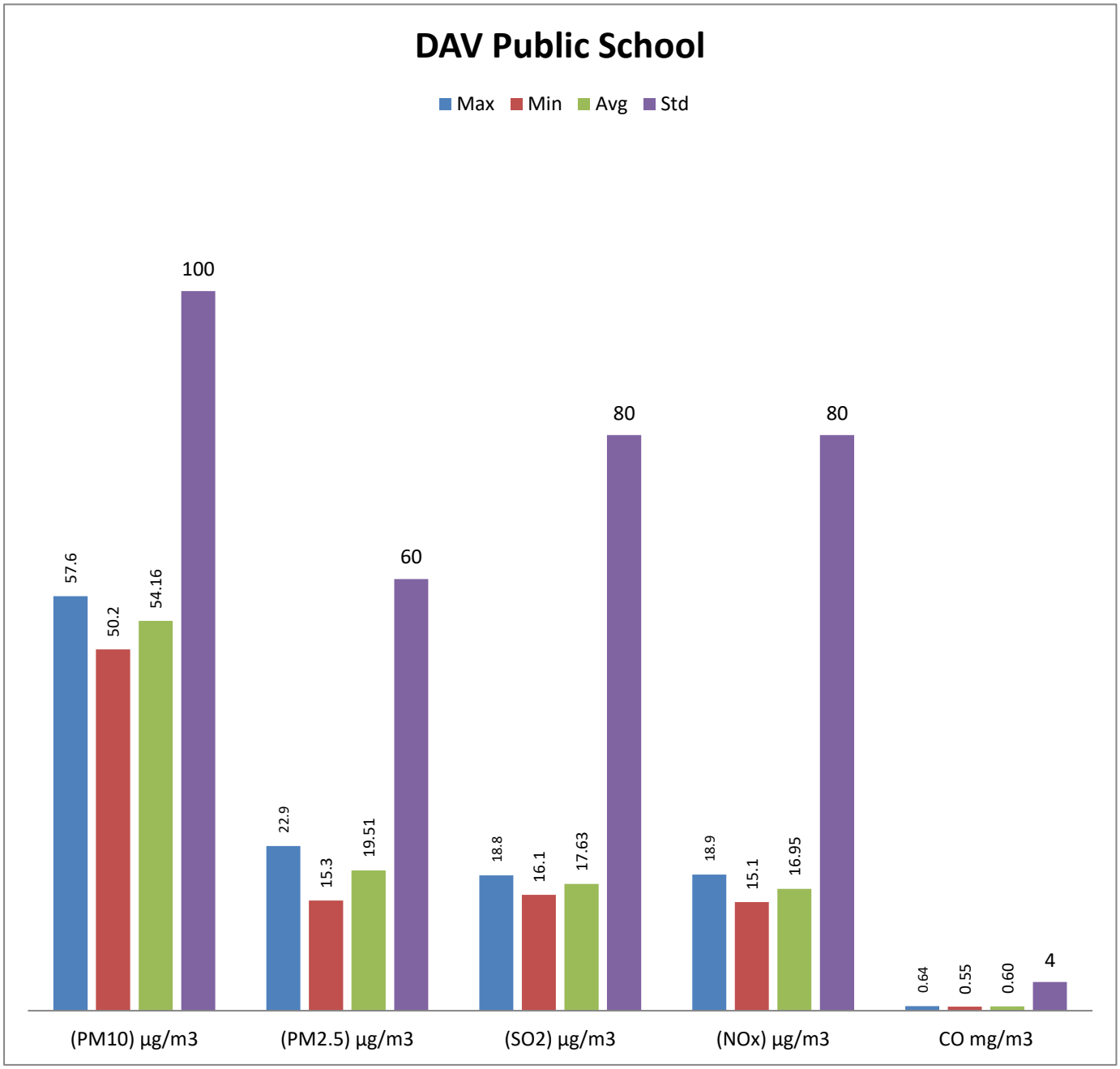
Note- No_x is Given as No_2

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **57.6** µg/m³ whereas minimum concentration was observed **50.2**µg/m³ during the month. $PM_{2.5}$ concentration ranges between **15.3** µg/m³ to **22.9** µg/m³, SO_2 concentration ranges between **16.1** µg/m³to **18.8** µg/m³, NO_x as (NO_2) concentration ranges between **15.1** µg/m³ to **18.9** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.64** mg/m³ was observed during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/161
Test Report Issue date: 02.09.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST 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.	01.08.2025	55.9	22.9	16.5	17.3	0.61
2.	02.08.2025	56.9	21.3	18.4	16.9	0.60
3.	03.08.2025	55.9	21.5	16.4	16.2	0.61
4.	04.08.2025	53.1	18.3	18.2	15.3	0.61
5.	05.08.2025	52.3	21.9	18.8	16.9	0.58
6.	06.08.2025	53.6	22.4	18.8	16.6	0.59
7.	07.08.2025	53.0	22.9	18.0	15.1	0.56
8.	08.08.2025	50.9	22.7	18.2	17.6	0.63
9.	09.08.2025	57.6	21.7	17.3	16.9	0.61
10.	10.08.2025	55.6	18.8	18.6	15.8	0.56
11.	11.08.2025	56.5	20.2	17.0	17.4	0.56
12.	12.08.2025	51.0	22.3	17.7	16.2	0.62
13.	13.08.2025	50.7	19.1	17.2	17.7	0.63
14.	14.08.2025	50.2	19.6	18.8	17.4	0.56
15.	15.08.2025	55.5	22.9	16.8	17.0	0.62
16.	16.08.2025	56.7	19.6	18.4	16.9	0.56
17.	17.08.2025	55.3	15.3	16.3	16.6	0.61
18.	18.08.2025	50.6	16.9	18.0	15.3	0.64
19.	19.08.2025	50.5	21.6	18.4	17.1	0.62
20.	20.08.2025	56.5	17.2	17.0	17.4	0.61
21.	21.08.2025	57.4	16.0	16.4	15.9	0.61
22.	22.08.2025	53.8	18.5	17.9	16.4	0.56
23.	23.08.2025	54.5	15.6	18.5	18.3	0.61
24.	24.08.2025	57.2	20.0	18.8	17.2	0.64
25.	25.08.2025	50.8	20.7	17.6	18.5	0.57
26.	26.08.2025	51.6	19.2	18.1	18.9	0.56
27.	27.08.2025	56.2	16.7	16.3	15.1	0.56
28.	28.08.2025	52.5	18.8	16.8	18.9	0.62
29.	29.08.2025	53.1	18.1	17.7	18.8	0.56
30.	30.08.2025	57.0	16.5	17.4	18.3	0.63
31.	31.08.2025	56.6	15.6	16.1	15.6	0.55
Average		**54.2**	**19.5**	**17.6**	**17.0**	**0.60**

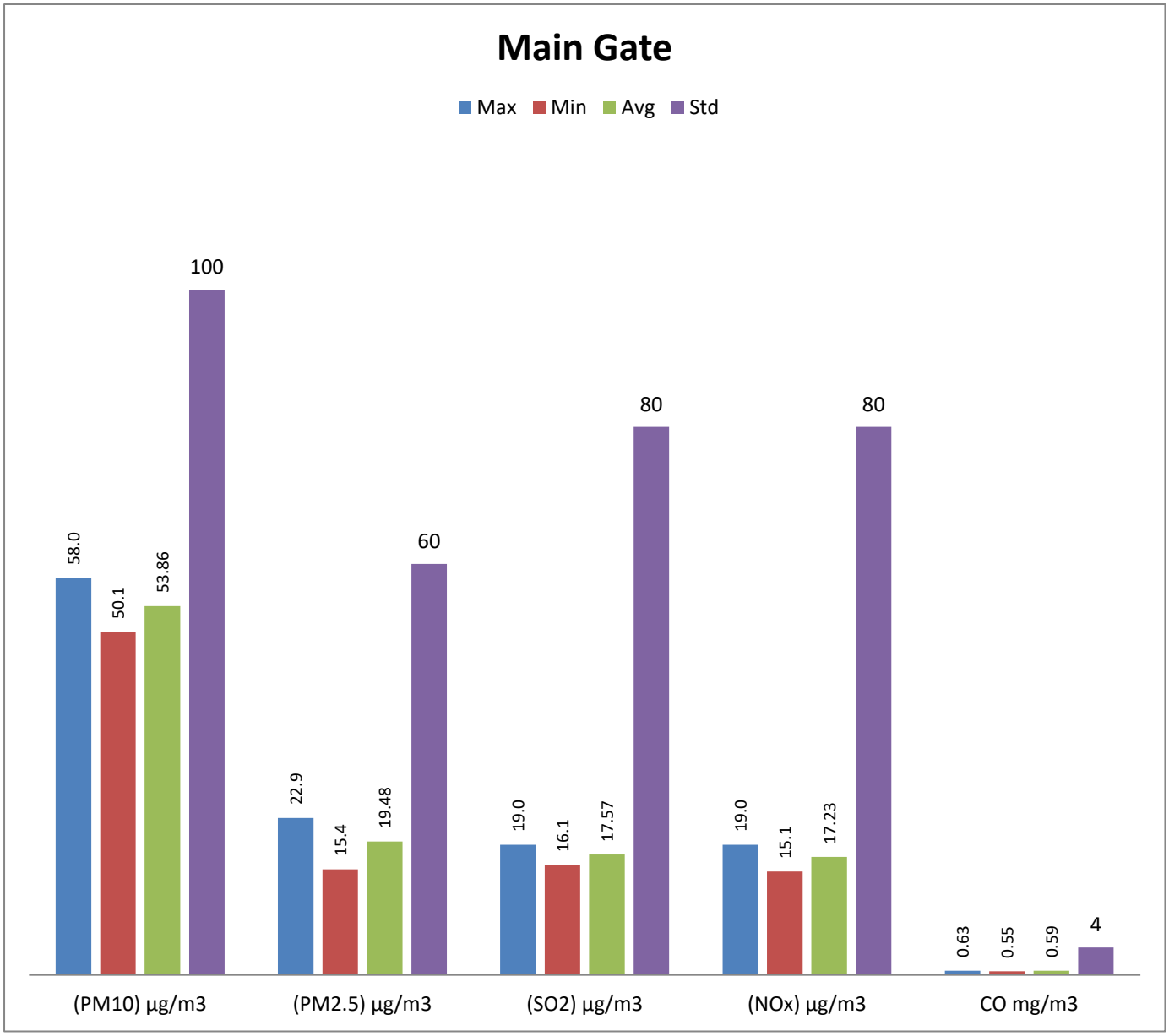
Note- No_x is Given as No_2

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **58.0** µg/m³ whereas minimum concentration was observed **50.1** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **15.4** µg/m³ to **22.9** µg/m³, SO_2 concentration ranges between **16.1** µg/m³to **19.0** µg/m³, NO_x as (NO_2) concentration ranges between **15.1** µg/m³ to **19.0** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.63** mg/m³ was observed during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/162
Test Report Issue date: 02.09.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST 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/m^3	Particulate Matter ($PM_{2.5}$) µg/m^3	Sulphur Di-oxide (SO_2) µg/m^3	Nitrogen Oxides (NO_x) µg/m^3	Carbon mono-oxides as CO mg/m^3
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.	01.08.2025	57.2	19.8	16.1	18.8	0.63
2.	02.08.2025	51.5	19.8	16.3	18.2	0.59
3.	03.08.2025	50.1	22.9	18.5	18.5	0.55
4.	04.08.2025	54.1	22.4	18.0	18.6	0.57
5.	05.08.2025	56.7	22.1	17.1	15.9	0.58
6.	06.08.2025	55.3	20.7	18.4	18.7	0.57
7.	07.08.2025	51.2	18.8	16.8	17.5	0.62
8.	08.08.2025	50.1	18.2	18.9	16.9	0.55
9.	09.08.2025	52.6	22.2	16.7	17.2	0.61
10.	10.08.2025	56.2	22.5	17.5	15.3	0.60
11.	11.08.2025	53.9	18.1	16.3	16.0	0.61
12.	12.08.2025	55.1	22.6	19.0	18.2	0.63
13.	13.08.2025	51.8	18.4	16.6	17.8	0.58
14.	14.08.2025	55.7	20.8	18.5	15.1	0.57
15.	15.08.2025	52.5	22.0	17.2	16.1	0.56
16.	16.08.2025	50.5	19.7	16.2	16.7	0.57
17.	17.08.2025	53.2	18.6	16.9	16.0	0.58
18.	18.08.2025	57.8	17.1	18.7	19.0	0.61
19.	19.08.2025	55.2	16.9	18.9	16.6	0.63
20.	20.08.2025	53.9	19.1	18.0	16.2	0.62
21.	21.08.2025	53.1	15.6	18.0	16.6	0.58
22.	22.08.2025	54.9	15.9	16.3	16.8	0.57
23.	23.08.2025	55.5	15.4	18.0	17.9	0.60
24.	24.08.2025	52.0	19.2	16.5	15.8	0.60
25.	25.08.2025	57.9	15.4	18.0	17.7	0.62
26.	26.08.2025	58.0	16.3	18.1	17.4	0.61
27.	27.08.2025	53.0	20.8	16.3	18.2	0.62
28.	28.08.2025	51.6	21.7	18.7	17.5	0.57
29.	29.08.2025	51.3	21.7	18.6	17.3	0.63
30.	30.08.2025	55.2	17.6	17.5	17.0	0.55
31.	31.08.2025	52.7	21.7	18.1	18.5	0.59
Average		**53.9**	**19.5**	**17.6**	**17.2**	**0.59**

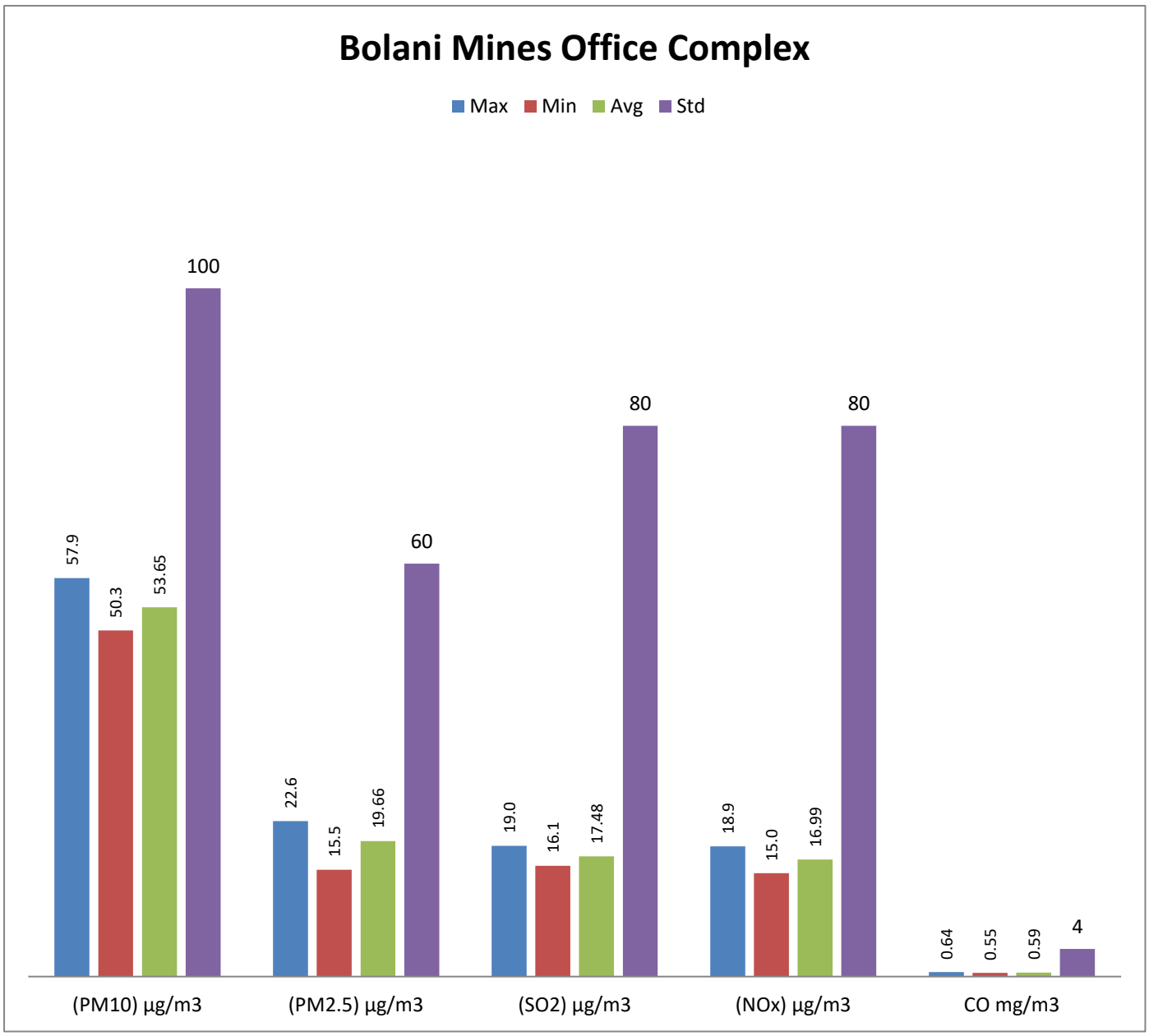
Note- No_x is Given as No_2

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **57.9** µg/m³ whereas minimum concentration was observed **50.3** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **15.5** µg/m³ to **22.6** µg/m³, SO_2 concentration ranges between **16.1** µg/m³to **19.0** µg/m³, NO_x as (NO_2) concentration ranges between **15.0** µg/m³ to **18.9** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.64** mg/m³ was observed during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/163
Test Report Issue date: 02.09.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST 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/m^3	Particulate Matter ($PM_{2.5}$) µg/m^3	Sulphur Di-oxide (SO_2) µg/m^3	Nitrogen Oxides (NO_x) µg/m^3	Carbon mono-oxides as CO mg/m^3
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.	01.08.2025	57.3	22.6	16.8	16.7	0.58
2.	02.08.2025	54.9	21.5	16.1	16.9	0.60
3.	03.08.2025	55.4	19.7	18.9	17.6	0.56
4.	04.08.2025	50.3	21.3	18.9	15.0	0.57
5.	05.08.2025	55.2	20.1	16.2	18.1	0.56
6.	06.08.2025	57.9	19.5	16.5	17.9	0.59
7.	07.08.2025	52.6	19.5	16.8	15.8	0.55
8.	08.08.2025	50.9	21.6	17.0	15.5	0.59
9.	09.08.2025	50.6	21.9	16.2	18.5	0.59
10.	10.08.2025	53.2	19.8	16.9	17.1	0.61
11.	11.08.2025	54.6	21.5	19.0	16.3	0.62
12.	12.08.2025	54.8	18.8	16.8	16.5	0.57
13.	13.08.2025	53.9	21.5	18.2	15.2	0.57
14.	14.08.2025	55.7	22.4	16.5	16.2	0.60
15.	15.08.2025	52.7	20.8	18.6	15.7	0.62
16.	16.08.2025	50.6	16.3	18.4	18.9	0.62
17.	17.08.2025	53.8	21.9	18.2	18.7	0.62
18.	18.08.2025	53.8	15.5	18.5	17.3	0.56
19.	19.08.2025	57.6	18.1	16.8	18.2	0.57
20.	20.08.2025	55.5	18.1	17.3	17.2	0.60
21.	21.08.2025	51.0	20.5	17.3	15.8	0.64
22.	22.08.2025	53.3	19.9	18.3	16.6	0.58
23.	23.08.2025	55.5	21.8	18.9	17.4	0.59
24.	24.08.2025	52.1	16.2	17.7	18.4	0.62
25.	25.08.2025	53.8	15.5	17.0	18.6	0.59
26.	26.08.2025	50.3	20.5	18.3	16.7	0.58
27.	27.08.2025	51.5	16.6	16.5	15.9	0.60
28.	28.08.2025	55.2	17.3	17.0	16.1	0.56
29.	29.08.2025	51.9	21.1	17.5	15.4	0.63
30.	30.08.2025	54.5	18.2	16.4	18.9	0.55
31.	31.08.2025	52.9	19.6	18.3	17.7	0.60
Average		**53.7**	**19.7**	**17.5**	**17.0**	**0.59**

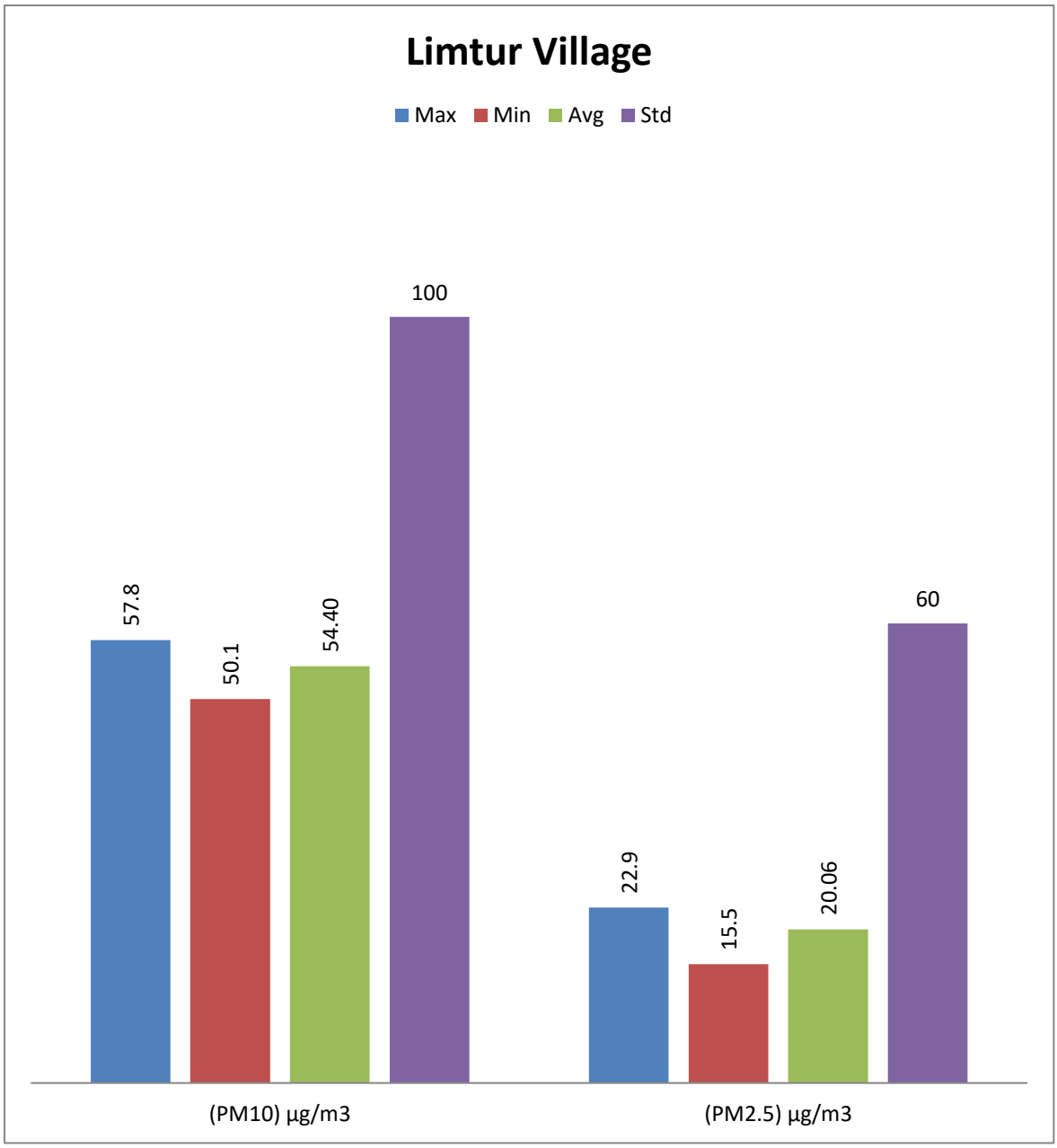
Note- No_x is Given as No_2

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **57.8** µg/m^3 whereas minimum concentration was observed **50.1** µg/m^3 and $PM_{2.5}$ concentration ranges between **15.5** µg/m^3 to **22.9** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/164
Test Report Issue date: 02.09.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST 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/m^3	Particulate Matter ($PM_{2.5}$) µg/m^3
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.	01.08.2025	53.3	19.1
2.	02.08.2025	50.5	21.5
3.	03.08.2025	56.1	18.4
4.	04.08.2025	57.8	20.3
5.	05.08.2025	50.7	21.2
6.	06.08.2025	52.2	22.2
7.	07.08.2025	52.7	19.1
8.	08.08.2025	56.3	21.7
9.	09.08.2025	55.9	21.0
10.	10.08.2025	56.2	22.9
11.	11.08.2025	51.7	22.3
12.	12.08.2025	56.1	21.5
13.	13.08.2025	54.5	21.2
14.	14.08.2025	55.0	20.7
15.	15.08.2025	55.8	20.9
16.	16.08.2025	54.8	21.2
17.	17.08.2025	57.6	20.1
18.	18.08.2025	56.5	21.9
19.	19.08.2025	50.1	19.1
20.	20.08.2025	57.0	19.4
21.	21.08.2025	51.4	20.7
22.	22.08.2025	53.3	17.0
23.	23.08.2025	51.1	17.4
24.	24.08.2025	56.9	16.1
25.	25.08.2025	53.3	17.5
26.	26.08.2025	52.0	21.6
27.	27.08.2025	56.8	18.9
28.	28.08.2025	55.3	18.4
29.	29.08.2025	57.6	21.2
30.	30.08.2025	52.5	21.9
31.	31.08.2025	55.3	15.5
Average		**54.4**	**20.1**

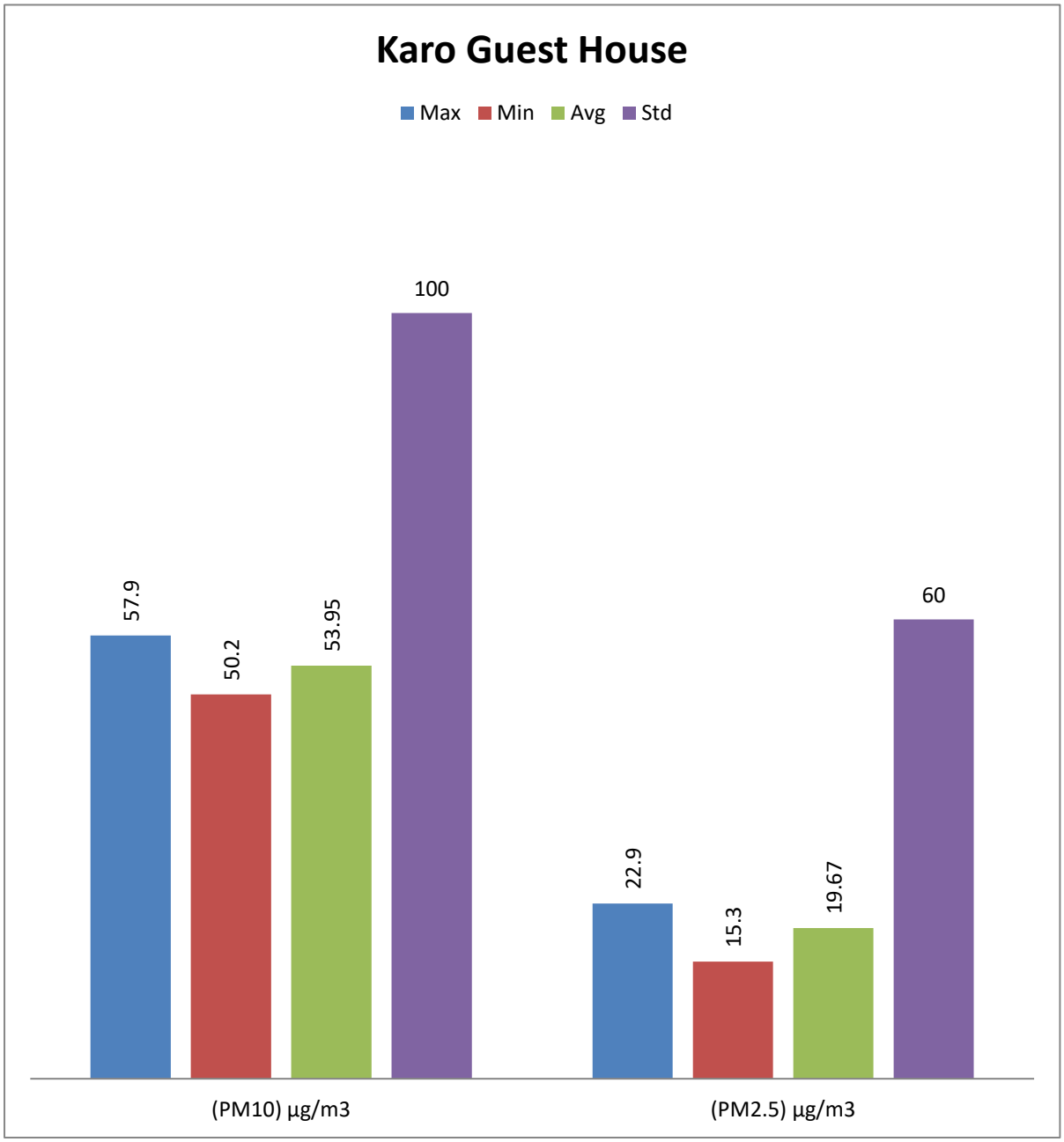
----End of Report----

Ecomen Laboratories Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

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 **57.9** µg/m^3 whereas minimum concentration was observed **50.2** µg/m^3 and $PM_{2.5}$ concentration ranges between **15.3** µg/m^3 to **22.9** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/165
Test Report Issue date: 02.09.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST 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/m^3	Particulate Matter ($PM_{2.5}$) µg/m^3
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.	01.08.2025	55.4	19.1
2.	02.08.2025	53.3	22.4
3.	03.08.2025	57.9	22.4
4.	04.08.2025	57.8	20.3
5.	05.08.2025	57.8	18.3
6.	06.08.2025	52.5	22.6
7.	07.08.2025	53.9	19.5
8.	08.08.2025	55.6	20.6
9.	09.08.2025	51.3	20.5
10.	10.08.2025	54.5	19.5
11.	11.08.2025	51.6	22.9
12.	12.08.2025	55.2	18.2
13.	13.08.2025	50.2	22.1
14.	14.08.2025	51.9	21.9
15.	15.08.2025	50.4	20.8
16.	16.08.2025	55.7	15.3
17.	17.08.2025	53.5	16.0
18.	18.08.2025	57.3	22.0
19.	19.08.2025	52.5	21.6
20.	20.08.2025	53.5	16.6
21.	21.08.2025	51.3	18.2
22.	22.08.2025	56.1	16.8
23.	23.08.2025	55.0	15.8
24.	24.08.2025	56.6	19.2
25.	25.08.2025	52.5	21.0
26.	26.08.2025	55.2	18.1
27.	27.08.2025	50.4	18.3
28.	28.08.2025	56.0	18.8
29.	29.08.2025	53.0	20.4
30.	30.08.2025	52.5	20.7
31.	31.08.2025	52.1	19.9
Average		**54.0**	**19.7**

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

3.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring:

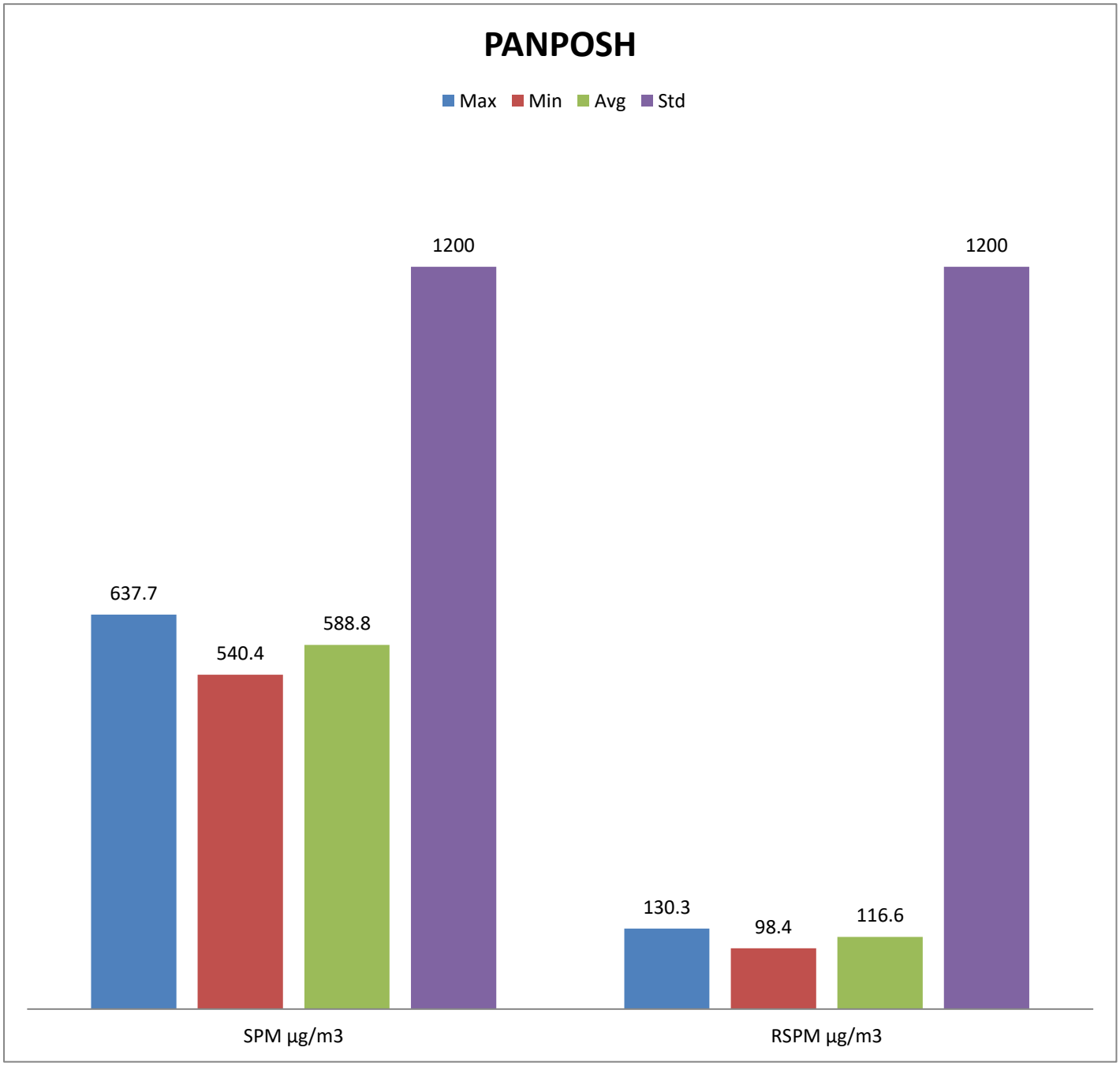
The Summarized results of Work Zone Air Quality/Fugitive Dust Emission for the month of August-2025 are given in the **Table below**

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	637.7	540.4	588.8	130.3	98.4	116.6
2.	D Area	F2	637.8	540.5	593.2	133.5	103.0	115.0
3.	F Area	F3	639.3	543.8	586.8	129.7	101.0	113.7
4.	G Area	F4	639.4	543.5	587.4	132.2	100.6	115.5
5.	Lump Loading Point (near 600TPH)	F5	638.3	544.9	591.1	129.6	103.4	116.0
6.	Fines Loading (20 Area)	F6	639.9	541.5	587.0	134.3	101.1	115.1
7.	Dump Fines handling route	F7	632.5	541.8	580.4	127.3	99.5	111.8
8.	SSP	F8	637.6	549.0	598.7	132.5	100.8	116.3
9.	Dump Fines Handling Site	F9	635.6	541.0	593.1	130.2	101.9	116.6
10.	Mn Quarry	F10	634.8	540.4	585.4	128.8	104.3	115.3
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 **637.7** µg/m³ whereas minimum concentration was observed **540.4** µg/m³ and RSPM concentration ranges between **98.4** µg/m³ to **130.3** µg/m³ during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/166
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.

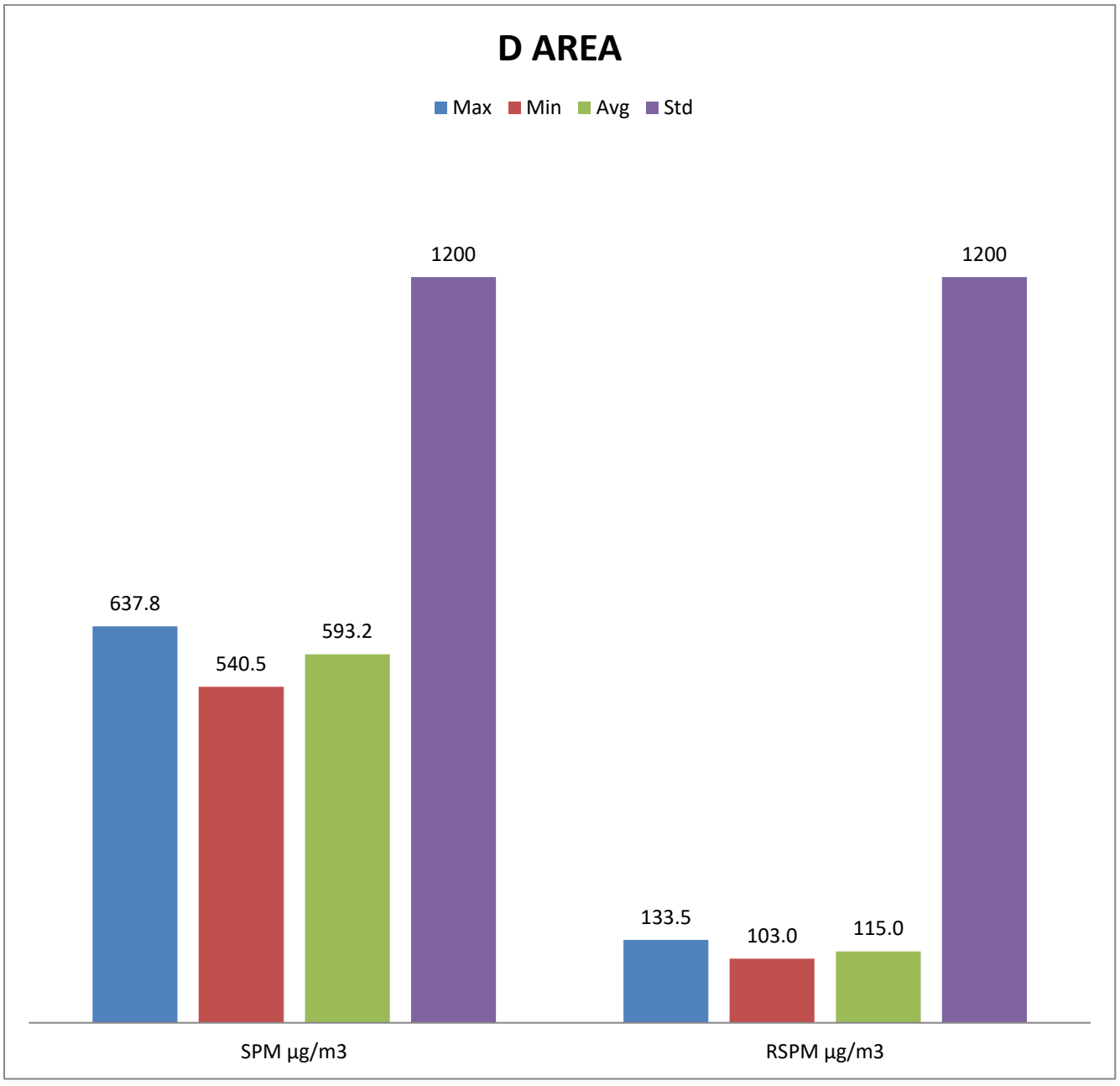
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-08-2025	Panposh	552.6	112.0
2.	02-08-2025	Panposh	621.9	112.5
3.	03-08-2025	Panposh	548.4	110.6
4.	04-08-2025	Panposh	546.1	114.1
5.	05-08-2025	Panposh	560.9	104.1
6.	06-08-2025	Panposh	580.9	109.7
7.	07-08-2025	Panposh	593.9	120.5
8.	08-08-2025	Panposh	637.7	128.7
9.	09-08-2025	Panposh	607.4	116.1
10.	10-08-2025	Panposh	562.5	104.3
11.	11-08-2025	Panposh	578.9	116.5
12.	12-08-2025	Panposh	590.7	116.2
13.	13-08-2025	Panposh	545.0	113.2
14.	14-08-2025	Panposh	578.7	111.2
15.	15-08-2025	Panposh	590.4	119.6
16.	16-08-2025	Panposh	614.3	121.3
17.	17-08-2025	Panposh	636.1	130.3
18.	18-08-2025	Panposh	571.4	115.4
19.	19-08-2025	Panposh	540.4	98.4
20.	20-08-2025	Panposh	573.4	111.8
21.	21-08-2025	Panposh	574.9	117.2
22.	22-08-2025	Panposh	601.6	118.9
23.	23-08-2025	Panposh	633.6	118.1
24.	24-08-2025	Panposh	610.6	123.1
25.	25-08-2025	Panposh	636.5	130.0
26.	26-08-2025	Panposh	542.5	108.3
27.	27-08-2025	Panposh	616.6	121.7
28.	28-08-2025	Panposh	602.6	115.3
29.	29-08-2025	Panposh	581.6	122.1
30.	30-08-2025	Panposh	612.1	127.6
31.	31-08-2025	Panposh	609.7	126.9
Average			**588.8**	**116.6**

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **637.8** µg/m^3 whereas minimum concentration was observed **540.5** µg/m^3 and RSPM concentration ranges between **103.0** µg/m^3 to **133.5** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/167
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.

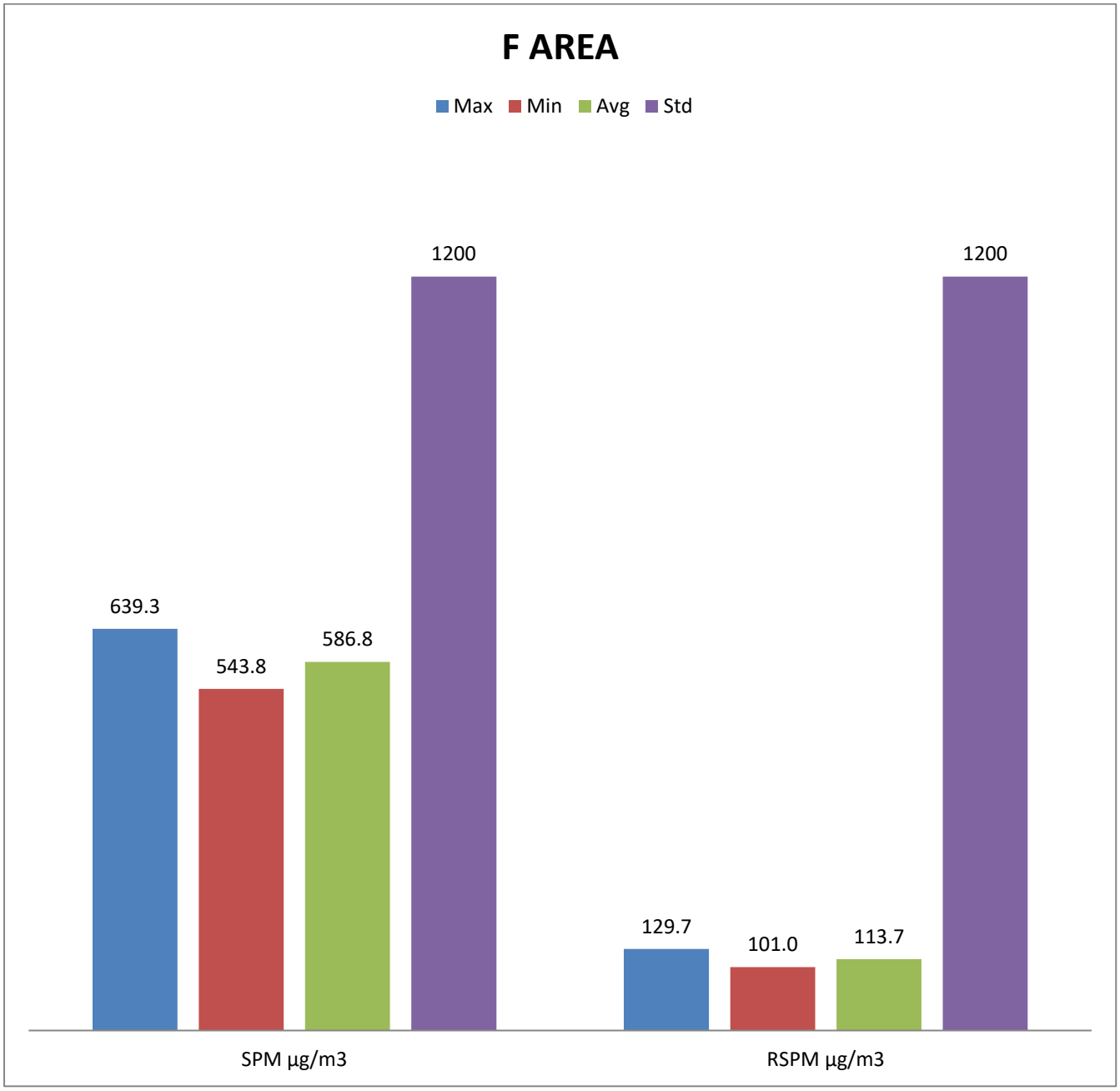
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-08-2025	D Area	637.8	133.5
2.	02-08-2025	D Area	595.5	116.1
3.	03-08-2025	D Area	541.0	103.6
4.	04-08-2025	D Area	614.5	120.9
5.	05-08-2025	D Area	569.6	103.4
6.	06-08-2025	D Area	614.1	115.4
7.	07-08-2025	D Area	565.0	104.9
8.	08-08-2025	D Area	625.4	129.2
9.	09-08-2025	D Area	620.5	124.0
10.	10-08-2025	D Area	585.0	119.8
11.	11-08-2025	D Area	575.3	106.3
12.	12-08-2025	D Area	612.9	113.6
13.	13-08-2025	D Area	592.9	116.1
14.	14-08-2025	D Area	626.3	127.9
15.	15-08-2025	D Area	564.4	114.9
16.	16-08-2025	D Area	560.2	114.7
17.	17-08-2025	D Area	634.6	122.6
18.	18-08-2025	D Area	622.8	123.1
19.	19-08-2025	D Area	540.5	107.0
20.	20-08-2025	D Area	570.8	103.0
21.	21-08-2025	D Area	586.0	115.5
22.	22-08-2025	D Area	628.6	116.5
23.	23-08-2025	D Area	602.8	108.8
24.	24-08-2025	D Area	623.8	118.4
25.	25-08-2025	D Area	571.9	110.3
26.	26-08-2025	D Area	587.8	107.3
27.	27-08-2025	D Area	580.8	120.0
28.	28-08-2025	D Area	604.0	124.1
29.	29-08-2025	D Area	571.0	109.8
30.	30-08-2025	D Area	551.5	105.6
31.	31-08-2025	D Area	611.3	110.1
Average			**593.2**	**115.0**

Authorized By
Technical Manager
(Dr. Midhun G)

-

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 **639.3** µg/m^3 whereas minimum concentration was observed **543.8** µg/m^3 and RSPM concentration ranges between **101.0** µg/m^3 to **129.7** µg/m^3 during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/168
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.

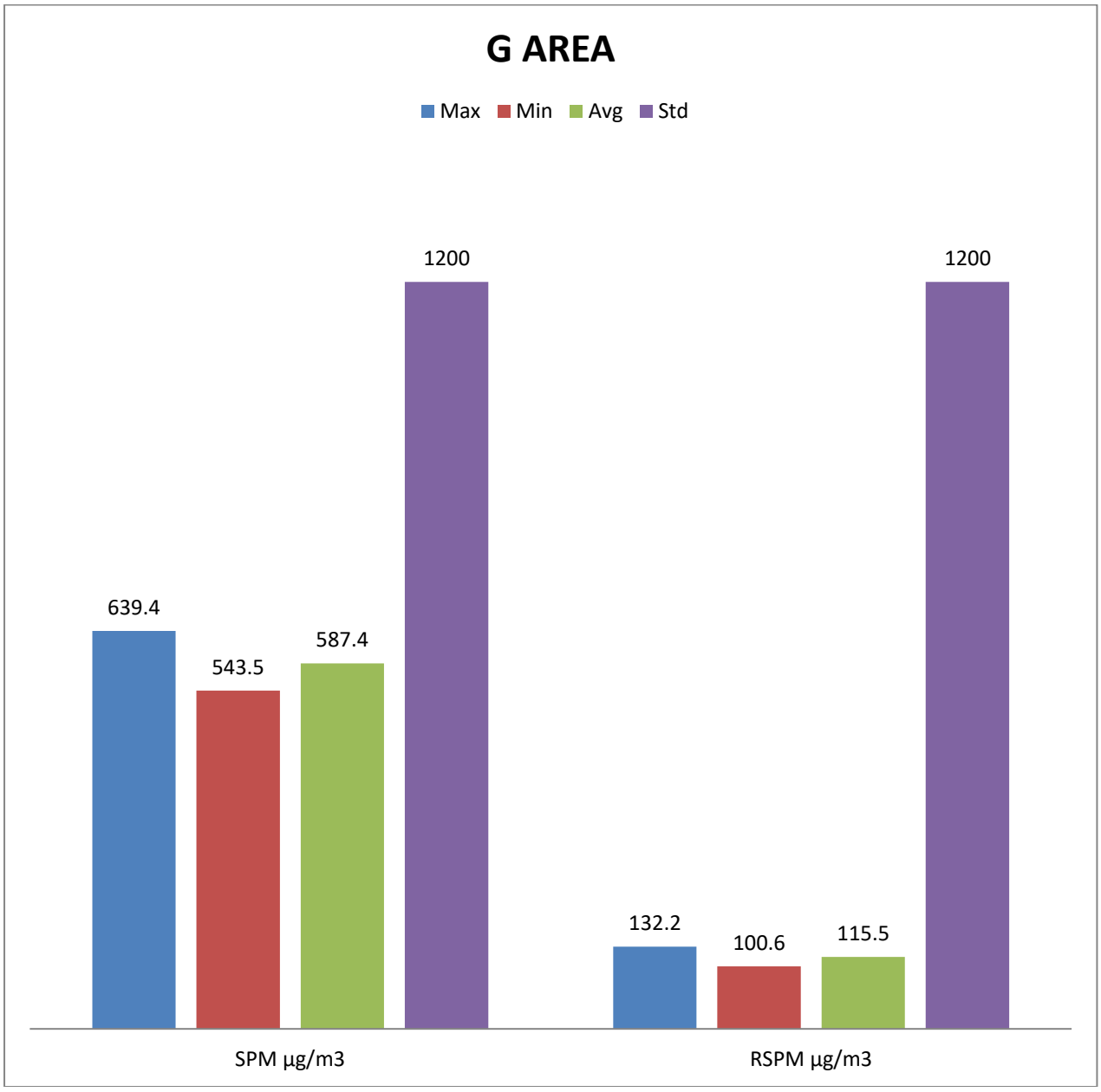
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-08-2025	F Area	586.8	109.1
2.	02-08-2025	F Area	585.8	122.1
3.	03-08-2025	F Area	565.3	111.1
4.	04-08-2025	F Area	559.9	112.2
5.	05-08-2025	F Area	545.9	109.1
6.	06-08-2025	F Area	638.6	128.4
7.	07-08-2025	F Area	566.6	104.6
8.	08-08-2025	F Area	627.2	119.7
9.	09-08-2025	F Area	605.3	111.7
10.	10-08-2025	F Area	611.8	119.0
11.	11-08-2025	F Area	582.3	118.7
12.	12-08-2025	F Area	561.0	105.9
13.	13-08-2025	F Area	639.3	119.2
14.	14-08-2025	F Area	590.2	106.7
15.	15-08-2025	F Area	614.4	111.5
16.	16-08-2025	F Area	582.8	105.0
17.	17-08-2025	F Area	563.4	116.0
18.	18-08-2025	F Area	584.9	116.7
19.	19-08-2025	F Area	613.0	125.8
20.	20-08-2025	F Area	572.5	109.7
21.	21-08-2025	F Area	550.4	101.0
22.	22-08-2025	F Area	612.3	123.6
23.	23-08-2025	F Area	559.4	111.9
24.	24-08-2025	F Area	544.4	101.8
25.	25-08-2025	F Area	558.0	108.7
26.	26-08-2025	F Area	561.8	106.2
27.	27-08-2025	F Area	630.0	129.7
28.	28-08-2025	F Area	543.8	112.5
29.	29-08-2025	F Area	598.7	114.7
30.	30-08-2025	F Area	636.6	122.9
31.	31-08-2025	F Area	599.6	109.8
Average			**586.8**	**113.7**

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **639.4** µg/m^3 whereas minimum concentration was observed **543.5** µg/m^3 and RSPM concentration ranges between **100.6** µg/m^3 to **132.2** µg/m^3 during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/169
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.

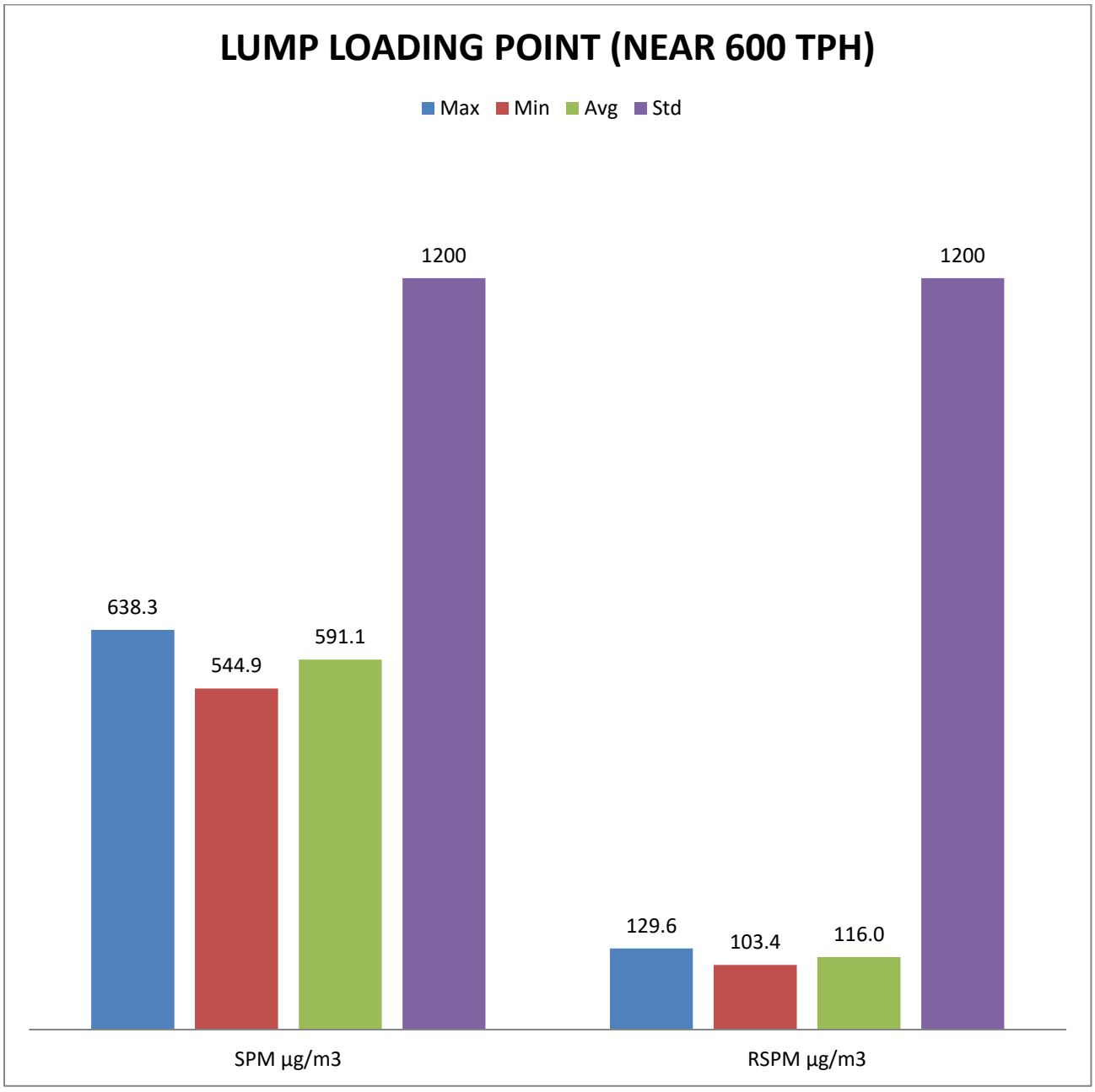
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-08-2025	G Area	560.5	103.0
2.	02-08-2025	G Area	544.0	109.3
3.	03-08-2025	G Area	625.3	122.4
4.	04-08-2025	G Area	588.6	120.1
5.	05-08-2025	G Area	639.4	121.3
6.	06-08-2025	G Area	598.1	125.4
7.	07-08-2025	G Area	628.5	130.3
8.	08-08-2025	G Area	598.4	118.9
9.	09-08-2025	G Area	549.7	113.0
10.	10-08-2025	G Area	560.8	113.3
11.	11-08-2025	G Area	621.8	113.8
12.	12-08-2025	G Area	636.1	132.2
13.	13-08-2025	G Area	585.4	116.9
14.	14-08-2025	G Area	628.0	128.3
15.	15-08-2025	G Area	615.8	114.7
16.	16-08-2025	G Area	551.4	108.6
17.	17-08-2025	G Area	587.8	119.9
18.	18-08-2025	G Area	605.2	120.8
19.	19-08-2025	G Area	581.1	109.3
20.	20-08-2025	G Area	544.6	100.6
21.	21-08-2025	G Area	602.8	114.7
22.	22-08-2025	G Area	579.4	116.6
23.	23-08-2025	G Area	564.8	109.0
24.	24-08-2025	G Area	616.6	125.4
25.	25-08-2025	G Area	576.5	121.0
26.	26-08-2025	G Area	569.5	108.0
27.	27-08-2025	G Area	566.7	110.0
28.	28-08-2025	G Area	560.1	107.6
29.	29-08-2025	G Area	590.6	111.1
30.	30-08-2025	G Area	543.5	101.8
31.	31-08-2025	G Area	588.9	112.7
Average			**587.4**	**115.5**

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **638.3** µg/m^3 whereas minimum concentration was observed **544.9** µg/m^3 and RSPM concentration ranges between **103.4** µg/m^3 to **129.6** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/170
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.	01-08-2025	Lump Loading Point (Near 600 TPH)	637.5	126.9
2.	02-08-2025	Lump Loading Point (Near 600 TPH)	584.1	113.3
3.	03-08-2025	Lump Loading Point (Near 600 TPH)	579.5	105.6
4.	04-08-2025	Lump Loading Point (Near 600 TPH)	585.3	121.9
5.	05-08-2025	Lump Loading Point (Near 600 TPH)	553.1	112.8
6.	06-08-2025	Lump Loading Point (Near 600 TPH)	613.4	128.0
7.	07-08-2025	Lump Loading Point (Near 600 TPH)	577.3	119.3
8.	08-08-2025	Lump Loading Point (Near 600 TPH)	567.1	104.9
9.	09-08-2025	Lump Loading Point (Near 600 TPH)	636.3	129.6
10.	10-08-2025	Lump Loading Point (Near 600 TPH)	572.7	103.4
11.	11-08-2025	Lump Loading Point (Near 600 TPH)	553.7	113.4
12.	12-08-2025	Lump Loading Point (Near 600 TPH)	588.0	112.9
13.	13-08-2025	Lump Loading Point (Near 600 TPH)	564.7	112.3
14.	14-08-2025	Lump Loading Point (Near 600 TPH)	568.5	114.5
15.	15-08-2025	Lump Loading Point (Near 600 TPH)	571.7	115.2
16.	16-08-2025	Lump Loading Point (Near 600 TPH)	606.1	111.9
17.	17-08-2025	Lump Loading Point (Near 600 TPH)	607.5	118.2
18.	18-08-2025	Lump Loading Point (Near 600 TPH)	623.2	122.2
19.	19-08-2025	Lump Loading Point (Near 600 TPH)	638.3	128.9
20.	20-08-2025	Lump Loading Point (Near 600 TPH)	604.9	122.9
21.	21-08-2025	Lump Loading Point (Near 600 TPH)	544.9	113.1
22.	22-08-2025	Lump Loading Point (Near 600 TPH)	577.5	106.5
23.	23-08-2025	Lump Loading Point (Near 600 TPH)	608.9	115.0
24.	24-08-2025	Lump Loading Point (Near 600 TPH)	581.4	111.4
25.	25-08-2025	Lump Loading Point (Near 600 TPH)	553.0	106.9
26.	26-08-2025	Lump Loading Point (Near 600 TPH)	636.8	114.9
27.	27-08-2025	Lump Loading Point (Near 600 TPH)	620.7	125.0
28.	28-08-2025	Lump Loading Point (Near 600 TPH)	589.4	106.8
29.	29-08-2025	Lump Loading Point (Near 600 TPH)	557.4	104.2
30.	30-08-2025	Lump Loading Point (Near 600 TPH)	599.7	124.5
31.	31-08-2025	Lump Loading Point (Near 600 TPH)	620.3	128.2
Average			**591.1**	**116.0**

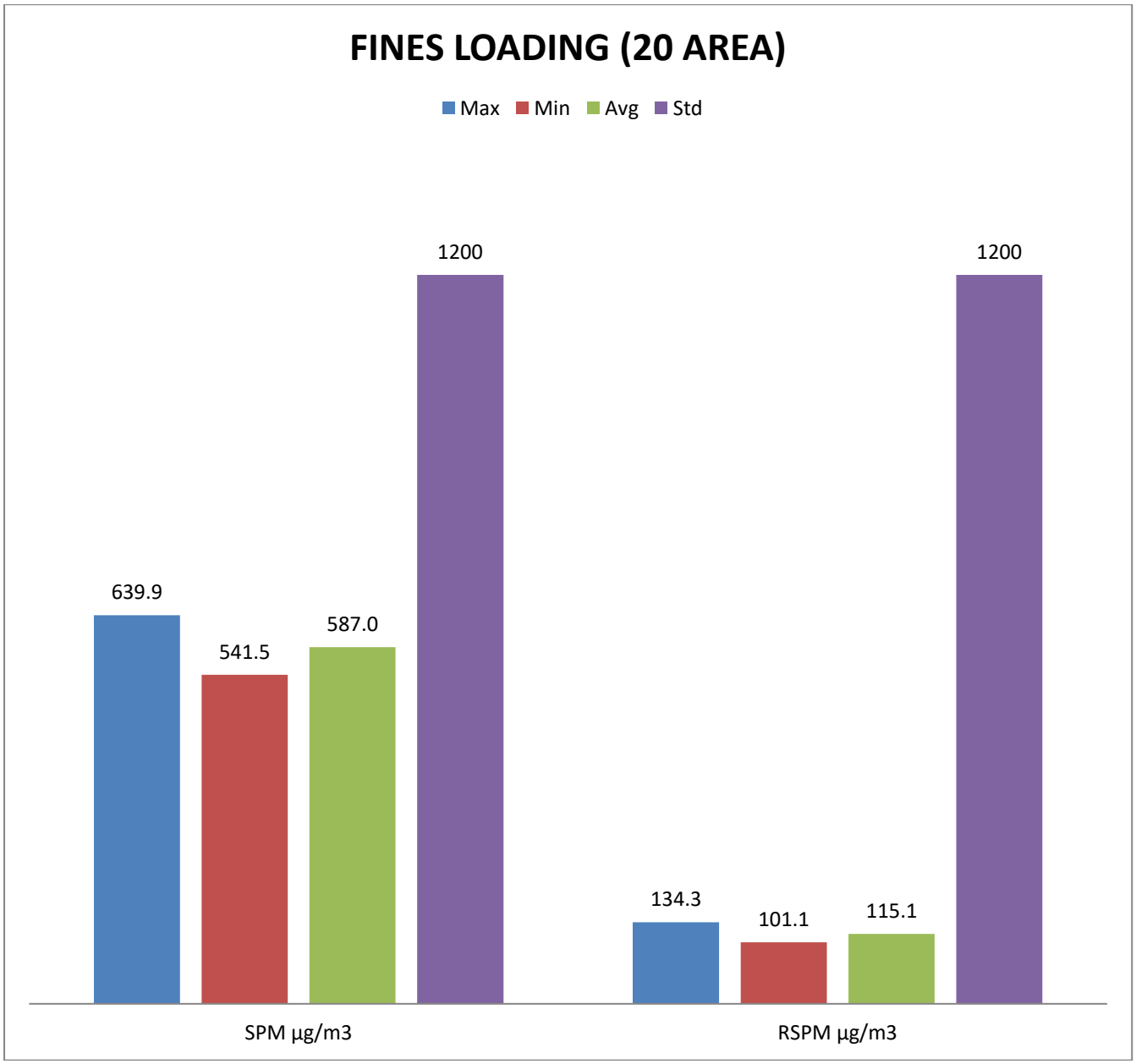
----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

(Vikas Kumar) (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 **639.9** µg/m^3 whereas minimum concentration was observed **541.5** µg/m^3 and RSPM concentration ranges between **101.1** µg/m^3 to **134.3** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/171
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.

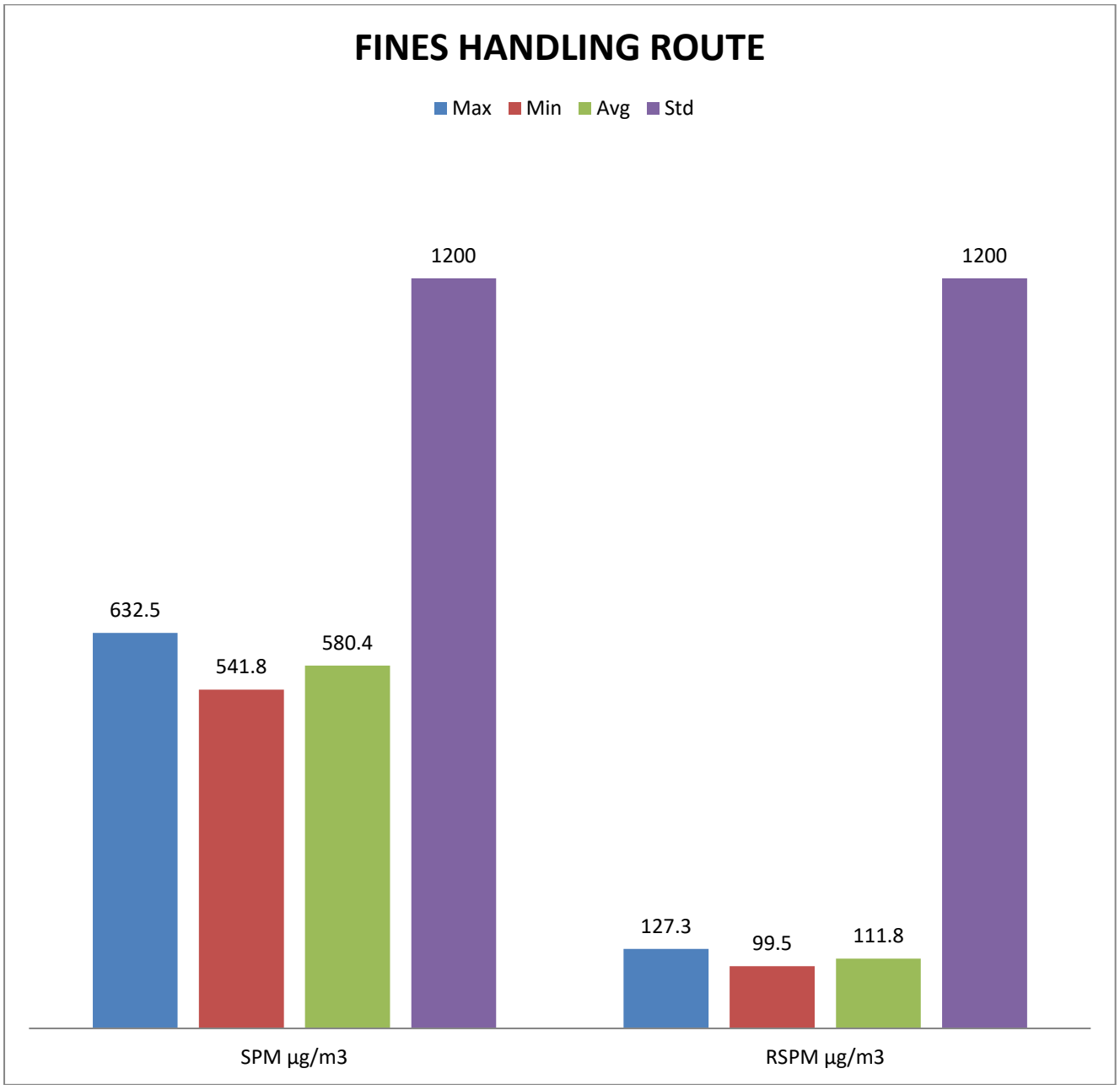
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-08-2025	Fines Loading (20 area)	541.6	112.0
2.	02-08-2025	Fines Loading (20 area)	541.5	101.6
3.	03-08-2025	Fines Loading (20 area)	637.5	120.2
4.	04-08-2025	Fines Loading (20 area)	639.9	134.1
5.	05-08-2025	Fines Loading (20 area)	630.3	124.0
6.	06-08-2025	Fines Loading (20 area)	585.3	114.8
7.	07-08-2025	Fines Loading (20 area)	544.9	109.4
8.	08-08-2025	Fines Loading (20 area)	595.4	109.0
9.	09-08-2025	Fines Loading (20 area)	596.4	113.4
10.	10-08-2025	Fines Loading (20 area)	639.8	134.3
11.	11-08-2025	Fines Loading (20 area)	576.6	105.6
12.	12-08-2025	Fines Loading (20 area)	574.2	109.7
13.	13-08-2025	Fines Loading (20 area)	587.2	109.0
14.	14-08-2025	Fines Loading (20 area)	564.2	115.2
15.	15-08-2025	Fines Loading (20 area)	554.0	114.5
16.	16-08-2025	Fines Loading (20 area)	560.8	108.3
17.	17-08-2025	Fines Loading (20 area)	630.3	115.0
18.	18-08-2025	Fines Loading (20 area)	555.0	113.5
19.	19-08-2025	Fines Loading (20 area)	561.0	108.1
20.	20-08-2025	Fines Loading (20 area)	611.6	110.1
21.	21-08-2025	Fines Loading (20 area)	637.6	133.9
22.	22-08-2025	Fines Loading (20 area)	618.4	118.0
23.	23-08-2025	Fines Loading (20 area)	551.9	110.7
24.	24-08-2025	Fines Loading (20 area)	571.5	114.3
25.	25-08-2025	Fines Loading (20 area)	566.3	118.5
26.	26-08-2025	Fines Loading (20 area)	546.3	101.1
27.	27-08-2025	Fines Loading (20 area)	637.2	132.6
28.	28-08-2025	Fines Loading (20 area)	630.9	113.9
29.	29-08-2025	Fines Loading (20 area)	592.5	123.1
30.	30-08-2025	Fines Loading (20 area)	570.5	107.4
31.	31-08-2025	Fines Loading (20 area)	547.1	111.3
Average			**587.0**	**115.1**

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **632.5** µg/m^3 whereas minimum concentration was observed **541.8** µg/m^3 and RSPM concentration ranges between **99.5** µg/m^3 to **127.3** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/172
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.

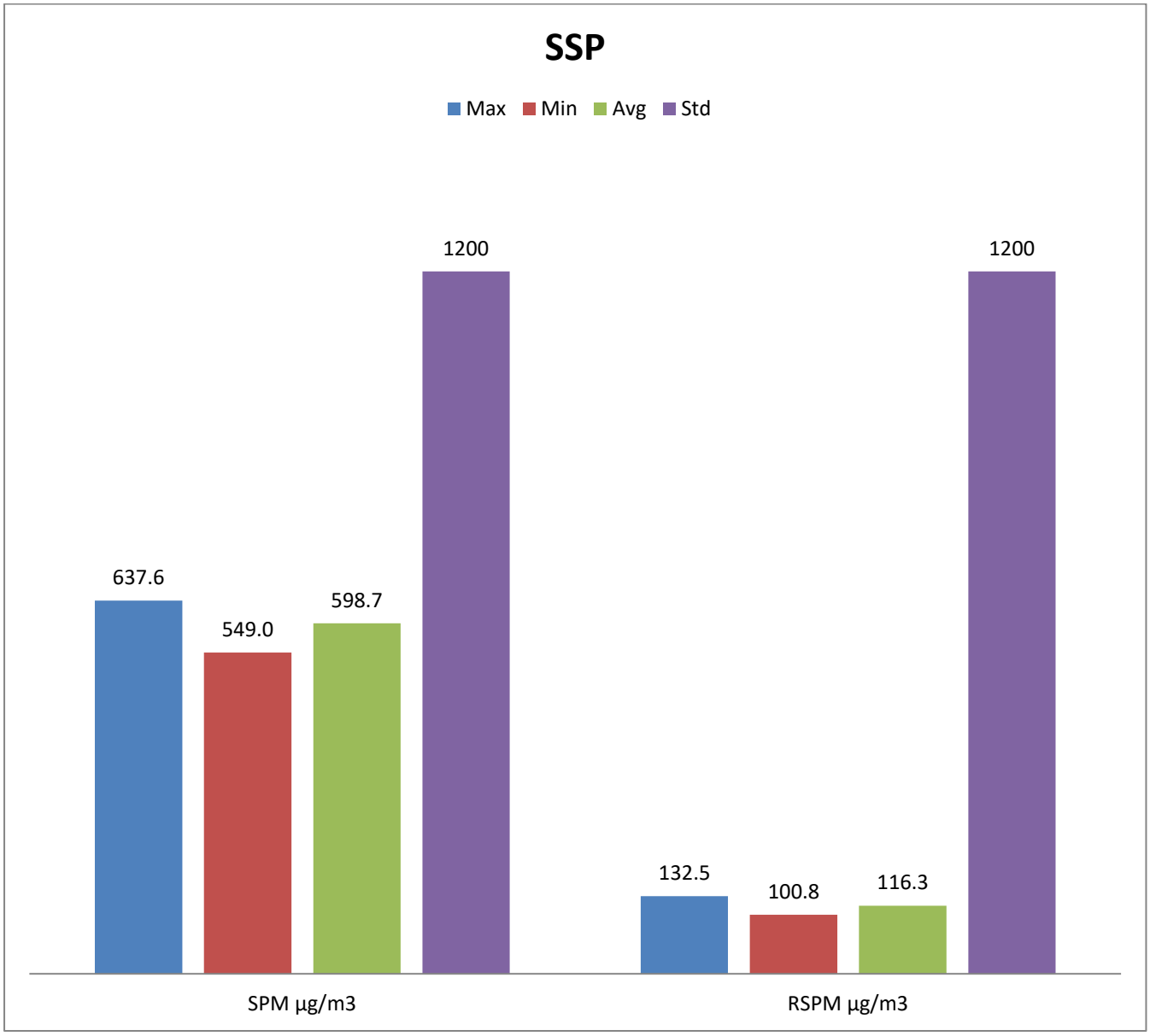
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-08-2025	Fines Handling Route	568.4	106.1
2.	02-08-2025	Fines Handling Route	571.3	108.9
3.	03-08-2025	Fines Handling Route	605.4	123.9
4.	04-08-2025	Fines Handling Route	597.2	115.0
5.	05-08-2025	Fines Handling Route	574.1	108.3
6.	06-08-2025	Fines Handling Route	632.5	115.3
7.	07-08-2025	Fines Handling Route	575.4	117.9
8.	08-08-2025	Fines Handling Route	557.9	115.9
9.	09-08-2025	Fines Handling Route	552.8	109.1
10.	10-08-2025	Fines Handling Route	563.0	114.2
11.	11-08-2025	Fines Handling Route	573.3	105.0
12.	12-08-2025	Fines Handling Route	574.8	106.5
13.	13-08-2025	Fines Handling Route	614.9	110.9
14.	14-08-2025	Fines Handling Route	550.9	103.3
15.	15-08-2025	Fines Handling Route	606.6	109.5
16.	16-08-2025	Fines Handling Route	568.9	103.9
17.	17-08-2025	Fines Handling Route	566.8	117.1
18.	18-08-2025	Fines Handling Route	543.1	102.2
19.	19-08-2025	Fines Handling Route	612.1	123.4
20.	20-08-2025	Fines Handling Route	619.5	114.1
21.	21-08-2025	Fines Handling Route	591.9	108.3
22.	22-08-2025	Fines Handling Route	619.8	127.3
23.	23-08-2025	Fines Handling Route	555.0	102.8
24.	24-08-2025	Fines Handling Route	544.3	103.7
25.	25-08-2025	Fines Handling Route	598.8	112.9
26.	26-08-2025	Fines Handling Route	603.7	126.6
27.	27-08-2025	Fines Handling Route	570.4	115.3
28.	28-08-2025	Fines Handling Route	610.4	116.4
29.	29-08-2025	Fines Handling Route	541.8	111.0
30.	30-08-2025	Fines Handling Route	577.1	110.8
31.	31-08-2025	Fines Handling Route	550.8	99.5
Average			**580.4**	**111.8**

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **637.6** µg/m^3 whereas minimum concentration was observed **549.0** µg/m^3 and RSPM concentration ranges between **100.8** µg/m^3 to **132.5** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/157
Test Report Issue date: 02.08.2025

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/173
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.

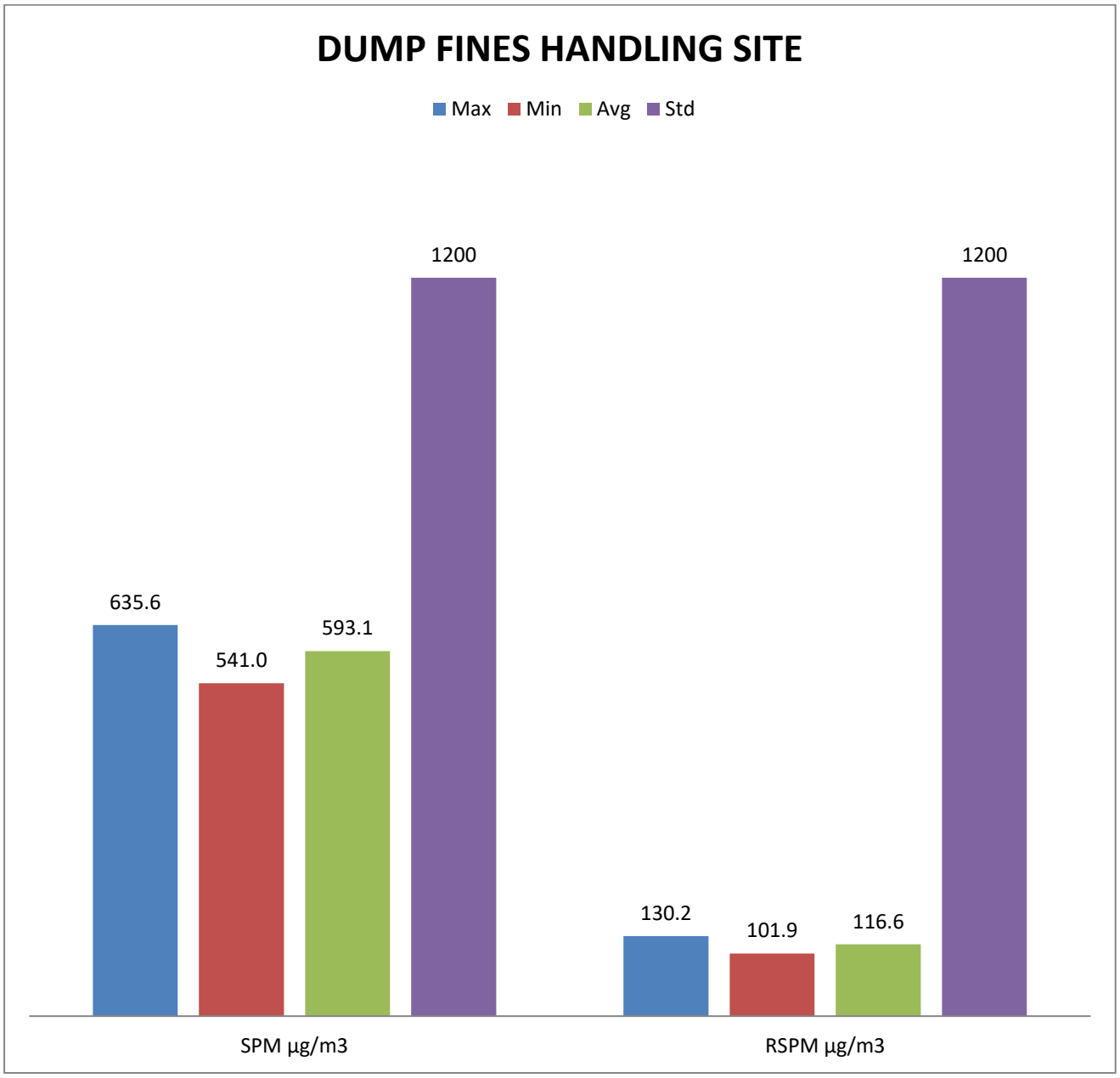
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-08-2025	SSP	549.0	101.1
2.	02-08-2025	SSP	619.6	117.4
3.	03-08-2025	SSP	585.6	118.8
4.	04-08-2025	SSP	574.2	107.1
5.	05-08-2025	SSP	581.9	106.7
6.	06-08-2025	SSP	631.0	128.2
7.	07-08-2025	SSP	559.9	111.5
8.	08-08-2025	SSP	555.8	104.0
9.	09-08-2025	SSP	606.0	121.5
10.	10-08-2025	SSP	623.8	122.8
11.	11-08-2025	SSP	588.3	123.3
12.	12-08-2025	SSP	553.8	102.6
13.	13-08-2025	SSP	585.6	112.0
14.	14-08-2025	SSP	619.5	118.3
15.	15-08-2025	SSP	624.7	130.0
16.	16-08-2025	SSP	617.3	113.9
17.	17-08-2025	SSP	566.0	104.9
18.	18-08-2025	SSP	624.8	123.3
19.	19-08-2025	SSP	619.1	113.0
20.	20-08-2025	SSP	558.4	100.8
21.	21-08-2025	SSP	597.1	117.7
22.	22-08-2025	SSP	562.9	112.4
23.	23-08-2025	SSP	561.2	103.3
24.	24-08-2025	SSP	633.7	132.1
25.	25-08-2025	SSP	629.2	119.4
26.	26-08-2025	SSP	635.1	117.8
27.	27-08-2025	SSP	637.6	132.5
28.	28-08-2025	SSP	606.3	111.8
29.	29-08-2025	SSP	606.3	125.8
30.	30-08-2025	SSP	619.6	119.9
31.	31-08-2025	SSP	627.2	130.0
Average			**598.7**	**116.3**

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **635.6** µg/m^3 whereas minimum concentration was observed **541.0** µg/m^3 and RSPM concentration ranges between **101.9** µg/m^3 to **130.2** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/174
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.

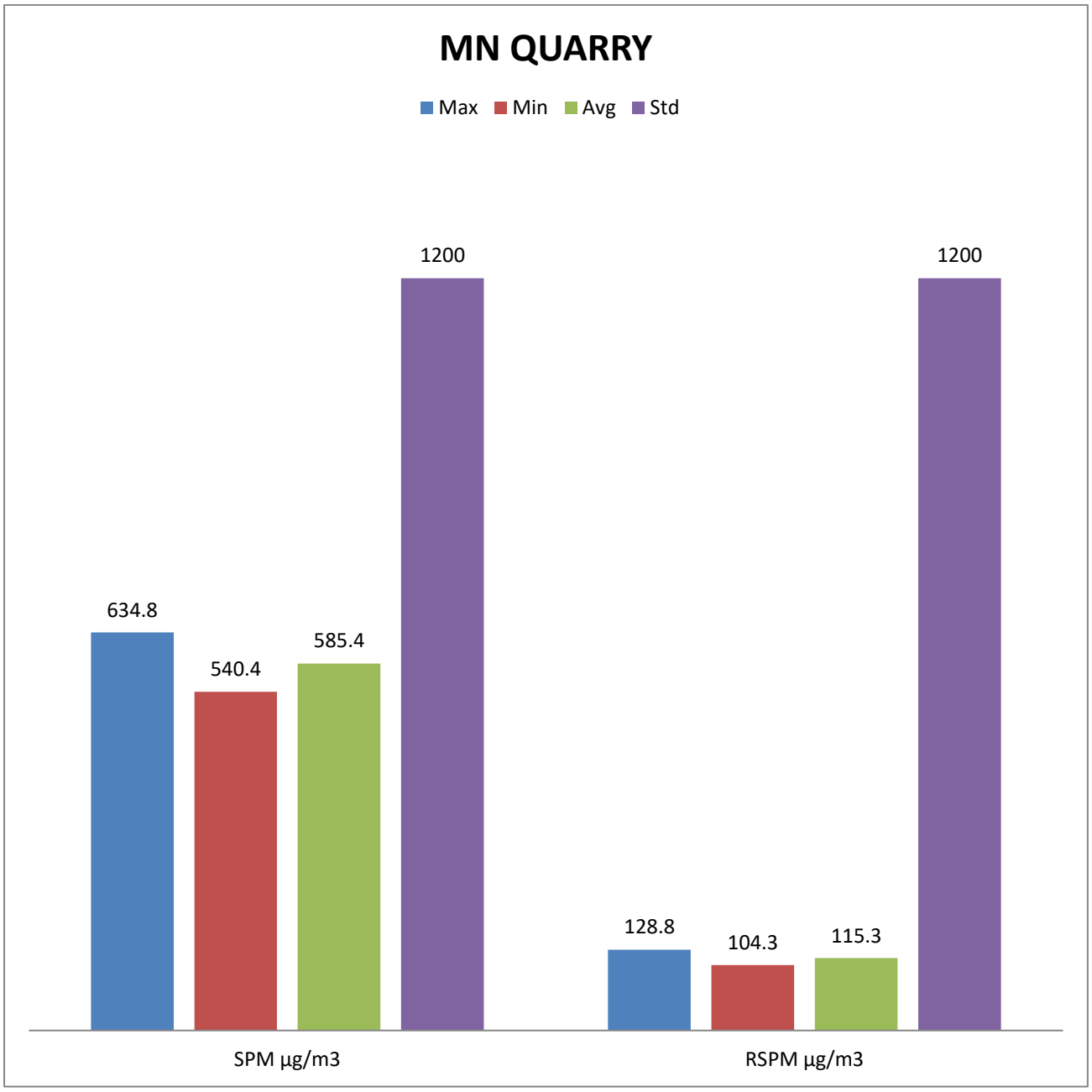
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-08-2025	Dump Fines Handling Site	597.7	109.9
2.	02-08-2025	Dump Fines Handling Site	572.4	109.3
3.	03-08-2025	Dump Fines Handling Site	568.4	111.0
4.	04-08-2025	Dump Fines Handling Site	616.8	119.3
5.	05-08-2025	Dump Fines Handling Site	617.1	116.5
6.	06-08-2025	Dump Fines Handling Site	620.6	130.2
7.	07-08-2025	Dump Fines Handling Site	605.0	119.0
8.	08-08-2025	Dump Fines Handling Site	600.6	113.2
9.	09-08-2025	Dump Fines Handling Site	635.6	125.9
10.	10-08-2025	Dump Fines Handling Site	605.2	120.9
11.	11-08-2025	Dump Fines Handling Site	595.6	125.0
12.	12-08-2025	Dump Fines Handling Site	586.4	117.0
13.	13-08-2025	Dump Fines Handling Site	602.1	120.1
14.	14-08-2025	Dump Fines Handling Site	583.2	113.0
15.	15-08-2025	Dump Fines Handling Site	589.3	110.4
16.	16-08-2025	Dump Fines Handling Site	607.9	118.6
17.	17-08-2025	Dump Fines Handling Site	583.3	109.8
18.	18-08-2025	Dump Fines Handling Site	557.7	101.9
19.	19-08-2025	Dump Fines Handling Site	609.0	120.1
20.	20-08-2025	Dump Fines Handling Site	541.0	112.8
21.	21-08-2025	Dump Fines Handling Site	542.2	111.1
22.	22-08-2025	Dump Fines Handling Site	589.4	113.0
23.	23-08-2025	Dump Fines Handling Site	613.3	126.2
24.	24-08-2025	Dump Fines Handling Site	585.9	117.3
25.	25-08-2025	Dump Fines Handling Site	592.1	119.0
26.	26-08-2025	Dump Fines Handling Site	581.0	106.2
27.	27-08-2025	Dump Fines Handling Site	592.0	113.5
28.	28-08-2025	Dump Fines Handling Site	556.7	115.2
29.	29-08-2025	Dump Fines Handling Site	621.7	126.8
30.	30-08-2025	Dump Fines Handling Site	584.0	112.6
31.	31-08-2025	Dump Fines Handling Site	634.2	129.2
Average			**590.2**	**115.8**

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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 **634.8** µg/m^3 whereas minimum concentration was observed **540.4** µg/m^3 and RSPM concentration ranges between **104.3** µg/m^3 to **128.8** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/175
Test Report Issue date: 02.09.2025

FUGITIVE EMISSION MONITORING REPORT FOR AUGUST 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.	01-08-2025	Mn Quarry	628.6	113.9
2.	02-08-2025	Mn Quarry	568.6	104.3
3.	03-08-2025	Mn Quarry	586.1	106.0
4.	04-08-2025	Mn Quarry	540.4	113.4
5.	05-08-2025	Mn Quarry	566.5	110.5
6.	06-08-2025	Mn Quarry	544.3	106.4
7.	07-08-2025	Mn Quarry	582.4	121.3
8.	08-08-2025	Mn Quarry	581.3	109.7
9.	09-08-2025	Mn Quarry	591.1	111.4
10.	10-08-2025	Mn Quarry	551.6	108.5
11.	11-08-2025	Mn Quarry	566.9	113.8
12.	12-08-2025	Mn Quarry	594.6	123.4
13.	13-08-2025	Mn Quarry	631.1	128.1
14.	14-08-2025	Mn Quarry	608.4	123.1
15.	15-08-2025	Mn Quarry	563.2	117.8
16.	16-08-2025	Mn Quarry	634.8	122.8
17.	17-08-2025	Mn Quarry	561.7	108.0
18.	18-08-2025	Mn Quarry	618.3	115.8
19.	19-08-2025	Mn Quarry	632.5	121.0
20.	20-08-2025	Mn Quarry	550.3	106.8
21.	21-08-2025	Mn Quarry	584.8	116.3
22.	22-08-2025	Mn Quarry	582.8	116.5
23.	23-08-2025	Mn Quarry	580.2	119.5
24.	24-08-2025	Mn Quarry	607.2	120.4
25.	25-08-2025	Mn Quarry	541.5	106.5
26.	26-08-2025	Mn Quarry	628.5	128.8
27.	27-08-2025	Mn Quarry	606.5	117.8
28.	28-08-2025	Mn Quarry	581.0	119.1
29.	29-08-2025	Mn Quarry	575.4	120.2
30.	30-08-2025	Mn Quarry	608.2	114.2
31.	31-08-2025	Mn Quarry	550.1	110.3
Average			**585.4**	**115.3**

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

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

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0088/0380/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0380/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.28	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	30.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	28.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.8	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.12	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	<5	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.14	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.08	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulphide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0088/0381/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0381/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.49	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	18.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	20.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.4	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.12	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	6.12	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.15	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.07	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0088/0382/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**Name of Location**	Panpash Nallah
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0382/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.50	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	32.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	30.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.7	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	6.56	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.20	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.08	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0088/0383/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**Name of Location**	Karo River Intake
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0383/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.34	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	36.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	32.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.9	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.08	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	5.86	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.12	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	<0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0375/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0375/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.90	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.12	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.06	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	0.08	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 23rd:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0376/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0376/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.80	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.12	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.12	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 23rd:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0377/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Ground Water		
Sample Registration No.	0088	**Name of Location**	Balagoda Village
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0377/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.86	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.14	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.10	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	0.08	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 24th Ed.:2023:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0378/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Ground Water		
Sample Registration No.	0088	**Name of Location**	Bolani Gouda Basti
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0378/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.86	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.12	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.12	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 24th Ed.:2023:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0379/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Ground Water		
Sample Registration No.	0088	**Name of Location**	Bolani Basti Bolani Village
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0379/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
22.	pH	-	IS 3025 (Part 11)	2 - 12	6.72	6.5-8.5	No Relax
23.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
24.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.08	1	1.5
25.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
26.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
27.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
28.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.12	0.3	No Relax
29.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
30.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	<0.02	5.0	15.0
31.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
32.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
33.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
34.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
35.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
36.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
37.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
38.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 24th Ed.:2023:2017	1 -1000	<1	-	-
39.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
40.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
41.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
42.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	No Relax

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

Note:

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

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0088/0384/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Waste Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0385/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.62	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540 D	5 -5000	40.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part 58)	1 -1000	26.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	IS 3025 (Part 44)	1 -1000	2.9	30.0
5.	Oil & Grease as O&G	mg/l	IS 3025 (Part39, Clause No.5)	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 4500 F D-24th Ed.: 2023	0.05 -10	0.16	2.0
7.	Nitrate nitrogen	mg/l	APHA 4500 NO2 B-24th Ed.: 2023	5-100	6.62	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.16	-
9.	Arsenic as As	mg/l	APHA 3125-B-23rd Edition: 2017	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	IEC 62321: 2021	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 3125 B-24th Ed.:2023	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 5530 C,D-24th Ed.:2023	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.: 2023	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 3125 B-23rd Ed.:2023	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 3125 B-24th Ed.: 2023	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 3125 B-23rd Ed: 2017	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	4.2	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0088/0386/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Waste Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0386/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.68	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540 D	5 -5000	36.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part 58)	1 -1000	22.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	IS 3025 (Part 44)	1 -1000	3.0	30.0
5.	Oil & Grease as O&G	mg/l	IS 3025 (Part39, Clause No.5)	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 4500 F D-24th Ed.: 2023	0.05 -10	0.20	2.0
7.	Nitrate nitrogen	mg/l	APHA 4500 NO2 B-24th Ed.: 2023	5-100	5.72	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.20	-
9.	Arsenic as As	mg/l	APHA 3125-B-23rd Edition: 2017	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	IEC 62321: 2021	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 3125 B-24th Ed.:2023	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 5530 C,D-24th Ed.:2023	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.: 2023	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 3125 B-23rd Ed.:2023	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 3125 B-24th Ed.: 2023	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 3125 B-23rd Ed: 2017	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	4.8	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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----

Authorized By
Technical Manager
(Dr. Midhun G)

2.5 Surface Flow Rate (Nallah/Stream):

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/SWF/57
Test Report Issue date: 02.09.2025

SURFACE FLOW RATE MONITORING REPORT FOR AUGUST 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	0.68
Jhikaria nallah	SWFM2	0.42
Panposh Nallah	SWFM3	0.40

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

2.6 Ground Water Level:

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/GWL/06
Test Report Issue date: 02.09.2025

GROUND WATER LEVEL MONITORING REPORT FOR AUGUST 2025

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	1.45
2.	Bolani Gauda Basti	Meter	0.75
3.	Bolani Basti	Meter	0.50

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

SAIL BOLANI ORES MINES(RSP)

ENVIRONMENTAL MONITORING

REPORT

SEPTEMBER 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/67/2025-26 dated.07.07.2025 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 '**September-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. 21.12.2012 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-2025-26 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	$22^0$6'31.68''N	$85^0$19'34.41''E
Karo Near Lease Boundary		SWQ-2	$22^0$7'26.27'' N	$85^0$21'52.95''E
Karo River Intake		SWQ-3	$22^0$5.13.02' N	$85^0$19'57.88''E

Jhikaria nallah before joining Karo		SWQ-4	22⁰5'22.50" N	85⁰19'10.05"E
Drinking Water Quality				
Mount Club Tap Water	Monthly Once	DW-1	22⁰6'56.24" N	85⁰19'58.21"E
Karo Guest House Tap Water		DW-2	22⁰5'36.68" N	85⁰20'32.09"E
Effluent Waste Water				
Oil Catch Pit Water Bottom Garage	Monthly Once	EWW-1	22⁰6'27.11" N	85⁰19'37.62"E
Oil Catch pit water G-Area		EWW-2	22⁰6'1.83''N	85⁰18'24.16''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	22O 05' 27.20"N	85O 19'27.13"E
Bolani Gouda Basti-Well water		GWQ-2	22O 05'40.97"N	85O 20'2.45"E
Balagoda Village-Well water		GWQ-3	22O 05'57.02"N	85O 20'27.41"E

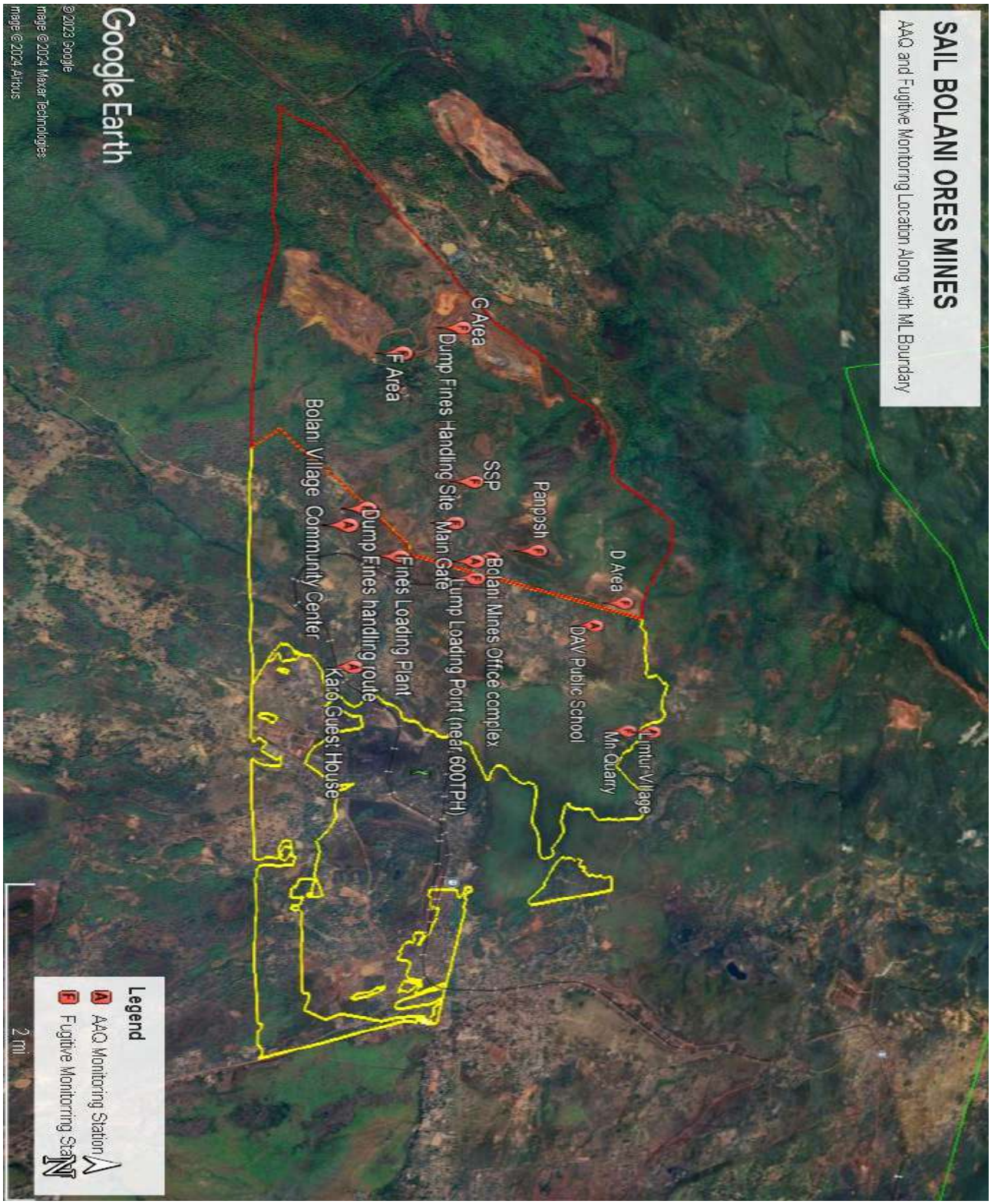
2.5 Weather/Meteorology

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 September-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	48	40.4	43.8	22.7	15.2	19.5
2.	Dav Public School	A2	48	40.1	44.2	22.6	15.2	19.4
3.	Main Gate	A3	47.9	40.3	43.6	22.9	16.4	20.4
4.	Bolani Mines Office Complex	A4	47.5	40.2	43.3	22.7	16.3	19.7
5.	Limtur Village	A5	47.6	40.0	43.5	23.0	16.4	19.8
6.	Karo Guest House	A6	47.9	40.8	43.8	22.8	15.1	19.5
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	19	16	17.2	19	15.1	17.0
2.	Dav Public School	A2	18.9	16	17.5	19	15.2	16.8
3.	Main Gate	A3	18.9	16.1	17.2	18.8	15.1	16.9
4.	Bolani Mines Office Complex	A4	18.9	16.1	17.4	18.7	15.1	16.7
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)

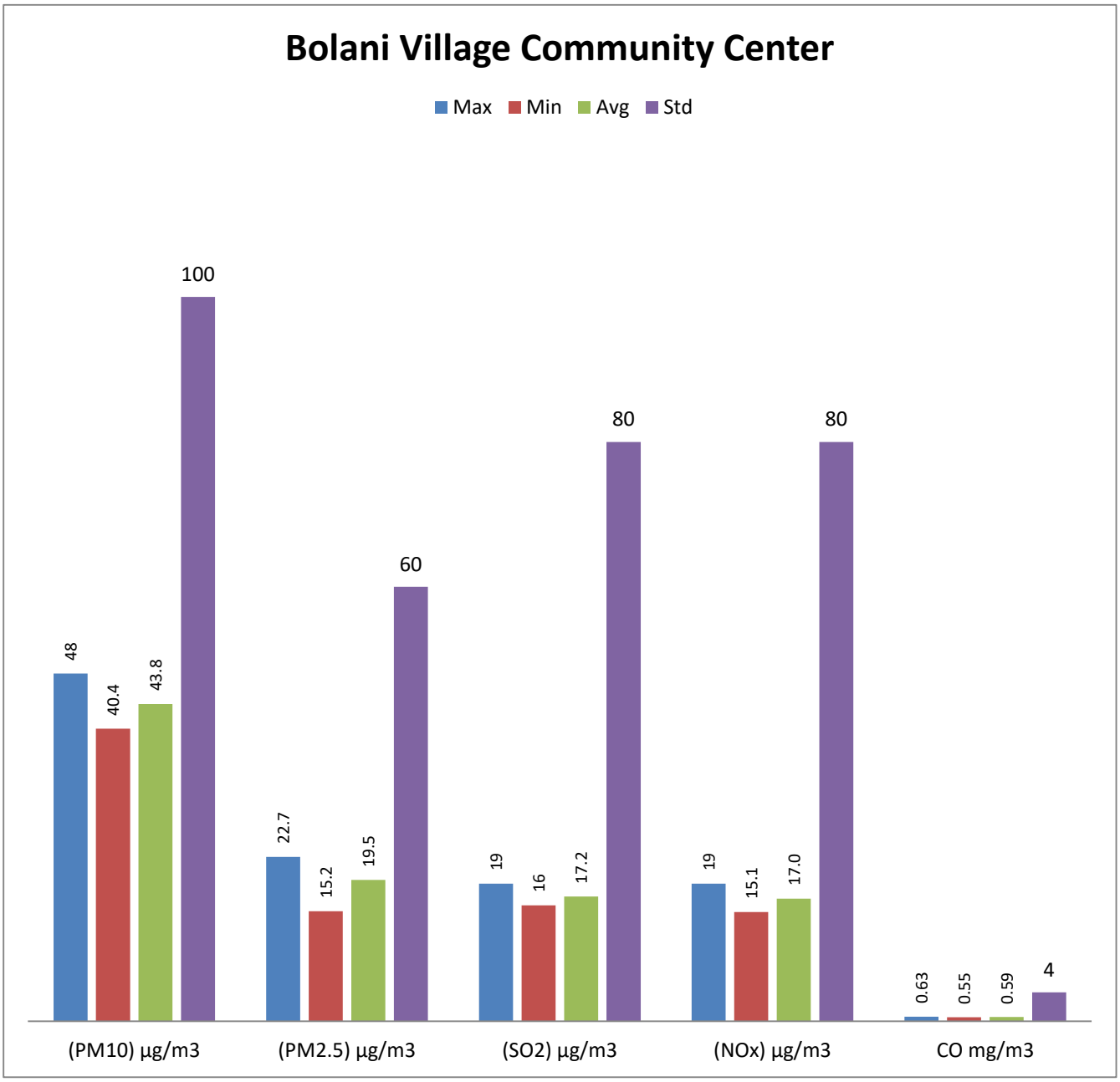
Table No. 3.1(c): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	CO		
			Max.	Min.	Avg.
1.	Bolani Village Community Center	A1	0.63	0.55	0.59
2.	Dav Public School	A2	0.64	0.55	0.59
3.	Main Gate	A3	0.64	0.56	0.60
4.	Bolani Mines Office Complex	A4	0.64	0.55	0.60
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 **48.0** µg/m³ whereas minimum concentration was observed **40.4** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **15.2** µg/m³ to **22.7** µg/m³, SO_2 concentration ranges between **16.0** µg/m³ to **19.0** µg/m³, NO_x as (NO_2) concentration ranges between **15.1** µg/m³ to **19.0** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.63** mg/m³ was observed during the month



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/160
Test Report Issue date: 02.10.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER 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.	01.09.2025	41.7	20.2	16.7	16.0	0.62
2.	02.09.2025	43.0	22.3	16.0	15.8	0.59
3.	03.09.2025	44.5	22.6	17.3	15.5	0.62
4.	04.09.2025	44.5	20.9	16.5	18.3	0.56
5.	05.09.2025	46.6	20.9	16.9	16.7	0.61
6.	06.09.2025	40.6	18.2	17.3	17.3	0.55
7.	07.09.2025	42.7	21.4	17.8	15.2	0.56
8.	08.09.2025	45.2	22.7	18.2	17.3	0.58
9.	09.09.2025	47.3	22.4	17.8	17.4	0.59
10.	10.09.2025	45.5	21.4	16.8	17.8	0.62
11.	11.09.2025	41.0	20.9	18.7	18.9	0.57
12.	12.09.2025	42.3	18.2	16.2	17.1	0.63
13.	13.09.2025	43.2	21.4	18.0	18.3	0.60
14.	14.09.2025	40.4	21.4	18.3	18.1	0.57
15.	15.09.2025	47.6	18.3	17.5	15.1	0.59
16.	16.09.2025	45.5	19.3	16.5	16.7	0.59
17.	17.09.2025	41.1	17.6	16.2	16.0	0.56
18.	18.09.2025	41.5	15.2	16.4	15.6	0.59
19.	19.09.2025	43.1	20.4	17.4	17.5	0.63
20.	20.09.2025	48.0	17.7	16.9	18.4	0.63
21.	21.09.2025	41.6	18.8	18.0	16.6	0.60
22.	22.09.2025	42.9	20.1	16.2	17.7	0.59
23.	23.09.2025	42.6	17.9	16.4	19.0	0.63
24.	24.09.2025	48.0	21.5	19.0	15.4	0.55
25.	25.09.2025	45.7	18.8	17.2	18.1	0.55
26.	26.09.2025	42.4	15.2	16.3	17.0	0.57
27.	27.09.2025	46.5	17.2	18.7	15.5	0.62
28.	28.09.2025	40.6	17.5	18.7	16.8	0.59
29.	29.09.2025	46.1	16.7	16.0	15.9	0.62
30	30.09.2025	42.5	18.2	17.2	17.6	0.55
Average		**43.8**	**19.5**	**17.2**	**17.0**	**0.59**

Note- No_x is Given as No_2

----End of Report----

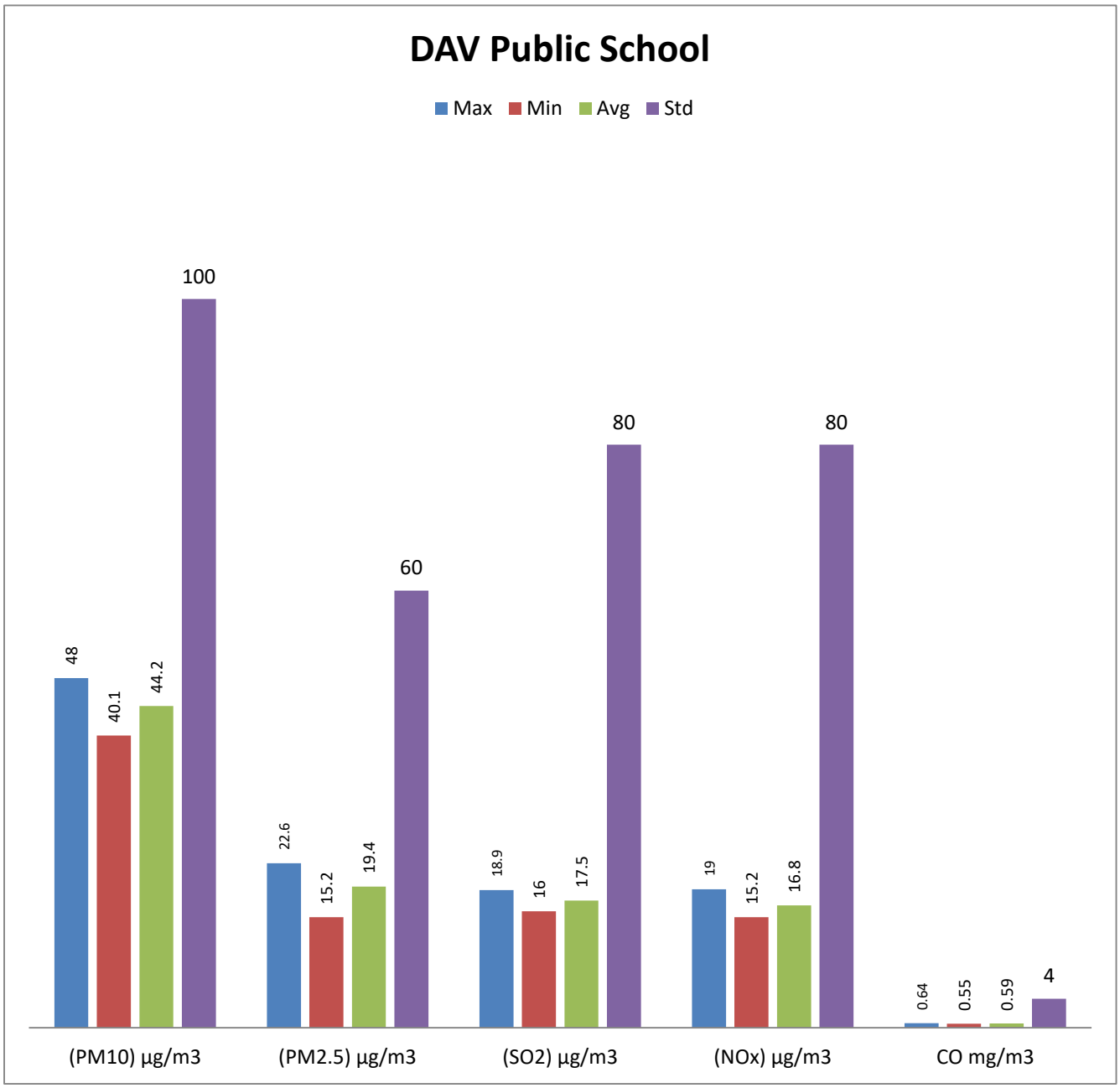
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No. 61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **48.0** µg/m³ whereas minimum concentration was observed **40.1**µg/m³ during the month. $PM_{2.5}$ concentration ranges between **15.2** µg/m³ to **22.6** µg/m³, SO_2 concentration ranges between **16.0** µg/m³to **18.9** µg/m³, NO_x as (NO_2) concentration ranges between **15.2** µg/m³ to **19.0** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.64** mg/m³ was observed during the month



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/161
Test Report Issue date: 02.10.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER 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.	01.09.2025	46.3	18.3	17.0	15.3	0.62
2.	02.09.2025	40.9	19.4	17.3	15.7	0.61
3.	03.09.2025	47.9	18.2	16.2	16.8	0.56
4.	04.09.2025	45.3	20.3	18.0	18.0	0.57
5.	05.09.2025	44.5	19.0	17.3	15.4	0.55
6.	06.09.2025	42.9	18.6	17.9	17.9	0.59
7.	07.09.2025	47.8	20.9	17.2	18.8	0.58
8.	08.09.2025	43.1	19.5	17.5	17.9	0.60
9.	09.09.2025	45.7	20.8	17.0	17.7	0.56
10.	10.09.2025	42.9	21.4	18.8	15.3	0.57
11.	11.09.2025	48.0	22.0	17.6	17.4	0.56
12.	12.09.2025	44.5	18.3	18.4	15.2	0.62
13.	13.09.2025	47.7	21.1	16.5	15.8	0.61
14.	14.09.2025	43.1	22.6	16.0	15.9	0.60
15.	15.09.2025	46.9	19.3	16.4	18.4	0.58
16.	16.09.2025	40.3	15.6	16.7	16.1	0.57
17.	17.09.2025	45.3	18.9	18.5	18.4	0.59
18.	18.09.2025	40.5	21.7	18.7	15.3	0.58
19.	19.09.2025	45.5	21.5	18.9	16.6	0.60
20.	20.09.2025	43.8	21.3	18.8	16.2	0.55
21.	21.09.2025	40.5	19.2	16.2	15.2	0.56
22.	22.09.2025	40.1	15.7	17.1	15.9	0.61
23.	23.09.2025	41.3	20.7	18.8	16.9	0.63
24.	24.09.2025	40.9	18.5	16.2	16.9	0.56
25.	25.09.2025	43.6	17.3	18.1	19.0	0.64
26.	26.09.2025	45.4	18.7	18.4	18.6	0.57
27.	27.09.2025	44.0	17.8	16.2	18.5	0.63
28.	28.09.2025	46.5	19.5	17.5	17.4	0.57
29.	29.09.2025	43.4	20.1	17.2	15.4	0.56
30.	30.09.2025	46.4	15.2	18.0	16.3	0.63
Average		**44.2**	**19.4**	**17.5**	**16.8**	**0.59**

Note- No_x is Given as No_2

----End of Report----

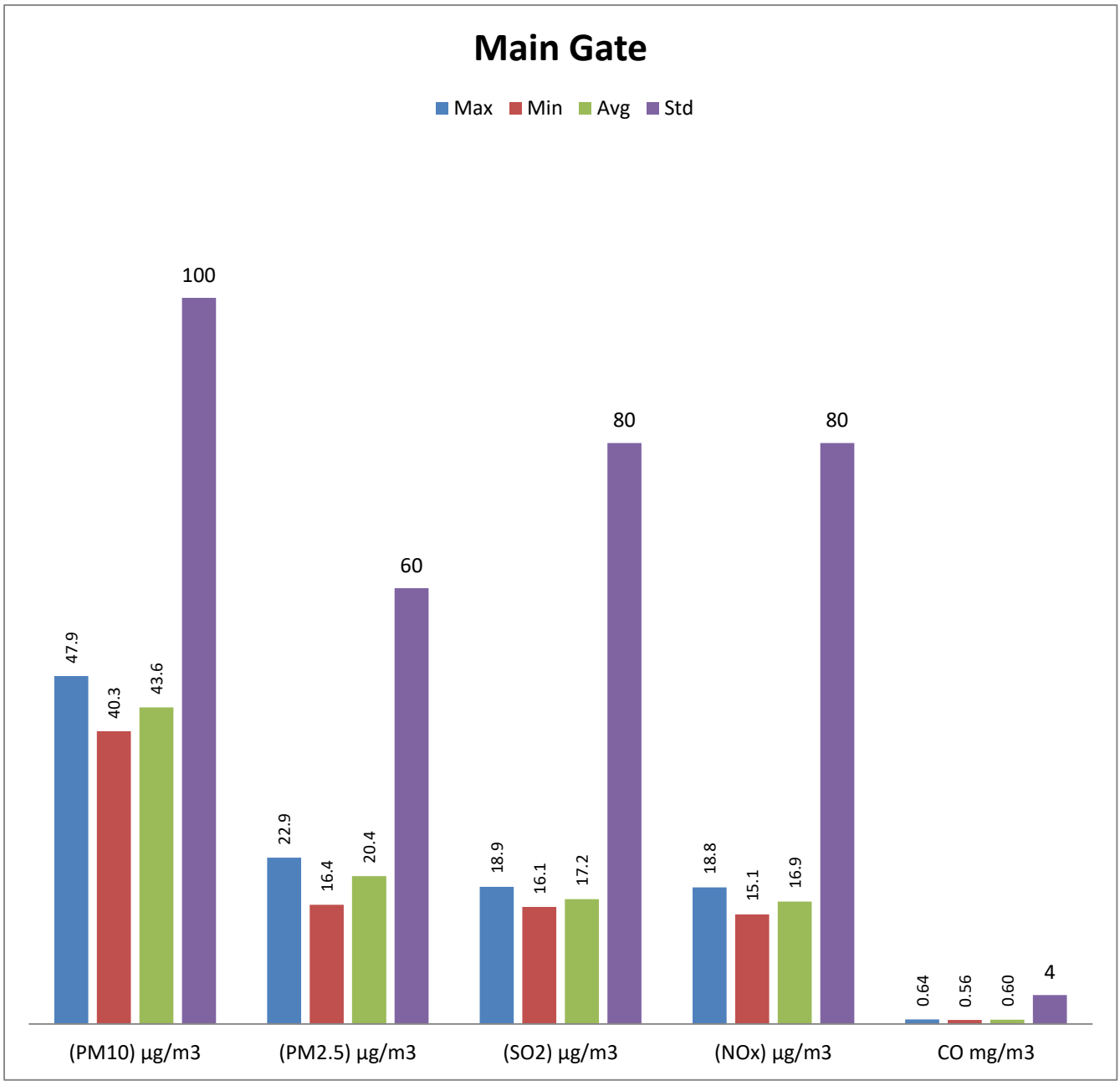
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **47.9** µg/m³ whereas minimum concentration was observed **40.3** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **15.4** µg/m³ to **22.9** µg/m³, SO_2 concentration ranges between **16.4** µg/m³to **22.9** µg/m³, NO_x as (NO_2) concentration ranges between **15.1** µg/m³ to **18.8** µg/m³ and CO concentration ranges between **0.56** mg/m³ to **0.64** mg/m³ was observed during the month



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/162
Test Report Issue date: 02.10.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER 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.	01.09.2025	40.3	18.2	17.4	15.2	0.56
2.	02.09.2025	43.2	20.7	16.3	17.9	0.59
3.	03.09.2025	45.5	21.4	17.1	16.1	0.57
4.	04.09.2025	43.2	20.4	16.5	18.6	0.62
5.	05.09.2025	44.5	20.8	16.6	16.6	0.61
6.	06.09.2025	45.7	20.4	17.4	17.1	0.62
7.	07.09.2025	44.8	22.9	17.8	18.0	0.63
8.	08.09.2025	45.4	21.0	16.8	17.0	0.60
9.	09.09.2025	45.6	22.6	17.4	15.4	0.60
10.	10.09.2025	44.9	22.4	17.5	18.3	0.58
11.	11.09.2025	41.6	19.7	18.7	16.0	0.56
12.	12.09.2025	40.5	20.7	18.9	17.7	0.61
13.	13.09.2025	43.2	18.5	18.9	15.1	0.62
14.	14.09.2025	45.5	21.0	16.8	15.7	0.56
15.	15.09.2025	40.3	22.7	17.9	18.8	0.59
16.	16.09.2025	45.9	21.2	16.8	18.5	0.63
17.	17.09.2025	44.7	17.4	17.6	16.2	0.57
18.	18.09.2025	44.0	16.4	16.3	17.8	0.63
19.	19.09.2025	40.8	20.7	16.4	16.2	0.61
20.	20.09.2025	42.0	20.5	16.1	15.4	0.61
21.	21.09.2025	42.9	20.7	16.7	17.0	0.62
22.	22.09.2025	41.5	21.5	16.5	15.8	0.60
23.	23.09.2025	47.9	20.1	17.7	18.2	0.57
24.	24.09.2025	41.6	19.1	16.6	15.3	0.62
25.	25.09.2025	41.6	20.7	16.4	15.6	0.59
26.	26.09.2025	44.3	17.8	16.5	15.6	0.64
27.	27.09.2025	41.2	21.3	18.7	17.8	0.63
28.	28.09.2025	44.9	19.8	17.2	18.5	0.56
29.	29.09.2025	45.5	20.1	16.5	16.3	0.61
30.	30.09.2025	45.1	20.6	17.6	18.5	0.63
Average		**43.6**	**20.4**	**17.2**	**16.9**	**0.60**

Note- No_x is Given as No_2

----End of Report----

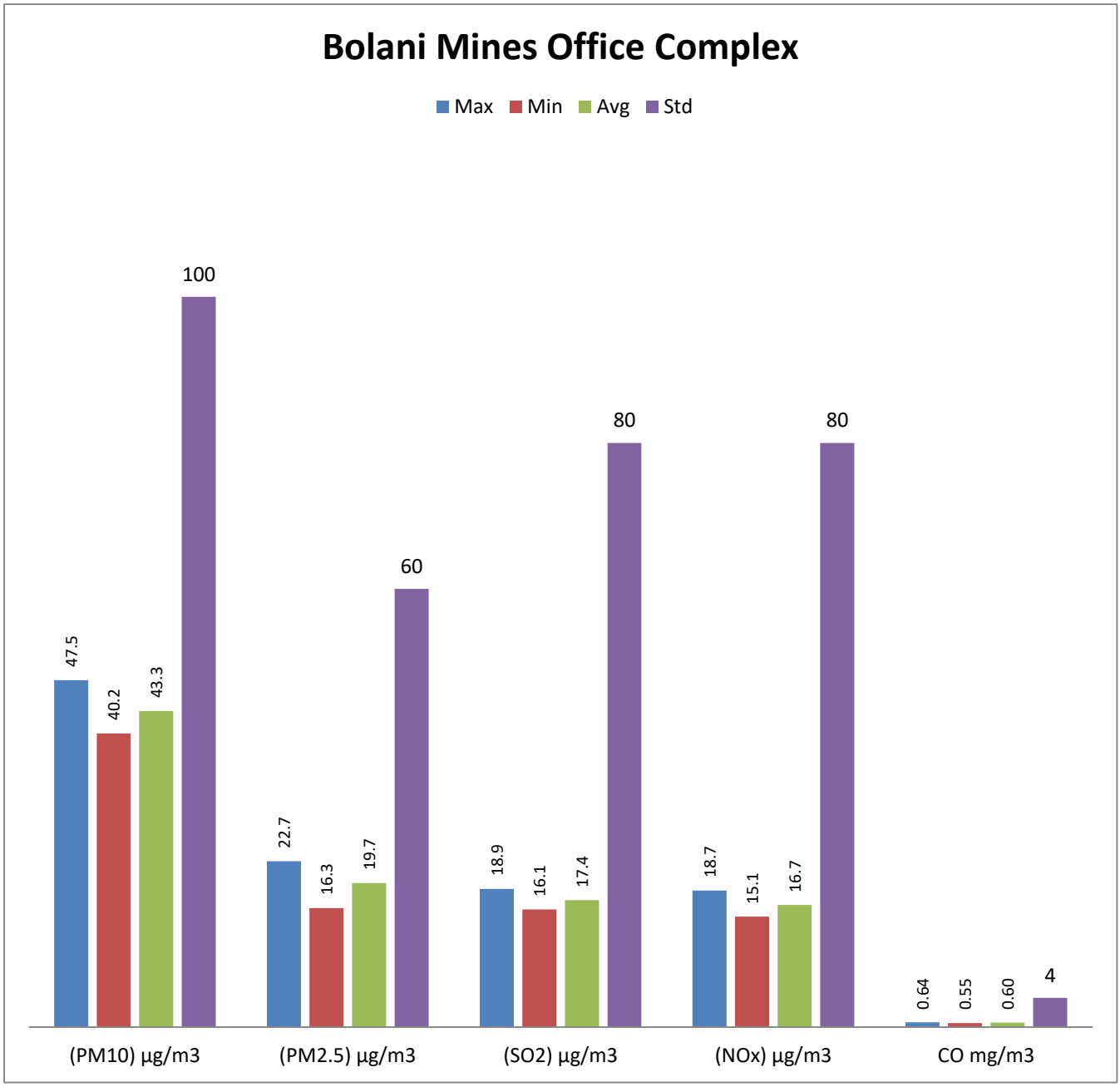
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Pvt. Ltd. Mirzapur Bakshi Ka Talab Lucknow, U.P. 226021

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 **47.5** µg/m³ whereas minimum concentration was observed **40.2** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **16.3** µg/m³ to **22.7** µg/m³, SO_2 concentration ranges between **16.1** µg/m³to **18.9** µg/m³, NO_x as (NO_2) concentration ranges between **15.1** µg/m³ to **18.7** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.64** mg/m³ was observed during the month



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/163
Test Report Issue date: 02.10.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER 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.	01.09.2025	44.5	18.9	16.2	18.1	0.62
2.	02.09.2025	47.5	21.4	18.2	16.3	0.62
3.	03.09.2025	40.2	20.1	16.3	17.4	0.57
4.	04.09.2025	40.4	19.9	18.5	16.6	0.61
5.	05.09.2025	46.9	22.4	16.7	17.7	0.57
6.	06.09.2025	44.7	20.6	18.0	15.6	0.61
7.	07.09.2025	44.0	21.3	16.3	15.9	0.62
8.	08.09.2025	46.8	22.4	18.2	15.6	0.60
9.	09.09.2025	41.0	22.7	17.0	16.5	0.60
10.	10.09.2025	42.4	18.3	17.5	16.2	0.61
11.	11.09.2025	45.3	18.7	16.8	18.0	0.61
12.	12.09.2025	40.3	21.1	16.9	15.1	0.55
13.	13.09.2025	43.2	19.1	16.1	15.9	0.59
14.	14.09.2025	41.5	18.3	17.6	16.4	0.57
15.	15.09.2025	42.4	21.2	17.7	16.3	0.62
16.	16.09.2025	41.5	19.5	16.2	16.8	0.59
17.	17.09.2025	41.0	18.5	17.0	17.1	0.60
18.	18.09.2025	43.1	19.4	17.5	18.0	0.63
19.	19.09.2025	45.4	18.7	17.5	15.5	0.56
20.	20.09.2025	44.1	20.8	18.7	16.1	0.59
21.	21.09.2025	40.9	20.5	18.4	18.6	0.59
22.	22.09.2025	42.6	21.4	18.5	16.4	0.62
23.	23.09.2025	40.9	20.5	17.6	15.2	0.60
24.	24.09.2025	43.9	16.9	18.3	16.5	0.59
25.	25.09.2025	42.2	16.8	18.2	18.3	0.59
26.	26.09.2025	43.7	18.3	16.1	18.7	0.60
27.	27.09.2025	44.4	18.0	17.1	17.2	0.63
28.	28.09.2025	45.1	21.5	16.2	16.5	0.64
29.	29.09.2025	41.3	16.3	18.9	17.6	0.63
30.	30.09.2025	46.8	17.9	16.8	15.2	0.58
Average		43.3	19.7	17.4	16.7	0.60

Note- No_x is Given as No_2

----End of Report----

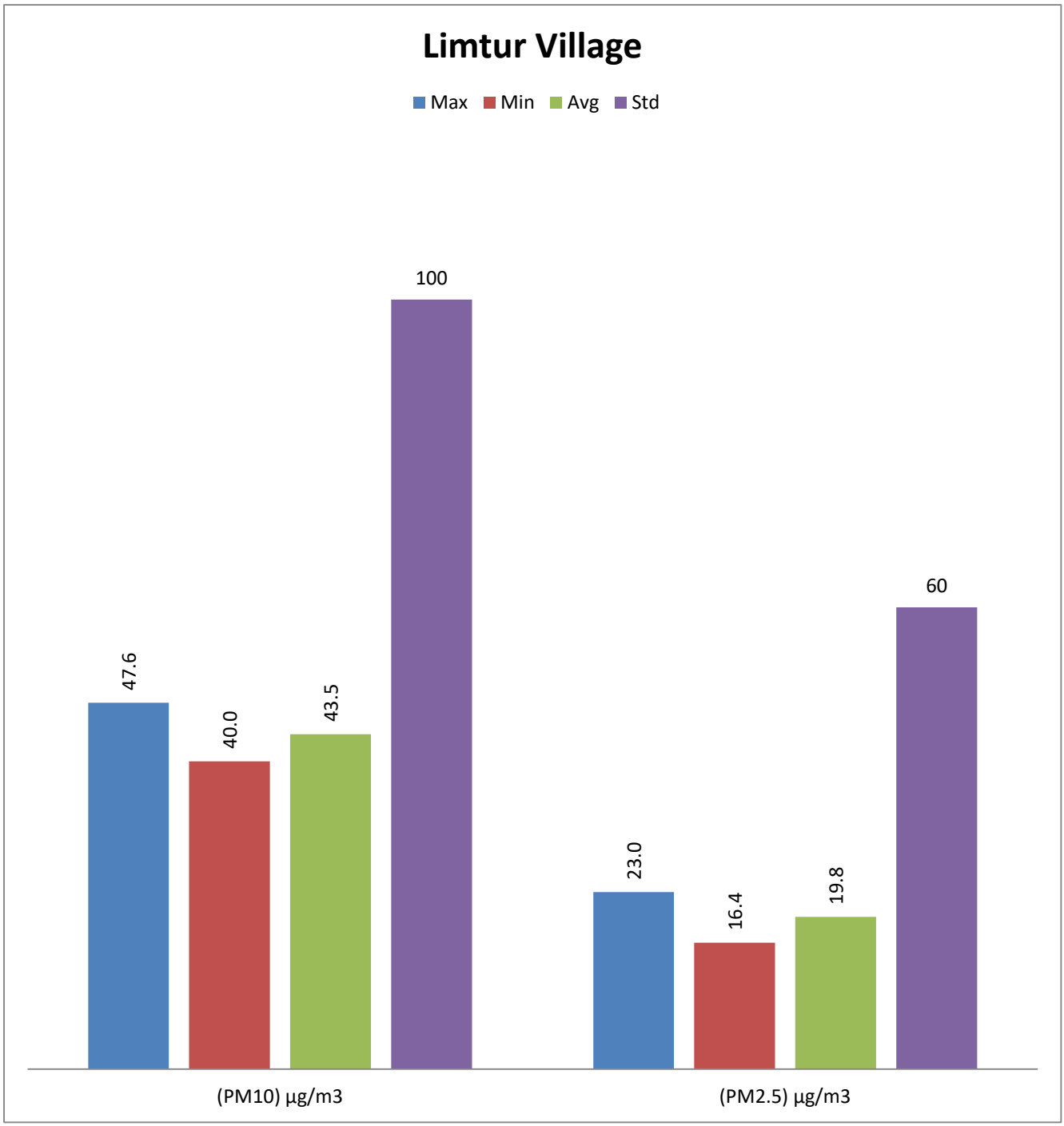
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **47.6** µg/m^3 whereas minimum concentration was observed **40.0** µg/m^3 and $PM_{2.5}$ concentration ranges between **16.4** µg/m^3 to **23.0** µg/m^3 during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/164
Test Report Issue date: 02.10.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER 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.	01.09.2025	42.8	18.4
2.	02.09.2025	41.1	23.0
3.	03.09.2025	43.0	19.8
4.	04.09.2025	40.0	20.6
5.	05.09.2025	44.9	19.7
6.	06.09.2025	47.3	19.1
7.	07.09.2025	42.1	19.2
8.	08.09.2025	45.5	18.3
9.	09.09.2025	42.5	21.3
10.	10.09.2025	45.1	21.8
11.	11.09.2025	47.6	20.3
12.	12.09.2025	41.7	22.7
13.	13.09.2025	46.5	22.2
14.	14.09.2025	41.4	21.2
15.	15.09.2025	40.1	20.8
16.	16.09.2025	45.0	16.4
17.	17.09.2025	42.6	18.9
18.	18.09.2025	46.5	19.2
19.	19.09.2025	43.7	17.5
20.	20.09.2025	43.3	19.4
21.	21.09.2025	42.1	21.5
22.	22.09.2025	45.9	21.2
23.	23.09.2025	42.3	20.0
24.	24.09.2025	40.2	16.9
25.	25.09.2025	44.7	21.6
26.	26.09.2025	40.2	16.8
27.	27.09.2025	42.1	17.5
28.	28.09.2025	47.0	17.3
29.	29.09.2025	42.2	19.7
30.	30.09.2025	45.9	20.7
Average		**43.5**	**19.8**

----End of Report----

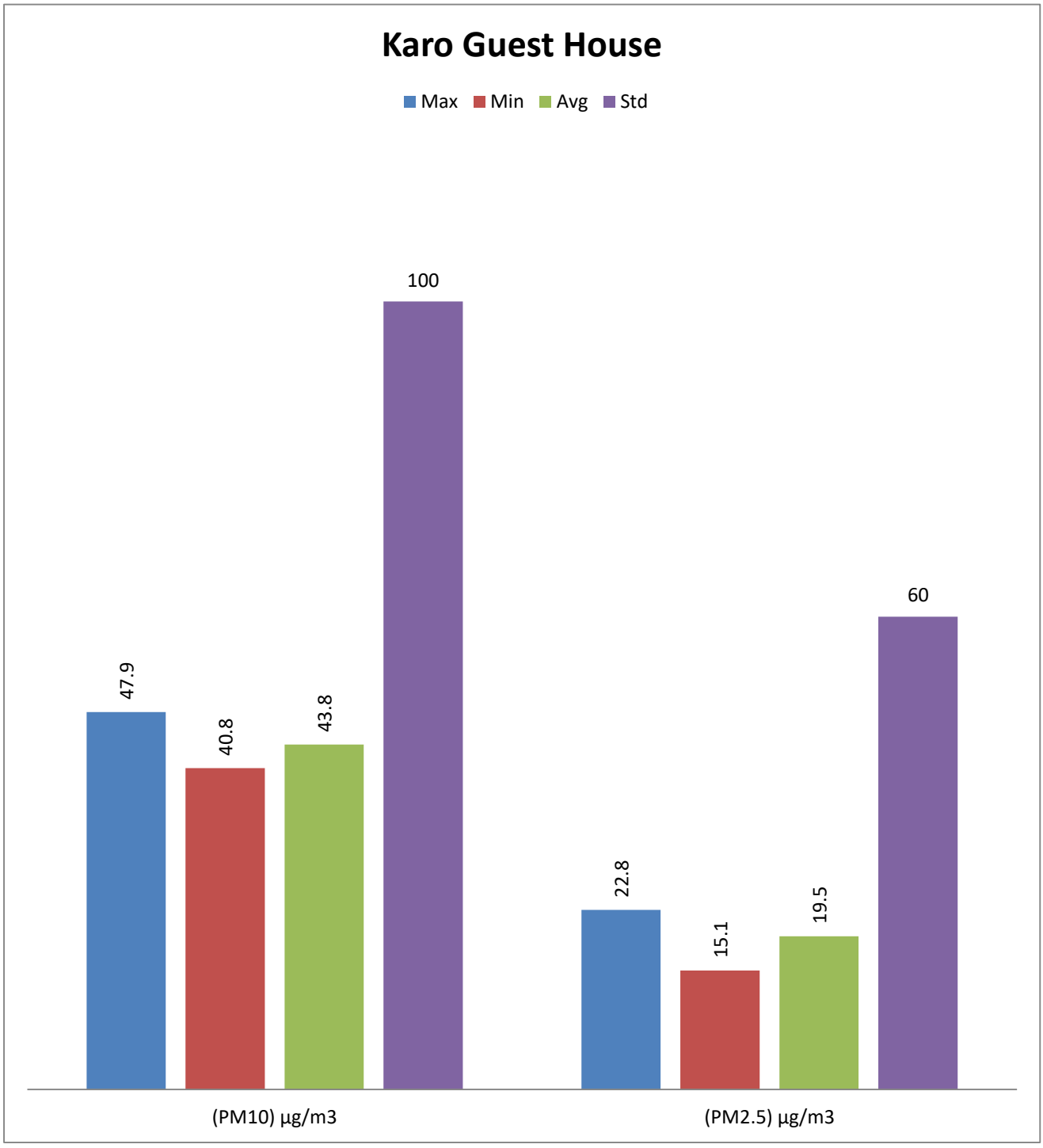
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **47.9** µg/m^3 whereas minimum concentration was observed **40.8** µg/m^3 and $PM_{2.5}$ concentration ranges between **15.1** µg/m^3 to **22.8** µg/m^3 during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/165
Test Report Issue date: 02.10.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER 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.	01.09.2025	44.6	20.9
2.	02.09.2025	41.8	18.3
3.	03.09.2025	41.8	20.9
4.	04.09.2025	45.5	22.8
5.	05.09.2025	41.1	19.4
6.	06.09.2025	45.3	18.4
7.	07.09.2025	42.9	20.3
8.	08.09.2025	42.4	19.8
9.	09.09.2025	43.2	21.4
10.	10.09.2025	43.7	19.6
11.	11.09.2025	44.3	21.2
12.	12.09.2025	47.6	19.2
13.	13.09.2025	41.9	19.5
14.	14.09.2025	47.2	19.1
15.	15.09.2025	45.0	19.0
16.	16.09.2025	47.9	19.2
17.	17.09.2025	44.2	20.9
18.	18.09.2025	43.1	15.1
19.	19.09.2025	42.2	19.6
20.	20.09.2025	45.1	19.3
21.	21.09.2025	41.1	21.7
22.	22.09.2025	47.8	20.9
23.	23.09.2025	40.8	18.4
24.	24.09.2025	42.9	18.8
25.	25.09.2025	42.7	18.3
26.	26.09.2025	45.1	18.4
27.	27.09.2025	44.4	19.7
28.	28.09.2025	44.0	16.9
29.	29.09.2025	41.3	16.2
30.	30.09.2025	42.5	20.6
Average		**43.8**	**19.5**

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Laboratories Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

3.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring:

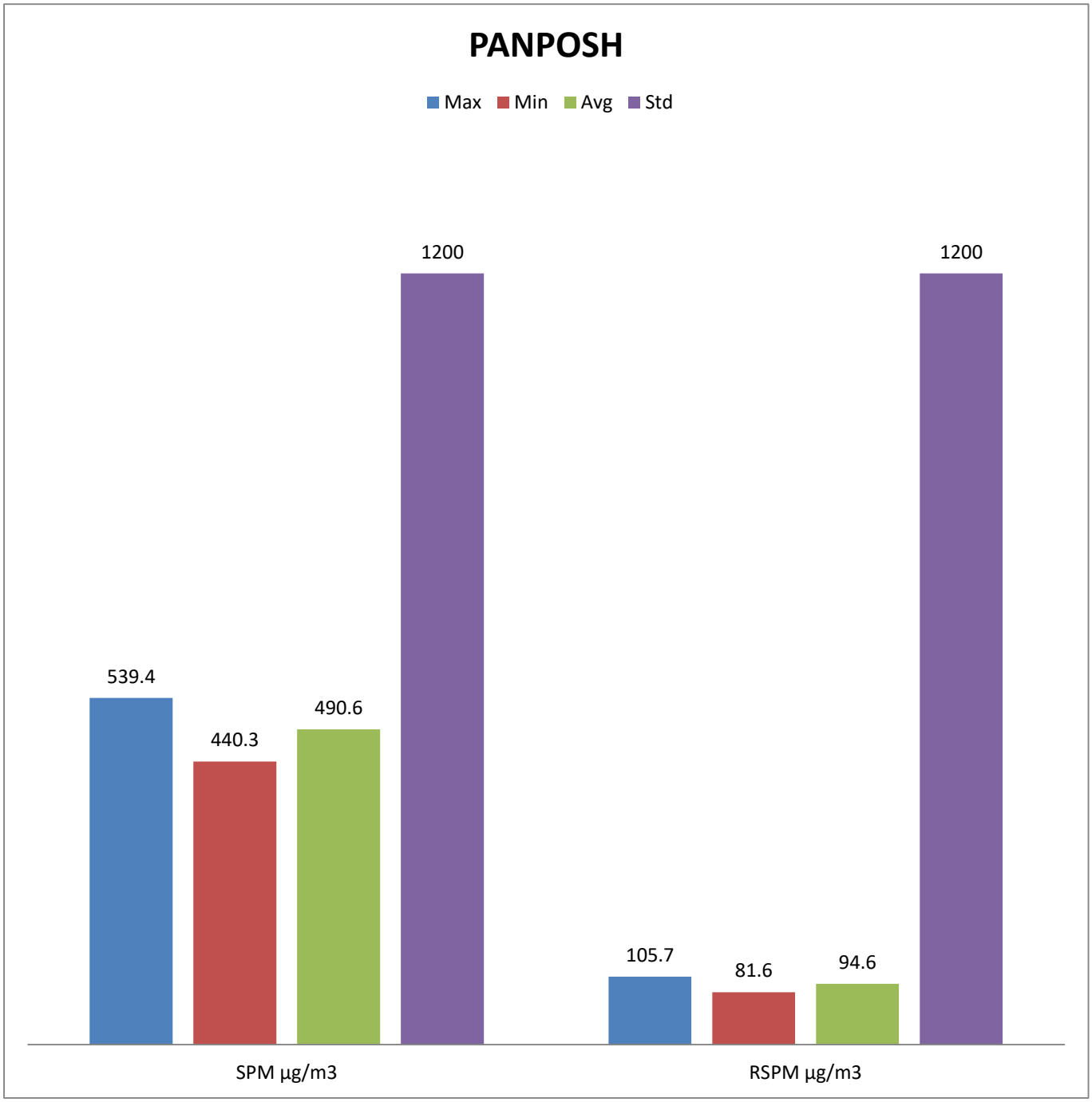
The Summarized results of Work Zone Air Quality/Fugitive Dust Emission for the month of September-2025 are given in the **Table below**

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	539.4	440.3	490.6	105.7	81.6	94.6
2.	D Area	F2	536.9	441.4	490.3	106.7	84.5	94.9
3.	F Area	F3	539.1	445.7	488.2	112.7	80.6	96.9
4.	G Area	F4	529.4	442.7	485.9	108.1	85.1	94.6
5.	Lump Loading Point (near 600TPH)	F5	538.0	452.7	488.5	108.1	82.9	95.7
6.	Fines Loading (20 Area)	F6	535.8	441.2	489.2	107.0	81.2	95.2
7.	Dump Fines handling route	F7	539.6	449.7	496.0	111.7	82.5	97.5
8.	SSP	F8	537.9	444.5	499.7	110.3	81.4	97.4
9.	Dump Fines Handling Site	F9	535.6	441.9	494.2	111.4	79.8	97.1
10.	Mn Quarry	F10	535.6	440.3	483.6	107.8	81.8	95.0
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 **539.4** µg/m³ whereas minimum concentration was observed **440.3** µg/m³ and RSPM concentration ranges between **81.6** µg/m³ to **105.7** µg/m³ during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/166
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	Panposh	539.4	100.3
2.	02-09-2025	Panposh	508.6	105.6
3.	03-09-2025	Panposh	522.3	99.4
4.	04-09-2025	Panposh	467.3	95.2
5.	05-09-2025	Panposh	532.2	98.0
6.	06-09-2025	Panposh	440.3	81.6
7.	07-09-2025	Panposh	474.1	95.0
8.	08-09-2025	Panposh	468.3	86.0
9.	09-09-2025	Panposh	469.1	89.6
10.	10-09-2025	Panposh	464.6	86.9
11.	11-09-2025	Panposh	501.2	93.1
12.	12-09-2025	Panposh	455.6	88.2
13.	13-09-2025	Panposh	459.4	86.2
14.	14-09-2025	Panposh	534.9	105.7
15.	15-09-2025	Panposh	476.9	97.7
16.	16-09-2025	Panposh	535.3	97.4
17.	17-09-2025	Panposh	490.7	92.4
18.	18-09-2025	Panposh	455.7	90.7
19.	19-09-2025	Panposh	476.1	88.6
20.	20-09-2025	Panposh	507.8	105.4
21.	21-09-2025	Panposh	466.4	88.5
22.	22-09-2025	Panposh	530.9	101.8
23.	23-09-2025	Panposh	480.1	95.0
24.	24-09-2025	Panposh	532.9	104.7
25.	25-09-2025	Panposh	458.0	96.0
26.	26-09-2025	Panposh	502.5	93.7
27.	27-09-2025	Panposh	516.3	93.6
28.	28-09-2025	Panposh	502.8	97.0
29.	29-09-2025	Panposh	492.3	91.1
30.	30-09-2025	Panposh	456.8	94.8
Average			**490.6**	**94.6**

----End of Report----

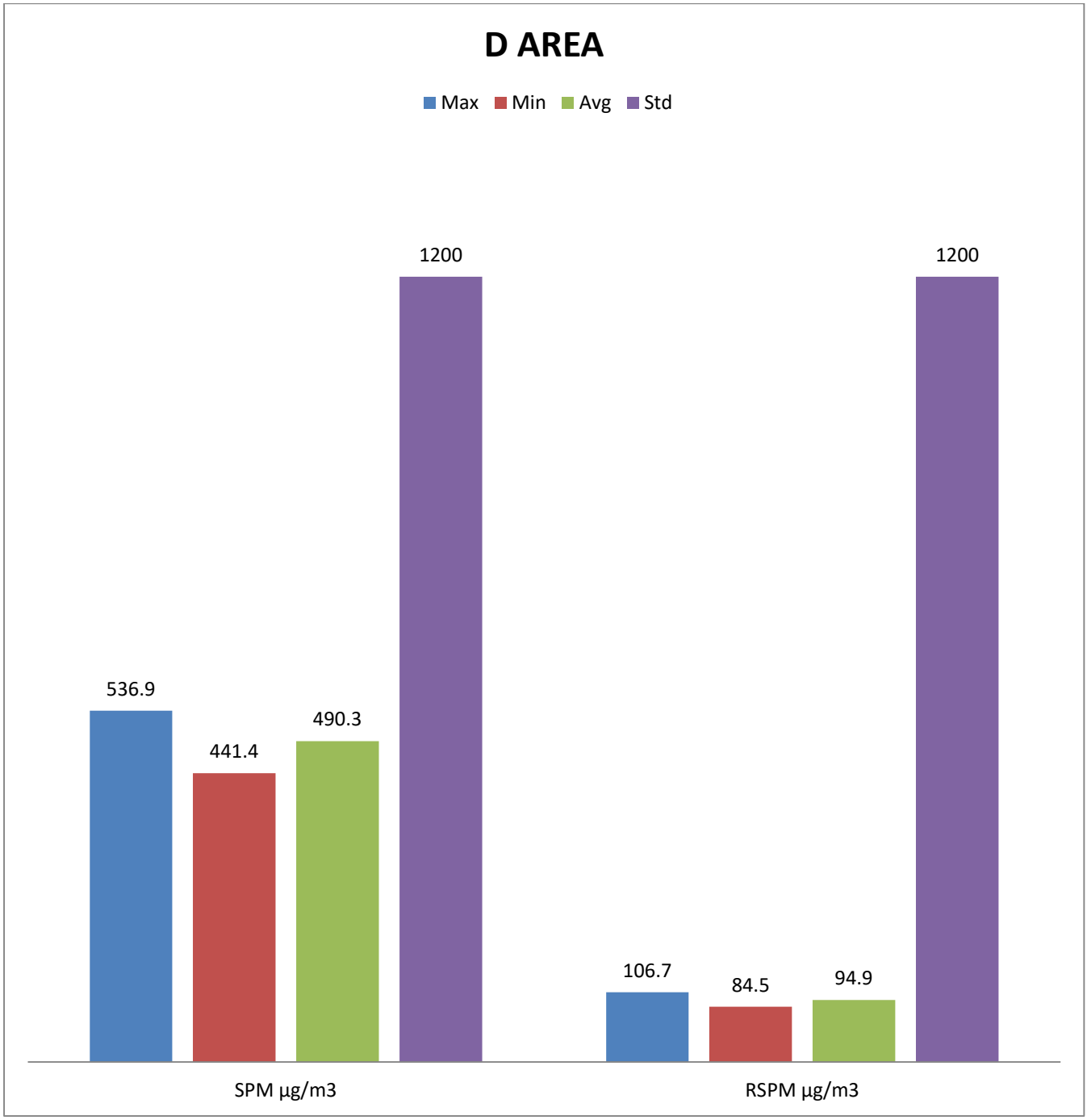
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **536.9** µg/m^3 whereas minimum concentration was observed **441.4** µg/m^3 and RSPM concentration ranges between **84.5** µg/m^3 to **106.7** µg/m^3 during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/167
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	D Area	452.6	93.2
2.	02-09-2025	D Area	468.9	95.1
3.	03-09-2025	D Area	492.0	97.3
4.	04-09-2025	D Area	527.0	99.9
5.	05-09-2025	D Area	451.1	84.6
6.	06-09-2025	D Area	527.9	101.4
7.	07-09-2025	D Area	521.9	99.5
8.	08-09-2025	D Area	464.8	92.6
9.	09-09-2025	D Area	496.8	96.7
10.	10-09-2025	D Area	446.5	93.1
11.	11-09-2025	D Area	494.5	95.1
12.	12-09-2025	D Area	532.3	106.7
13.	13-09-2025	D Area	484.5	97.8
14.	14-09-2025	D Area	506.0	102.2
15.	15-09-2025	D Area	441.4	87.2
16.	16-09-2025	D Area	536.9	102.2
17.	17-09-2025	D Area	510.0	103.0
18.	18-09-2025	D Area	508.8	94.1
19.	19-09-2025	D Area	477.5	86.5
20.	20-09-2025	D Area	445.6	91.3
21.	21-09-2025	D Area	499.8	94.7
22.	22-09-2025	D Area	520.4	102.6
23.	23-09-2025	D Area	514.4	93.7
24.	24-09-2025	D Area	457.8	88.6
25.	25-09-2025	D Area	485.9	93.5
26.	26-09-2025	D Area	504.0	91.0
27.	27-09-2025	D Area	485.1	88.9
28.	28-09-2025	D Area	475.1	92.9
29.	29-09-2025	D Area	455.4	84.5
30.	30-09-2025	D Area	523.9	95.8
Average			**490.3**	**94.9**

----End of Report----

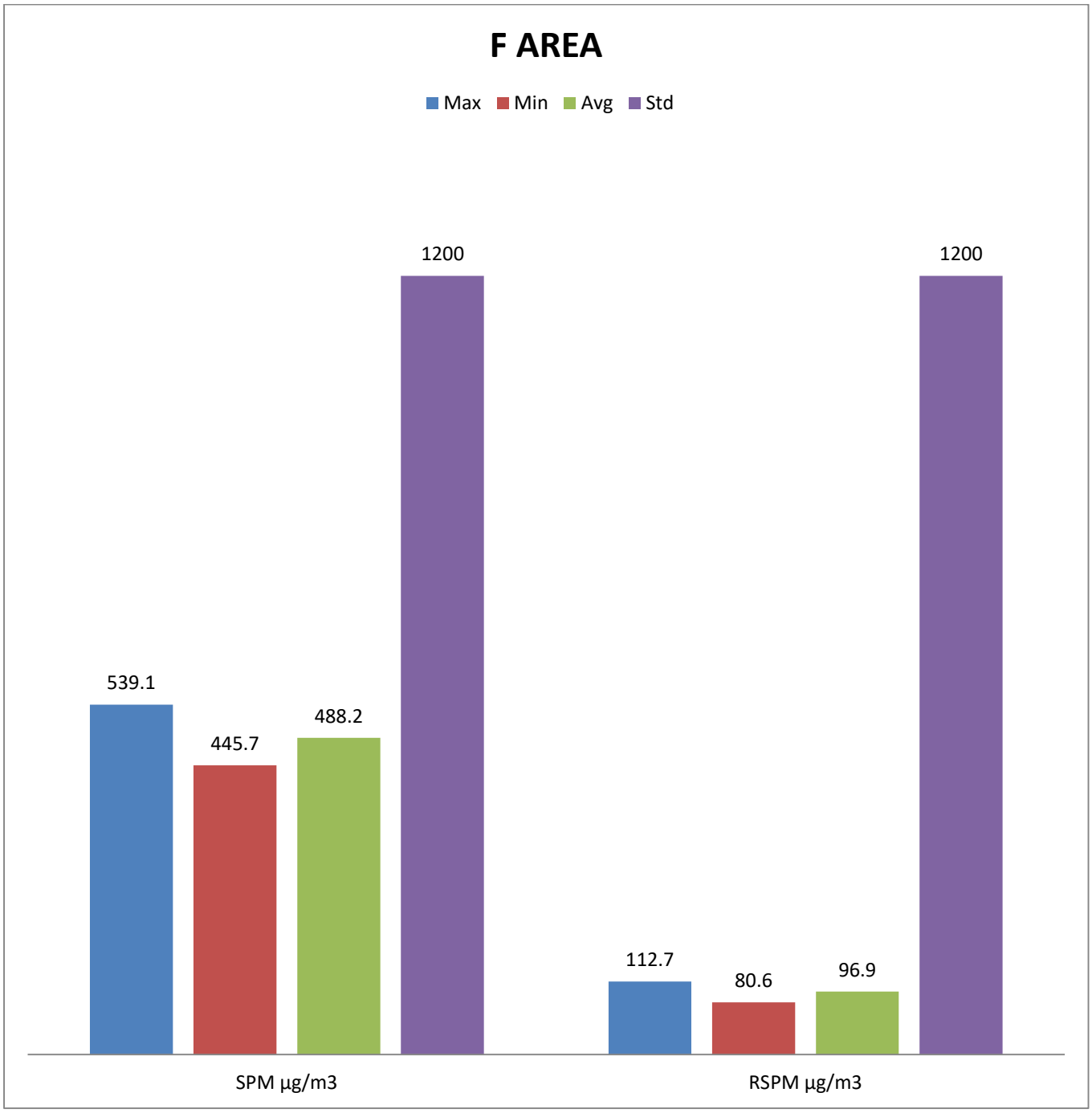
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **539.1** µg/m^3 whereas minimum concentration was observed **445.7** µg/m^3 and RSPM concentration ranges between **80.6** µg/m^3 to **112.7** µg/m^3 during the month



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/168
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	F Area	468.3	97.2
2.	02-09-2025	F Area	537.4	112.7
3.	03-09-2025	F Area	449.7	90.1
4.	04-09-2025	F Area	455.0	84.8
5.	05-09-2025	F Area	524.6	109.5
6.	06-09-2025	F Area	452.2	91.6
7.	07-09-2025	F Area	509.6	94.1
8.	08-09-2025	F Area	486.6	97.2
9.	09-09-2025	F Area	493.9	102.6
10.	10-09-2025	F Area	505.6	91.8
11.	11-09-2025	F Area	539.1	109.5
12.	12-09-2025	F Area	445.7	80.6
13.	13-09-2025	F Area	489.7	99.8
14.	14-09-2025	F Area	536.7	106.4
15.	15-09-2025	F Area	459.0	85.9
16.	16-09-2025	F Area	446.4	91.7
17.	17-09-2025	F Area	458.0	88.8
18.	18-09-2025	F Area	478.8	99.6
19.	19-09-2025	F Area	510.6	104.9
20.	20-09-2025	F Area	500.5	91.0
21.	21-09-2025	F Area	481.8	95.8
22.	22-09-2025	F Area	463.1	92.5
23.	23-09-2025	F Area	492.3	98.8
24.	24-09-2025	F Area	505.9	95.5
25.	25-09-2025	F Area	507.2	96.2
26.	26-09-2025	F Area	469.4	92.5
27.	27-09-2025	F Area	486.8	102.2
28.	28-09-2025	F Area	469.6	91.3
29.	29-09-2025	F Area	488.0	101.2
30.	30-09-2025	F Area	534.6	112.1
Average			**488.2**	**96.9**

----End of Report----

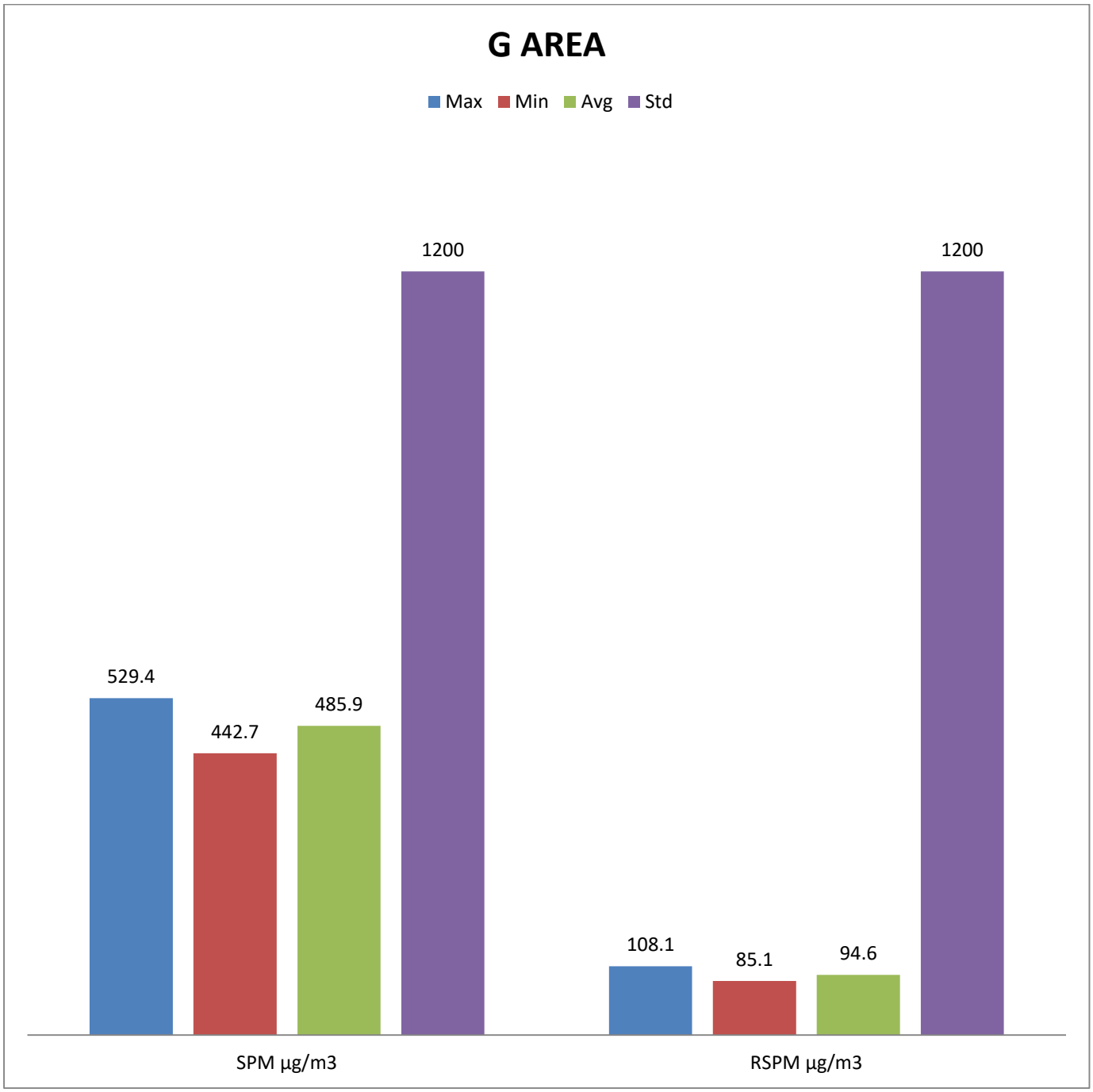
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **529.4** µg/m^3 whereas minimum concentration was observed **442.7** µg/m^3 and RSPM concentration ranges between **85.1** µg/m^3 to **108.1** µg/m^3 during the month



ECOMEN MINING PRIVATE LIMITED
(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/169
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	G Area	511.3	96.9
2.	02-09-2025	G Area	467.9	85.1
3.	03-09-2025	G Area	529.4	108.1
4.	04-09-2025	G Area	453.1	88.7
5.	05-09-2025	G Area	513.2	106.4
6.	06-09-2025	G Area	497.5	97.9
7.	07-09-2025	G Area	497.8	101.8
8.	08-09-2025	G Area	509.2	101.6
9.	09-09-2025	G Area	497.5	90.0
10.	10-09-2025	G Area	442.7	92.5
11.	11-09-2025	G Area	505.9	99.6
12.	12-09-2025	G Area	447.4	89.2
13.	13-09-2025	G Area	481.9	89.4
14.	14-09-2025	G Area	451.5	92.1
15.	15-09-2025	G Area	520.1	102.1
16.	16-09-2025	G Area	511.4	92.3
17.	17-09-2025	G Area	446.3	85.3
18.	18-09-2025	G Area	450.4	93.4
19.	19-09-2025	G Area	480.5	87.7
20.	20-09-2025	G Area	520.0	96.7
21.	21-09-2025	G Area	492.1	91.8
22.	22-09-2025	G Area	466.6	91.8
23.	23-09-2025	G Area	492.1	98.9
24.	24-09-2025	G Area	501.3	103.0
25.	25-09-2025	G Area	465.2	87.5
26.	26-09-2025	G Area	494.0	92.5
27.	27-09-2025	G Area	504.6	101.1
28.	28-09-2025	G Area	458.1	91.6
29.	29-09-2025	G Area	504.3	96.5
30.	30-09-2025	G Area	463.6	87.3
Average			**485.9**	**94.6**

----End of Report----

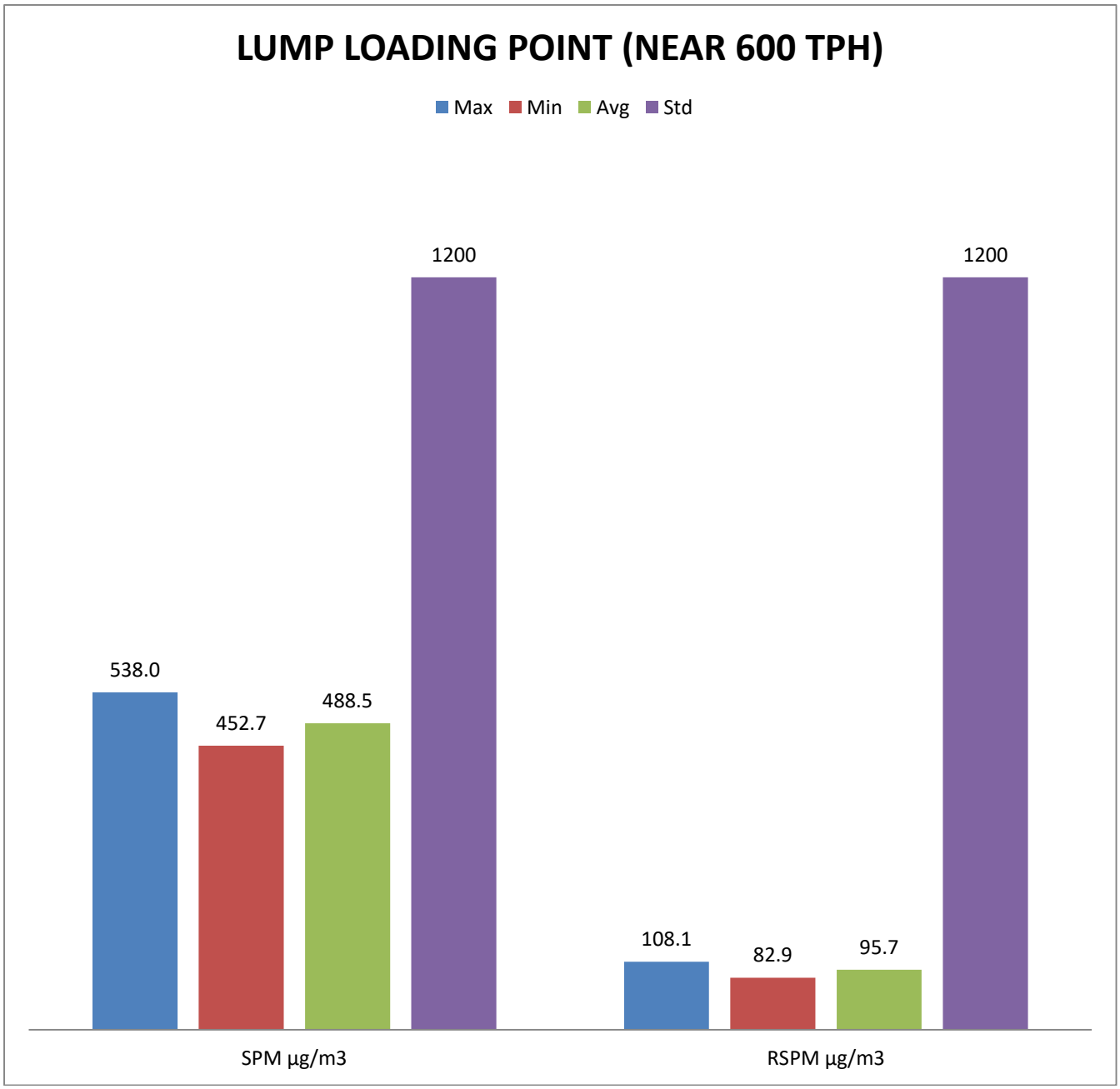
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **538.0**µg/m^3 whereas minimum concentration was observed **452.7** µg/m^3 and RSPM concentration ranges between **82.9** µg/m^3 to **108.1** µg/m^3 during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/170
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	Lump Loading Point (Near 600 TPH)	453.6	86.6
2.	02-09-2025	Lump Loading Point (Near 600 TPH)	493.4	99.4
3.	03-09-2025	Lump Loading Point (Near 600 TPH)	524.0	95.2
4.	04-09-2025	Lump Loading Point (Near 600 TPH)	453.3	86.3
5.	05-09-2025	Lump Loading Point (Near 600 TPH)	456.3	83.5
6.	06-09-2025	Lump Loading Point (Near 600 TPH)	486.6	101.3
7.	07-09-2025	Lump Loading Point (Near 600 TPH)	494.8	96.3
8.	08-09-2025	Lump Loading Point (Near 600 TPH)	521.7	97.2
9.	09-09-2025	Lump Loading Point (Near 600 TPH)	523.0	104.8
10.	10-09-2025	Lump Loading Point (Near 600 TPH)	455.3	86.8
11.	11-09-2025	Lump Loading Point (Near 600 TPH)	475.8	97.0
12.	12-09-2025	Lump Loading Point (Near 600 TPH)	482.7	101.2
13.	13-09-2025	Lump Loading Point (Near 600 TPH)	505.7	103.7
14.	14-09-2025	Lump Loading Point (Near 600 TPH)	508.3	100.4
15.	15-09-2025	Lump Loading Point (Near 600 TPH)	464.4	87.2
16.	16-09-2025	Lump Loading Point (Near 600 TPH)	467.5	97.0
17.	17-09-2025	Lump Loading Point (Near 600 TPH)	504.0	104.4
18.	18-09-2025	Lump Loading Point (Near 600 TPH)	509.6	96.6
19.	19-09-2025	Lump Loading Point (Near 600 TPH)	522.8	108.1
20.	20-09-2025	Lump Loading Point (Near 600 TPH)	476.1	99.7
21.	21-09-2025	Lump Loading Point (Near 600 TPH)	477.4	95.2
22.	22-09-2025	Lump Loading Point (Near 600 TPH)	487.7	92.5
23.	23-09-2025	Lump Loading Point (Near 600 TPH)	452.7	82.9
24.	24-09-2025	Lump Loading Point (Near 600 TPH)	465.9	86.0
25.	25-09-2025	Lump Loading Point (Near 600 TPH)	488.5	88.3
26.	26-09-2025	Lump Loading Point (Near 600 TPH)	501.1	102.3
27.	27-09-2025	Lump Loading Point (Near 600 TPH)	470.2	87.2
28.	28-09-2025	Lump Loading Point (Near 600 TPH)	504.7	102.9
29.	29-09-2025	Lump Loading Point (Near 600 TPH)	490.8	100.7
30.	30-09-2025	Lump Loading Point (Near 600 TPH)	538.0	101.1
Average			**488.5**	**95.7**

----End of Report----

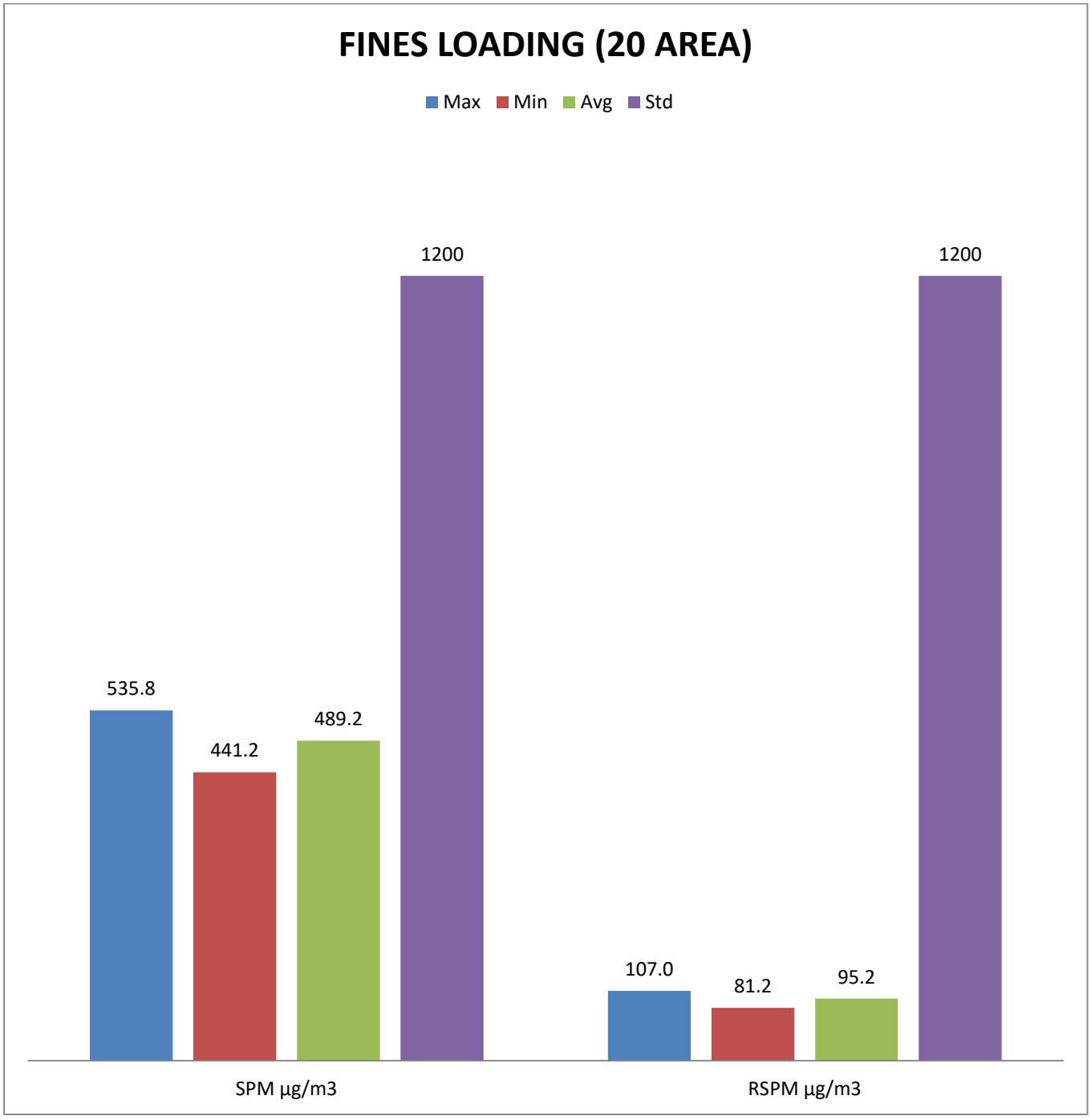
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No. 61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **535.8** µg/m^3 whereas minimum concentration was observed **441.2** µg/m^3 and RSPM concentration ranges between **81.2** µg/m^3 to **107.0** µg/m^3 during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/171
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	Fines Loading (20 area)	519.0	101.3
2.	02-09-2025	Fines Loading (20 area)	476.6	98.0
3.	03-09-2025	Fines Loading (20 area)	468.0	84.4
4.	04-09-2025	Fines Loading (20 area)	450.2	84.9
5.	05-09-2025	Fines Loading (20 area)	511.6	100.4
6.	06-09-2025	Fines Loading (20 area)	502.8	102.8
7.	07-09-2025	Fines Loading (20 area)	466.7	86.2
8.	08-09-2025	Fines Loading (20 area)	527.7	107.0
9.	09-09-2025	Fines Loading (20 area)	483.9	90.2
10.	10-09-2025	Fines Loading (20 area)	467.1	93.3
11.	11-09-2025	Fines Loading (20 area)	535.8	99.2
12.	12-09-2025	Fines Loading (20 area)	487.0	96.1
13.	13-09-2025	Fines Loading (20 area)	503.3	102.4
14.	14-09-2025	Fines Loading (20 area)	512.2	102.1
15.	15-09-2025	Fines Loading (20 area)	502.3	94.5
16.	16-09-2025	Fines Loading (20 area)	459.2	82.7
17.	17-09-2025	Fines Loading (20 area)	441.2	81.2
18.	18-09-2025	Fines Loading (20 area)	487.0	93.0
19.	19-09-2025	Fines Loading (20 area)	524.0	98.3
20.	20-09-2025	Fines Loading (20 area)	508.0	100.5
21.	21-09-2025	Fines Loading (20 area)	485.2	88.5
22.	22-09-2025	Fines Loading (20 area)	466.8	89.7
23.	23-09-2025	Fines Loading (20 area)	498.3	103.6
24.	24-09-2025	Fines Loading (20 area)	498.8	100.9
25.	25-09-2025	Fines Loading (20 area)	515.9	96.6
26.	26-09-2025	Fines Loading (20 area)	467.6	97.8
27.	27-09-2025	Fines Loading (20 area)	455.9	88.8
28.	28-09-2025	Fines Loading (20 area)	526.5	100.5
29.	29-09-2025	Fines Loading (20 area)	476.3	98.9
30.	30-09-2025	Fines Loading (20 area)	451.4	91.4
Average			**489.2**	**95.2**

----End of Report----

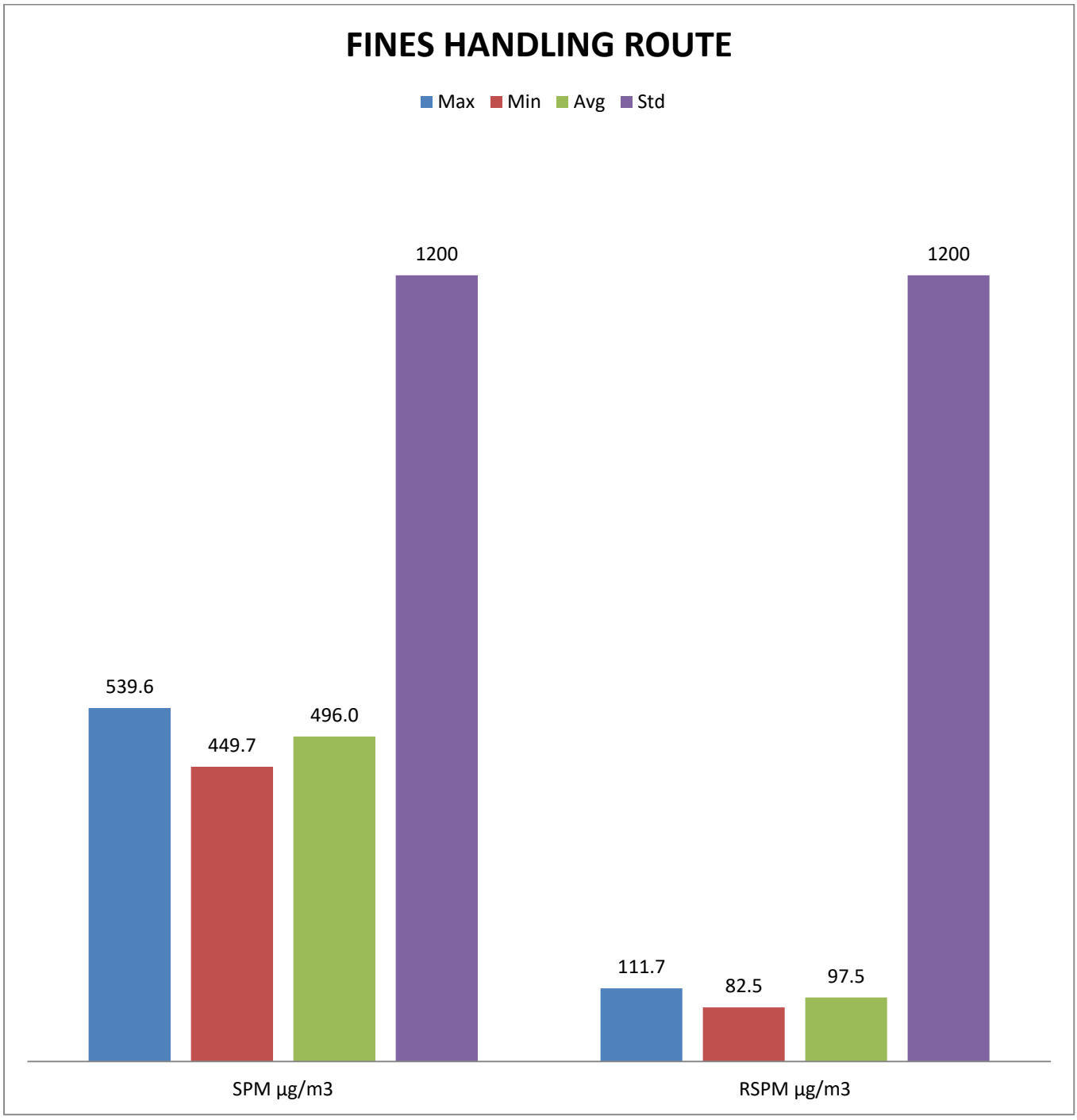
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Laboratories Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **539.6** µg/m^3 whereas minimum concentration was observed **449.7** µg/m^3 and RSPM concentration ranges between **82.5** µg/m^3 to **111.7** µg/m^3 during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/172
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	Fines Handling Route	531.9	110.4
2.	02-09-2025	Fines Handling Route	456.1	82.5
3.	03-09-2025	Fines Handling Route	520.4	108.8
4.	04-09-2025	Fines Handling Route	535.8	108.1
5.	05-09-2025	Fines Handling Route	485.0	88.5
6.	06-09-2025	Fines Handling Route	493.6	100.1
7.	07-09-2025	Fines Handling Route	536.5	97.5
8.	08-09-2025	Fines Handling Route	468.5	90.8
9.	09-09-2025	Fines Handling Route	534.1	106.3
10.	10-09-2025	Fines Handling Route	519.6	103.3
11.	11-09-2025	Fines Handling Route	489.3	102.5
12.	12-09-2025	Fines Handling Route	510.4	97.6
13.	13-09-2025	Fines Handling Route	515.2	104.4
14.	14-09-2025	Fines Handling Route	539.6	111.7
15.	15-09-2025	Fines Handling Route	505.7	95.3
16.	16-09-2025	Fines Handling Route	452.5	85.8
17.	17-09-2025	Fines Handling Route	454.4	94.6
18.	18-09-2025	Fines Handling Route	449.7	87.0
19.	19-09-2025	Fines Handling Route	454.3	85.3
20.	20-09-2025	Fines Handling Route	535.9	108.0
21.	21-09-2025	Fines Handling Route	510.8	95.5
22.	22-09-2025	Fines Handling Route	472.1	86.0
23.	23-09-2025	Fines Handling Route	529.1	101.9
24.	24-09-2025	Fines Handling Route	474.8	97.7
25.	25-09-2025	Fines Handling Route	480.8	97.4
26.	26-09-2025	Fines Handling Route	470.1	90.9
27.	27-09-2025	Fines Handling Route	479.5	97.0
28.	28-09-2025	Fines Handling Route	485.3	98.4
29.	29-09-2025	Fines Handling Route	471.7	97.9
30.	30-09-2025	Fines Handling Route	517.2	93.6
Average			**496.0**	**97.5**

----End of Report----

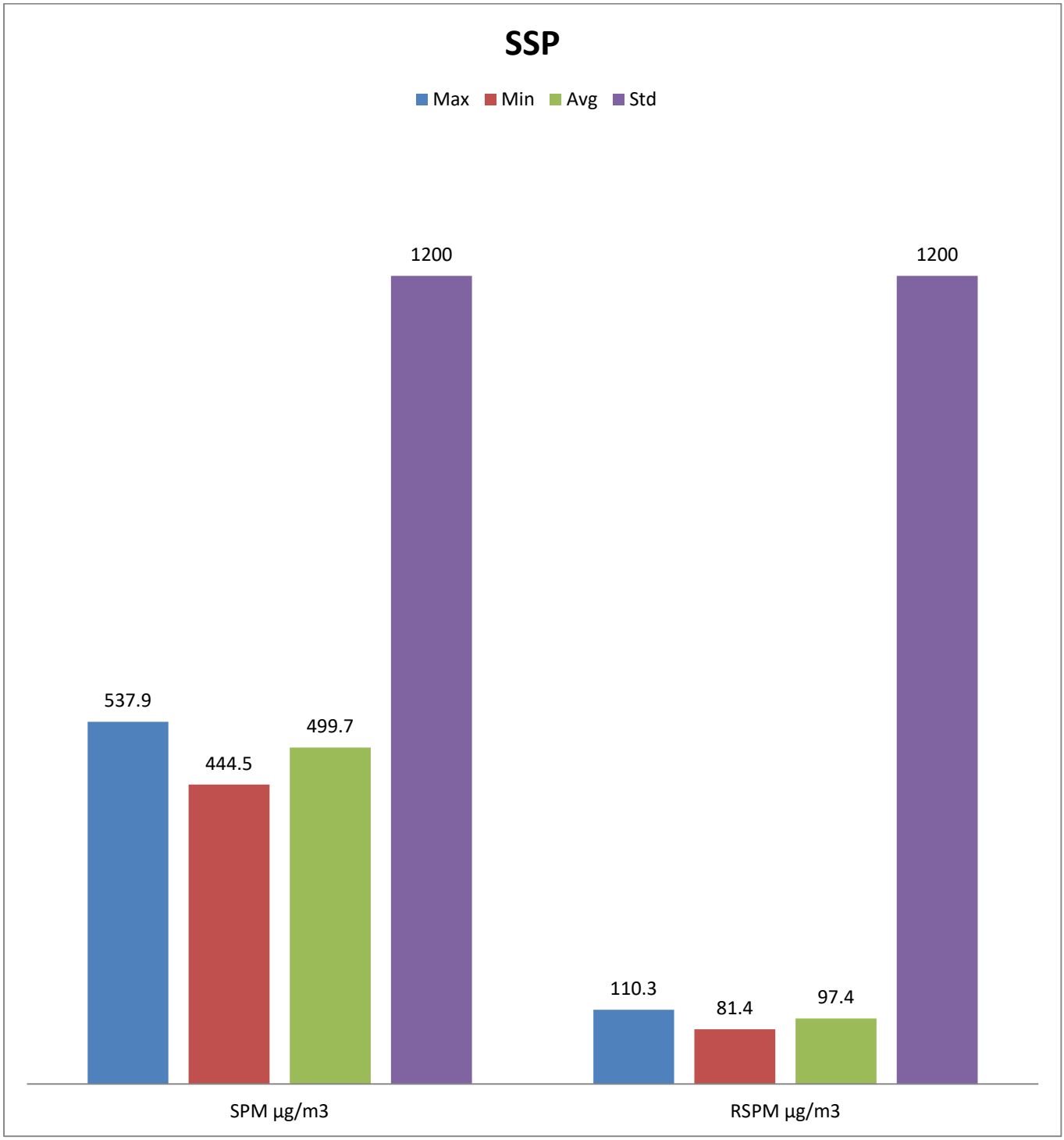
Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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 **537.9** µg/m^3 whereas minimum concentration was observed **444.5** µg/m^3 and RSPM concentration ranges between **81.4** µg/m^3 to **110.3** µg/m^3 during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/173
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	SSP	482.3	90.1
2.	02-09-2025	SSP	444.5	83.0
3.	03-09-2025	SSP	535.4	102.3
4.	04-09-2025	SSP	507.9	105.8
5.	05-09-2025	SSP	467.6	90.6
6.	06-09-2025	SSP	459.3	93.7
7.	07-09-2025	SSP	473.3	97.3
8.	08-09-2025	SSP	473.2	95.4
9.	09-09-2025	SSP	481.9	98.2
10.	10-09-2025	SSP	469.8	93.0
11.	11-09-2025	SSP	529.2	110.3
12.	12-09-2025	SSP	522.2	96.7
13.	13-09-2025	SSP	537.9	97.9
14.	14-09-2025	SSP	488.7	89.4
15.	15-09-2025	SSP	445.9	81.4
16.	16-09-2025	SSP	523.5	98.0
17.	17-09-2025	SSP	512.2	103.3
18.	18-09-2025	SSP	530.5	104.7
19.	19-09-2025	SSP	510.2	96.9
20.	20-09-2025	SSP	519.7	107.7
21.	21-09-2025	SSP	515.8	102.4
22.	22-09-2025	SSP	476.2	92.5
23.	23-09-2025	SSP	484.5	100.5
24.	24-09-2025	SSP	466.6	86.5
25.	25-09-2025	SSP	524.9	97.9
26.	26-09-2025	SSP	516.7	99.2
27.	27-09-2025	SSP	510.3	93.9
28.	28-09-2025	SSP	526.8	110.3
29.	29-09-2025	SSP	523.3	99.9
30.	30-09-2025	SSP	529.8	101.9
Average			**499.7**	**97.4**

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

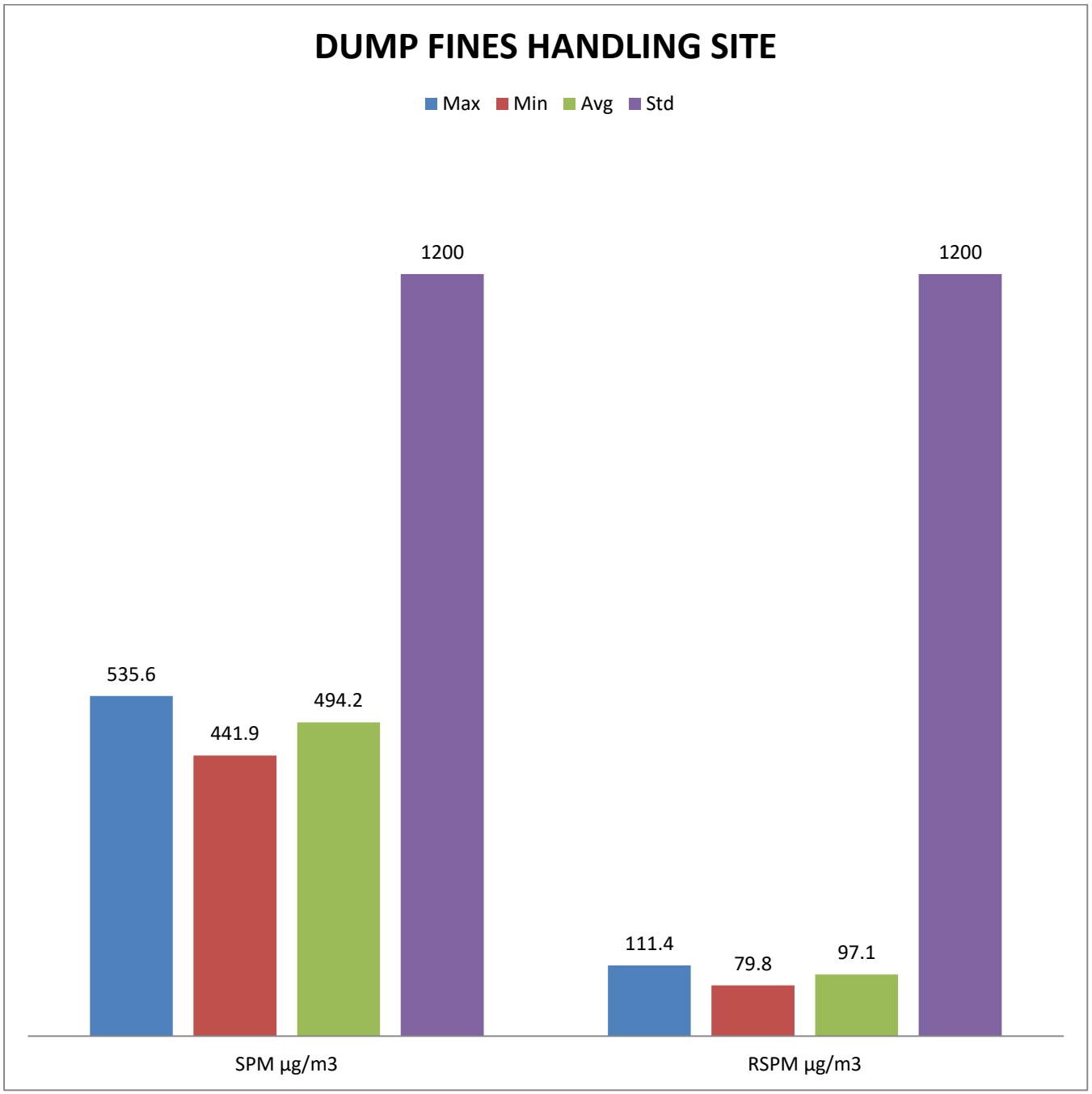
Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited, Gata No. 61, Mirzapur, Bakshi Ka Talab, Lucknow, U.P. 226021

(Vikas Kumar) (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 **535.6** µg/m^3 whereas minimum concentration was observed **441.9** µg/m^3 and RSPM concentration ranges between **79.8** µg/m^3 to **111.4** µg/m^3 during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/174
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	Dump Fines Handling Site	508.2	91.9
2.	02-09-2025	Dump Fines Handling Site	503.1	98.0
3.	03-09-2025	Dump Fines Handling Site	522.8	108.8
4.	04-09-2025	Dump Fines Handling Site	535.0	111.4
5.	05-09-2025	Dump Fines Handling Site	494.3	99.6
6.	06-09-2025	Dump Fines Handling Site	475.6	90.5
7.	07-09-2025	Dump Fines Handling Site	485.4	88.6
8.	08-09-2025	Dump Fines Handling Site	507.0	98.4
9.	09-09-2025	Dump Fines Handling Site	511.3	102.9
10.	10-09-2025	Dump Fines Handling Site	535.6	103.7
11.	11-09-2025	Dump Fines Handling Site	526.1	104.0
12.	12-09-2025	Dump Fines Handling Site	503.1	95.3
13.	13-09-2025	Dump Fines Handling Site	469.3	90.9
14.	14-09-2025	Dump Fines Handling Site	441.9	79.8
15.	15-09-2025	Dump Fines Handling Site	451.9	82.6
16.	16-09-2025	Dump Fines Handling Site	474.5	98.0
17.	17-09-2025	Dump Fines Handling Site	493.1	100.0
18.	18-09-2025	Dump Fines Handling Site	445.0	89.5
19.	19-09-2025	Dump Fines Handling Site	523.5	106.7
20.	20-09-2025	Dump Fines Handling Site	461.8	94.2
21.	21-09-2025	Dump Fines Handling Site	448.1	92.3
22.	22-09-2025	Dump Fines Handling Site	483.1	88.8
23.	23-09-2025	Dump Fines Handling Site	496.3	102.6
24.	24-09-2025	Dump Fines Handling Site	528.3	100.1
25.	25-09-2025	Dump Fines Handling Site	527.8	109.3
26.	26-09-2025	Dump Fines Handling Site	457.8	90.4
27.	27-09-2025	Dump Fines Handling Site	499.4	91.1
28.	28-09-2025	Dump Fines Handling Site	464.6	91.0
29.	29-09-2025	Dump Fines Handling Site	535.5	108.5
30.	30-09-2025	Dump Fines Handling Site	517.1	105.0
Average			**494.2**	**97.1**

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

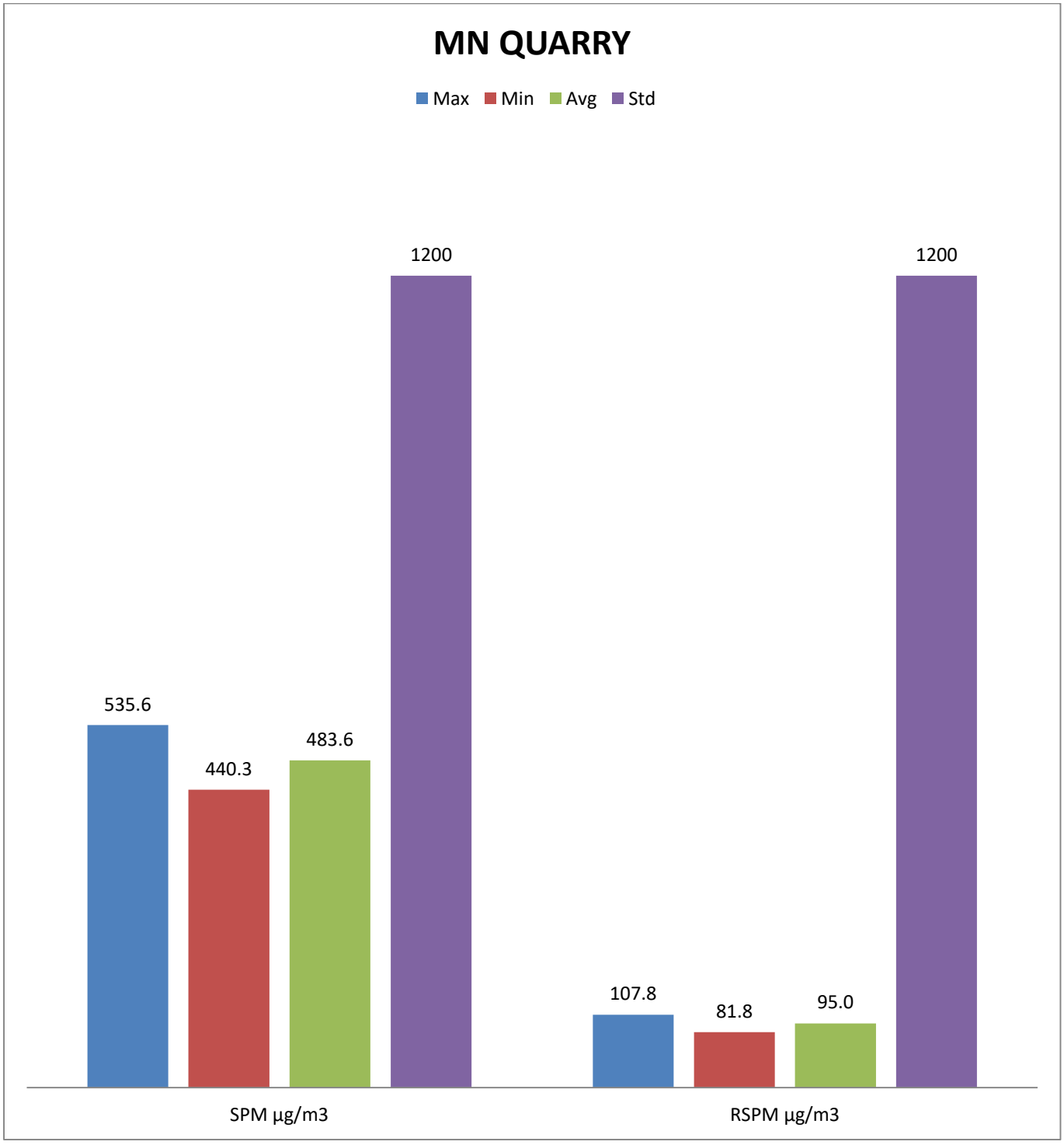
Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

(Vikas Kumar) (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 **535.6** µg/m^3 whereas minimum concentration was observed **440.3** µg/m^3 and RSPM concentration ranges between **81.8** µg/m^3 to **107.8** µg/m^3 during the month.



ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/175
Test Report Issue date: 02.10.2025

FUGITIVE EMISSION MONITORING REPORT FOR SEPTEMBER 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.	01-09-2025	Mn Quarry	515.9	107.1
2.	02-09-2025	Mn Quarry	477.8	87.1
3.	03-09-2025	Mn Quarry	474.1	93.5
4.	04-09-2025	Mn Quarry	483.5	95.3
5.	05-09-2025	Mn Quarry	534.0	97.3
6.	06-09-2025	Mn Quarry	505.9	105.9
7.	07-09-2025	Mn Quarry	501.4	99.3
8.	08-09-2025	Mn Quarry	454.4	81.8
9.	09-09-2025	Mn Quarry	535.6	98.5
10.	10-09-2025	Mn Quarry	507.7	97.5
11.	11-09-2025	Mn Quarry	449.0	91.9
12.	12-09-2025	Mn Quarry	468.7	97.9
13.	13-09-2025	Mn Quarry	483.8	93.5
14.	14-09-2025	Mn Quarry	457.0	92.4
15.	15-09-2025	Mn Quarry	458.6	86.5
16.	16-09-2025	Mn Quarry	484.2	96.5
17.	17-09-2025	Mn Quarry	504.8	99.4
18.	18-09-2025	Mn Quarry	520.2	96.5
19.	19-09-2025	Mn Quarry	440.3	82.0
20.	20-09-2025	Mn Quarry	471.0	96.5
21.	21-09-2025	Mn Quarry	483.8	99.2
22.	22-09-2025	Mn Quarry	449.6	86.4
23.	23-09-2025	Mn Quarry	462.6	83.4
24.	24-09-2025	Mn Quarry	466.7	95.1
25.	25-09-2025	Mn Quarry	454.7	91.8
26.	26-09-2025	Mn Quarry	509.6	98.5
27.	27-09-2025	Mn Quarry	455.9	91.2
28.	28-09-2025	Mn Quarry	497.1	100.8
29.	29-09-2025	Mn Quarry	526.5	107.8
30.	30-09-2025	Mn Quarry	474.1	98.2
Average			**483.6**	**95.0**

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

(Vikas Kumar) (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

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/SW/0088/0380/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0380/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.20	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	26.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	22.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.4	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	0.14	1.5
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	5-100	<5	50
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	0.01-2	<0.01	0.2
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	<0.05	0.05
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.18	3.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-5	<0.05	1.5
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	0.12	15.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05 - 10	<0.05	0.005
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	-
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.001-1	<0.001	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.1	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/SW/0088/0381/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0381/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.31	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	28.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	30.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.2	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	0.10	1.5
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	5-100	5.44	50
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	0.01-2	<0.01	0.2
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	<0.05	0.05
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.20	3.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-5	<0.05	1.5
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	0.06	15.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05 - 10	<0.05	0.005
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	-
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.001-1	<0.001	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.1	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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
(Vikas Kumar)

Authorized By
Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/SW/0088/0382/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**Name of Location**	Panpash Nallah
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0382/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.38	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	24.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	27.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.8	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	0.14	1.5
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	5-100	6.22	50
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	0.01-2	<0.01	0.2
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	<0.05	0.05
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.22	3.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-5	<0.05	1.5
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	0.08	15.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05 - 10	<0.05	0.005
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	-
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.001-1	<0.001	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.1	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/SW/0088/0383/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**Name of Location**	Karo River Intake
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0383/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.38	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	32.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	34.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.7	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	0.06	1.5
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	5-100	6.0	50
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	0.01-2	<0.01	0.2
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	<0.05	0.05
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.18	3.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-5	<0.05	1.5
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	<0.02	15.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05 - 10	<0.05	0.005
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	-
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.001-1	<0.001	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.1	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Laboratories Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/DW/0088/0375/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	**30.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0375/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.02	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	<5	-	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	0.05 -10	0.14	1	1.5
4.	Biochemical Oxygen Demand as BOD (5 days at 20^{0}C)	mg/l	APHA 24Th ED.5210 A,B	5-100	<5	45	No Relax
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.01-2	<0.01	0.01	0.05
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 .C	0.05-20	<0.05	-	-
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03 2-F	0.02-50	0.10	0.3	No Relax
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-5	<0.05	0.05	1.5
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.06	5.0	15.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 Cra B	0.05 - 10	<0.001	0.001	0.002
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-10	<0.05	0.05	No Relax
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	0.001	No Relax
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.1-5.0	<0.1	0.1	0.3
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	0.02	No Relax
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	2 -1000	<2	-	-
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	1 -1000	<1	-	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<5	-	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.5-10	<0.5	0.2	No Relax
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05	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
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited, Gata No. 61, Mirzapur, Bakshi Ka Talab, Lucknow, U.P. 226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/DW/0088/0376/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	**30.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0376/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	6.86	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	<5	-	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	0.05 -10	0.14	1	1.5
4.	Biochemical Oxygen Demand as BOD (5 days at 20^{0}C)	mg/l	APHA 24Th ED.5210 A,B	5-100	<5	45	No Relax
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.01-2	<0.01	0.01	0.05
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 .C	0.05-20	<0.05	-	-
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03 2-F	0.02-50	0.12	0.3	No Relax
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-5	<0.05	0.05	1.5
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	<0.02	5.0	15.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 Cra B	0.05 - 10	<0.001	0.001	0.002
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-10	<0.05	0.05	No Relax
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	0.001	No Relax
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.1-5.0	<0.1	0.1	0.3
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	0.02	No Relax
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	2 -1000	<2	-	-
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	1 -1000	<1	-	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<5	-	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.5-10	<0.5	0.2	No Relax
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05	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
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/WW/0088/0384/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Waste Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0385/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	GSR 422 (E) Desirable Limit
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	6.42	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	48.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	38.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	3.6	30.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.05 -10	0.12	2.0
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B,A,C	5-100	5.86	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.12	-
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.300 CRA	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	4.0	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/WW/0088/0386/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Waste Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0386/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	GSR 422 (E) Desirable Limit
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	6.80	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	42.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	28.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^{0}C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	3.4	30.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.05 -10	0.14	2.0
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B,A,C	5-100	7.04	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.24	-
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.300 CRA	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	3.9	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/SWF/57
Test Report Issue date: 02.10.2025

SURFACE FLOW RATE MONITORING REPORT FOR SEPTEMBER 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	0.58
Jhikaria nallah	SWFM2	0.41
Panposh Nallah	SWFM3	0.39

----End of Report----

Verified By
Technical Manager
(Vikas Kumar)

Authorized By
Quality Manager
(Dr.Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

SAIL BOLANI ORES MINES(RSP)

ENVIRONMENTAL MONITORING

REPORT

OCTOBER 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/67/2025-26 dated.07.07.2025 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-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. 21.12.2012 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-2025-26 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	$22^0$6'31.68''N	$85^0$19'34.41''E
Karo Near Lease Boundary		SWQ-2	$22^0$7'26.27'' N	$85^0$21'52.95''E
Karo River Intake		SWQ-3	$22^0$5.13.02' N	$85^0$19'57.88''E

Jhikaria nallah before joining Karo		SWQ-4	22⁰5'22.50" N	85⁰19'10.05"E
Drinking Water Quality				
Mount Club Tap Water	Monthly Once	DW-1	22⁰6'56.24" N	85⁰19'58.21"E
Karo Guest House Tap Water		DW-2	22⁰5'36.68" N	85⁰20'32.09"E
Effluent Waste Water				
Oil Catch Pit Water Bottom Garage	Monthly Once	EWW-1	22⁰6'27.11" N	85⁰19'37.62"E
Oil Catch pit water G-Area		EWW-2	22⁰6'1.83''N	85⁰18'24.16''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	22O 05' 27.20"N	85O 19'27.13"E
Bolani Gouda Basti-Well water		GWQ-2	22O 05'40.97"N	85O 20'2.45"E
Balagoda Village-Well water		GWQ-3	22O 05'57.02"N	85O 20'27.41"E

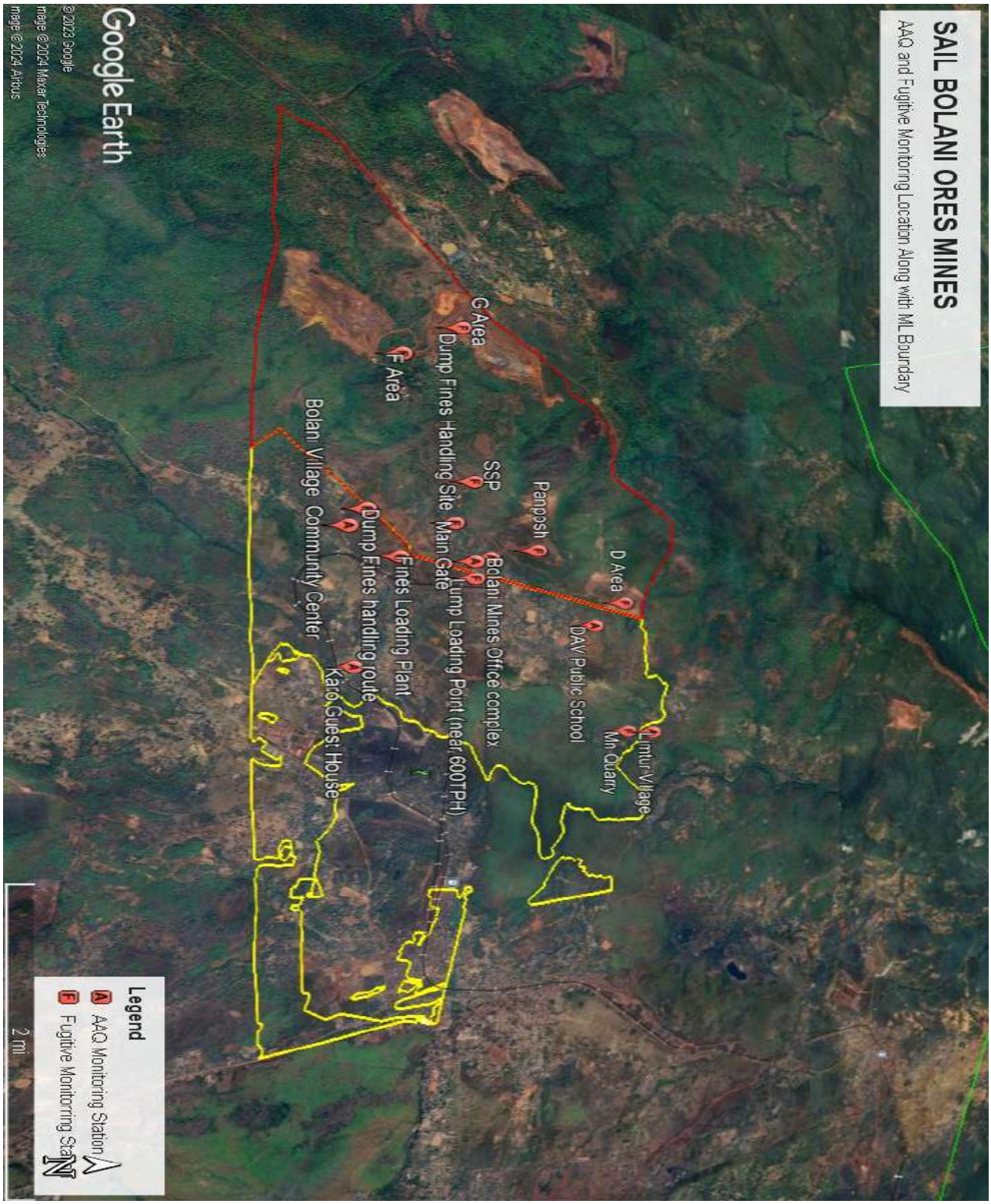
2.5 Weather/Meteorology

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-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	72.4	65.3	68.45	22.3	18.1	20.17
2.	Dav Public School	A2	73	65	68.9	23	18.3	20.4
3.	Main Gate	A3	72.8	65.1	69.3	22.9	18.1	20.3
4.	Bolani Mines Office Complex	A4	72.8	65.1	69.4	22.9	18.2	20.6
5.	Limtur Village	A5	62.5	55.2	59.0	20.8	16.2	18.5
6.	Karo Guest House	A6	62.6	55.1	58.6	20.9	16.1	18.8
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	17.8	15.1	16.59	20	15.1	17.65
2.	Dav Public School	A2	18	15.1	16.5	19.9	15.3	17.7
3.	Main Gate	A3	18.0	15.1	16.6	19.9	15.1	17.4
4.	Bolani Mines Office Complex	A4	18.0	15	16.6	19.9	15.2	17.5
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)

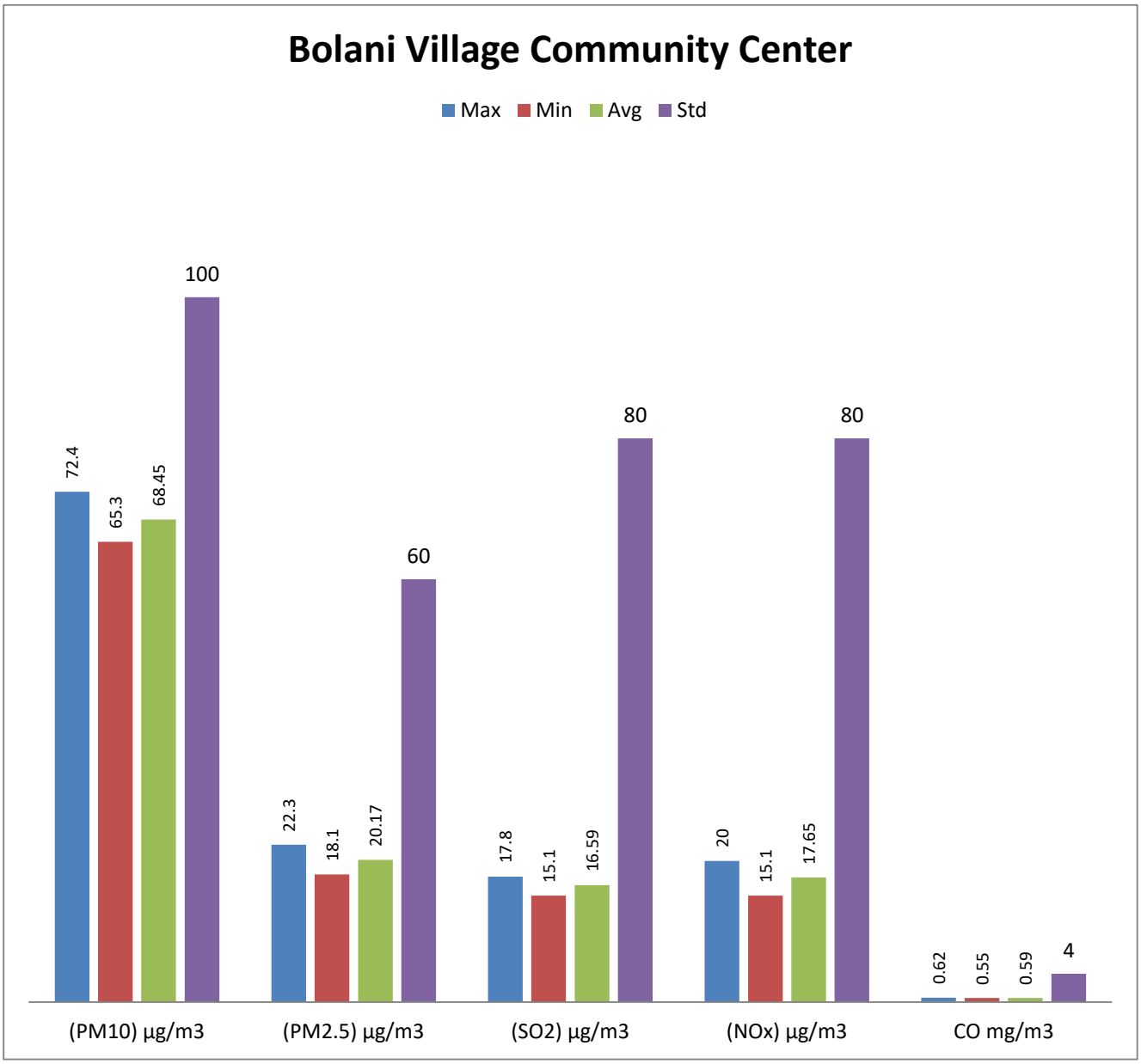
Table No. 3.1(c): Summarized Results of Ambient Air Quality

Sl. No.	Location Name	Station Code	CO		
			Max.	Min.	Avg.
1.	Bolani Village Community Center	A1	0.62	0.55	0.59
2.	Dav Public School	A2	0.63	0.55	0.59
3.	Main Gate	A3	0.63	0.55	0.59
4.	Bolani Mines Office Complex	A4	0.63	0.46	0.58
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 **72.4** µg/m³ whereas minimum concentration was observed **65.3** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **18.1** µg/m³ to **22.3** µg/m³, SO_2 concentration ranges between **15.1** µg/m³ to **17.8** µg/m³, NO_x as (NO_2) concentration ranges between **15.1** µg/m³ to **20** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.62** mg/m³ was observed during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/176
Test Report Issue date: 02.11.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 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.	01.10.2025	71.9	19.4	15.1	20.0	0.59
2.	02.10.2025	70.5	19.4	17.8	19.9	0.61
3.	03.10.2025	66.9	19.2	17.2	18.5	0.58
4.	04.10.2025	66.0	21.1	15.1	17.4	0.56
5.	05.10.2025	72.4	22.3	16.4	18.9	0.58
6.	06.10.2025	70.8	22.3	17.1	19.1	0.62
7.	07.10.2025	66.0	18.5	17.6	18.8	0.61
8.	08.10.2025	67.6	22.3	15.8	18.7	0.60
9.	09.10.2025	66.7	18.4	15.9	16.4	0.60
10.	10.10.2025	69.2	21.5	15.7	16.0	0.58
11.	11.10.2025	68.8	18.1	17.6	17.8	0.61
12.	12.10.2025	65.3	21.9	16.8	16.7	0.57
13.	13.10.2025	71.3	22.1	16.9	16.0	0.58
14.	14.10.2025	67.1	19.8	16.1	16.3	0.59
15.	15.10.2025	69.4	20.1	16.7	19.2	0.56
16.	16.10.2025	68.8	18.4	16.0	17.8	0.57
17.	17.10.2025	70.3	20.1	16.7	18.3	0.57
18.	18.10.2025	68.5	19.5	16.8	16.2	0.61
19.	19.10.2025	69.0	18.1	16.8	16.8	0.56
20.	20.10.2025	67.9	18.1	17.7	15.7	0.55
21.	21.10.2025	67.6	20.5	16.0	19.1	0.58
22.	22.10.2025	70.2	20.6	17.0	16.7	0.59
23.	23.10.2025	67.1	22.0	17.7	18.8	0.61
24.	24.10.2025	66.4	19.9	16.0	16.4	0.59
25.	25.10.2025	69.5	21.0	17.6	17.8	0.59
26.	26.10.2025	66.8	20.5	15.3	15.1	0.57
27.	27.10.2025	71.1	18.3	16.3	16.8	0.60
28.	28.10.2025	66.9	22.3	16.8	17.1	0.59
29.	29.10.2025	67.6	18.7	17.0	17.3	0.59
30.	30.10.2025	65.7	20.2	17.2	19.6	0.60
31.	31.10.2025	68.7	20.6	15.5	18.0	0.55
Average		**68.5**	**20.2**	**16.6**	**17.7**	**0.59**

Note- No_x is Given as No_2

Verified By

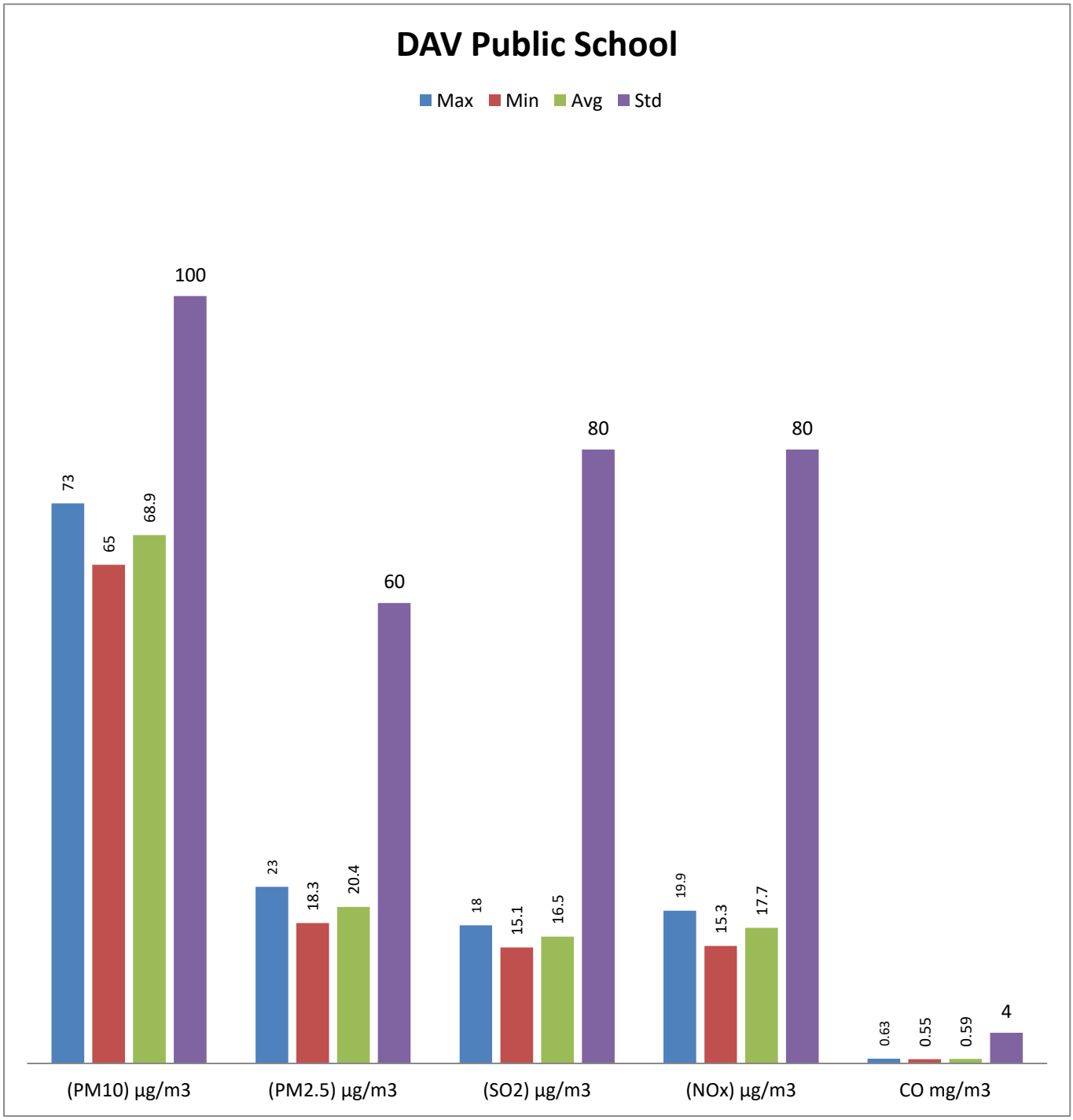
Technical Manager

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 **73** µg/m³ whereas minimum concentration was observed **65** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **18.3** µg/m³ to **23** µg/m³, SO_2 concentration ranges between **15.1** µg/m³to **18** µg/m³, NO_x as (NO_2) concentration ranges between **15.3** µg/m³ to **19.9** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.63** mg/m³ was observed during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/177
Test Report Issue date: 02.11.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 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.	01.10.2025	72.1	22.3	17.4	15.7	0.60
2.	02.10.2025	65.4	19.1	17.3	17.9	0.62
3.	03.10.2025	73.0	21.4	16.3	16.7	0.62
4.	04.10.2025	68.3	18.5	16.4	15.3	0.55
5.	05.10.2025	66.4	21.2	17.4	16.3	0.61
6.	06.10.2025	70.0	18.5	16.5	16.8	0.58
7.	07.10.2025	70.3	23.0	15.1	16.5	0.62
8.	08.10.2025	65.3	19.5	17.9	17.7	0.57
9.	09.10.2025	65.3	20.5	16.4	19.8	0.61
10.	10.10.2025	73.0	22.2	16.7	17.1	0.61
11.	11.10.2025	72.7	20.3	17.0	18.8	0.58
12.	12.10.2025	66.6	20.4	16.1	17.9	0.57
13.	13.10.2025	70.9	21.3	16.9	17.2	0.60
14.	14.10.2025	65.0	21.6	17.1	18.6	0.63
15.	15.10.2025	66.7	19.8	16.9	16.0	0.61
16.	16.10.2025	71.9	22.1	18.0	19.9	0.62
17.	17.10.2025	67.9	19.5	16.9	19.8	0.59
18.	18.10.2025	66.0	20.7	16.8	18.6	0.57
19.	19.10.2025	69.8	18.3	15.6	19.8	0.56
20.	20.10.2025	72.5	18.3	15.5	19.4	0.61
21.	21.10.2025	65.9	18.5	15.1	18.8	0.56
22.	22.10.2025	68.1	20.8	17.2	18.9	0.62
23.	23.10.2025	69.6	20.2	15.7	16.2	0.62
24.	24.10.2025	72.6	20.9	15.5	17.1	0.61
25.	25.10.2025	72.4	19.7	17.6	16.0	0.62
26.	26.10.2025	67.7	21.7	16.0	15.9	0.55
27.	27.10.2025	65.5	20.4	16.2	19.3	0.57
28.	28.10.2025	66.1	20.7	15.3	18.5	0.57
29.	29.10.2025	69.1	21.7	16.4	17.6	0.57
30.	30.10.2025	69.6	18.9	16.6	15.9	0.62
31.	31.10.2025	66.8	20.5	16.4	17.5	0.59
Average		**68.8**	**20.4**	**16.5**	**17.7**	**0.59**

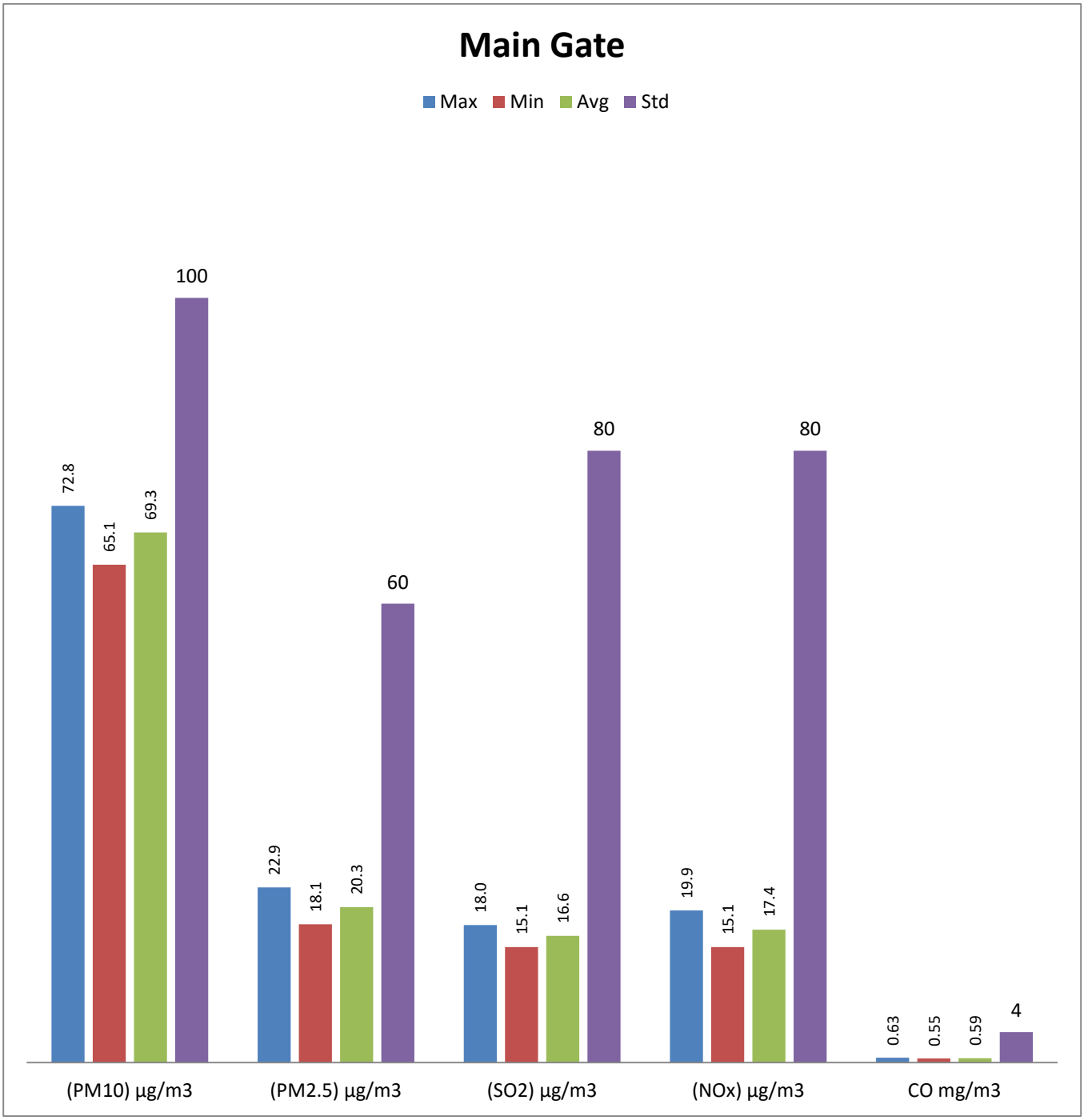
Note- No_x is Given as No_2

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 **72.8** µg/m³ whereas minimum concentration was observed **65.1** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **18.1** µg/m³ to **22.9** µg/m³, SO_2 concentration ranges between **15.1** µg/m³to **18.0** µg/m³, NO_x as (NO_2) concentration ranges between **15.1** µg/m³ to **19.9** µg/m³ and CO concentration ranges between **0.55** mg/m³ to **0.63** mg/m³ was observed during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/178
Test Report Issue date: 02.11.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 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.	01.10.2025	66.9	20.9	15.4	17.8	0.55
2.	02.10.2025	72.0	21.9	16.6	18.0	0.61
3.	03.10.2025	70.1	22.9	17.2	15.8	0.58
4.	04.10.2025	70.1	19.3	17.5	17.9	0.60
5.	05.10.2025	67.6	20.6	17.3	19.5	0.61
6.	06.10.2025	70.9	20.4	15.8	15.9	0.56
7.	07.10.2025	68.2	20.1	15.5	15.7	0.58
8.	08.10.2025	71.1	22.3	16.5	18.8	0.62
9.	09.10.2025	67.9	18.5	17.0	15.1	0.59
10.	10.10.2025	71.3	21.2	15.6	16.4	0.62
11.	11.10.2025	70.3	21.6	15.4	15.6	0.56
12.	12.10.2025	72.8	18.3	17.9	16.0	0.62
13.	13.10.2025	71.0	20.3	18.0	16.2	0.60
14.	14.10.2025	72.1	18.4	17.8	17.9	0.62
15.	15.10.2025	68.4	20.7	15.3	19.4	0.57
16.	16.10.2025	66.9	18.5	16.1	17.3	0.56
17.	17.10.2025	69.8	21.9	17.0	16.8	0.61
18.	18.10.2025	72.7	19.0	15.4	18.9	0.60
19.	19.10.2025	68.4	20.7	17.5	16.1	0.56
20.	20.10.2025	65.9	19.7	17.6	19.4	0.60
21.	21.10.2025	69.2	21.3	17.1	19.0	0.61
22.	22.10.2025	66.4	19.4	15.1	18.0	0.56
23.	23.10.2025	69.7	18.5	16.2	16.4	0.59
24.	24.10.2025	68.7	18.8	16.6	18.1	0.63
25.	25.10.2025	67.2	20.7	15.4	15.9	0.59
26.	26.10.2025	65.1	22.7	16.5	16.1	0.63
27.	27.10.2025	72.8	22.5	17.4	17.3	0.59
28.	28.10.2025	65.9	20.1	15.7	17.1	0.59
29.	29.10.2025	68.4	18.1	17.5	19.9	0.61
30.	30.10.2025	71.7	20.0	17.4	19.7	0.59
31.	31.10.2025	69.9	20.6	16.4	17.5	0.57
Average		**69.3**	**20.3**	**16.6**	**17.4**	**0.59**

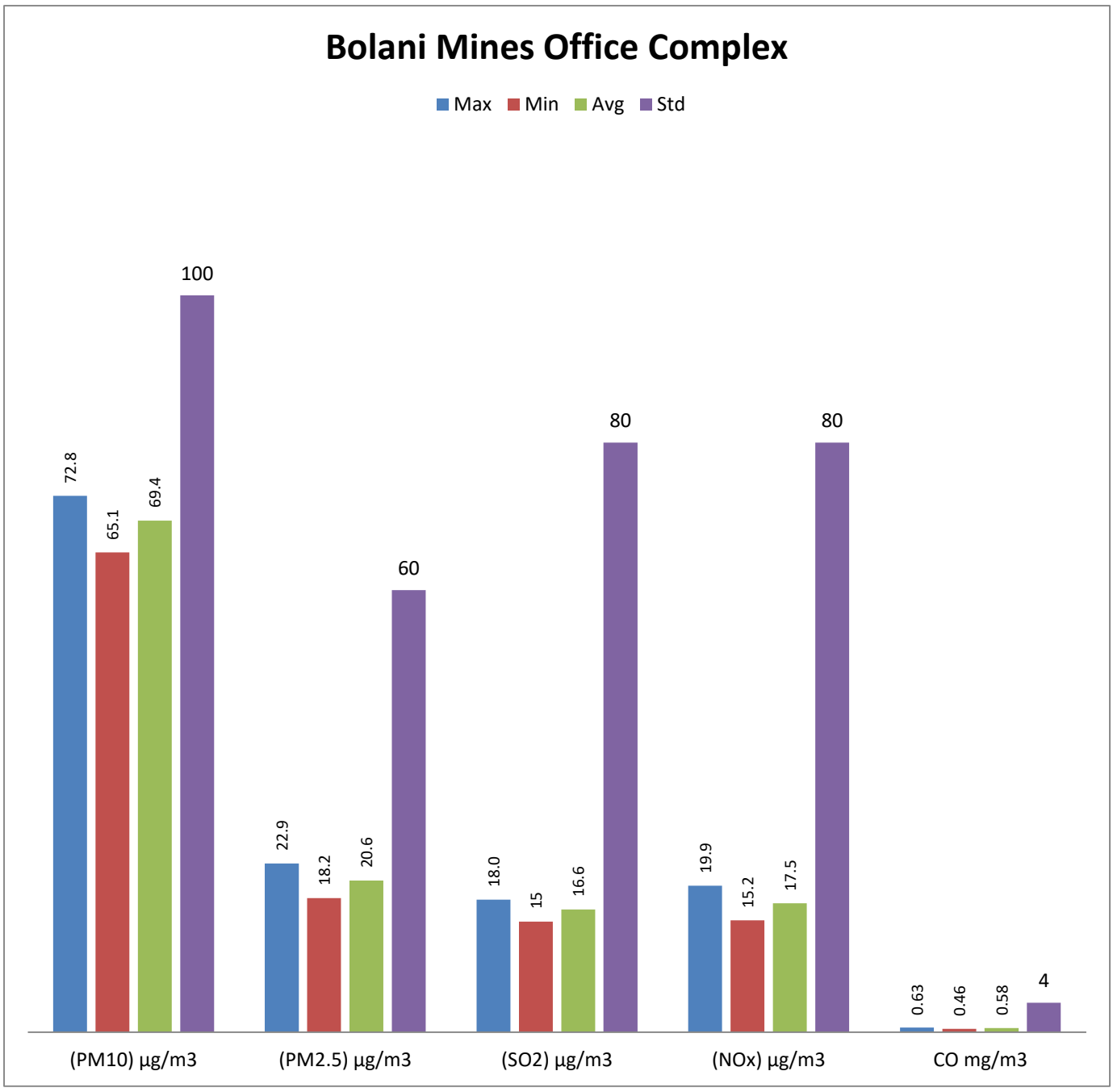
Note- No_x is Given as No_2

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 **72.8** µg/m³ whereas minimum concentration was observed **65.1** µg/m³ during the month. $PM_{2.5}$ concentration ranges between **18.2** µg/m³ to **22.9** µg/m³, SO_2 concentration ranges between **15.0** µg/m³to **18.0** µg/m³, NO_x as (NO_2) concentration ranges between **15.2** µg/m³ to **19.9** µg/m³ and CO concentration ranges between **0.46** mg/m³ to **0.63** mg/m³ was observed during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/179
Test Report Issue date: 02.11.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 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/m^3	Particulate Matter ($PM_{2.5}$) µg/m^3	Sulphur Di-oxide (SO_2) µg/m^3	Nitrogen Oxides (NO_x) µg/m^3	Carbon mono-oxides as CO mg/m^3
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.	01.10.2025	66.5	21.1	17.8	18.9	0.55
2.	02.10.2025	71.5	18.2	17.9	16.8	0.59
3.	03.10.2025	72.3	21.5	17.5	15.3	0.58
4.	04.10.2025	70.8	21.9	16.9	17.4	0.57
5.	05.10.2025	72.8	20.4	15.4	19.0	0.59
6.	06.10.2025	65.6	19.2	17.1	19.4	0.56
7.	07.10.2025	72.1	20.1	17.1	19.3	0.60
8.	08.10.2025	71.3	20.6	16.1	16.4	0.56
9.	09.10.2025	65.8	18.7	15.3	17.1	0.56
10.	10.10.2025	72.8	21.0	17.4	19.9	0.57
11.	11.10.2025	70.0	20.8	17.7	18.8	0.61
12.	12.10.2025	67.7	19.8	15.0	15.4	0.49
13.	13.10.2025	71.8	22.5	17.0	19.5	0.62
14.	14.10.2025	70.1	18.5	15.7	15.2	0.62
15.	15.10.2025	68.2	21.1	16.0	19.0	0.58
16.	16.10.2025	70.9	20.1	15.7	18.0	0.58
17.	17.10.2025	66.1	22.9	16.9	15.9	0.61
18.	18.10.2025	65.1	21.3	18.0	17.1	0.63
19.	19.10.2025	71.7	22.3	16.2	15.2	0.61
20.	20.10.2025	67.9	21.2	16.5	19.3	0.61
21.	21.10.2025	70.1	21.8	15.8	18.2	0.63
22.	22.10.2025	69.4	19.9	16.2	18.8	0.58
23.	23.10.2025	66.8	22.5	16.7	16.5	0.46
24.	24.10.2025	69.4	18.5	16.6	16.1	0.55
25.	25.10.2025	68.1	18.3	16.8	15.2	0.60
26.	26.10.2025	67.8	21.5	17.5	15.4	0.63
27.	27.10.2025	70.5	22.2	17.1	19.6	0.55
28.	28.10.2025	68.6	18.3	16.0	18.8	0.59
29.	29.10.2025	69.1	21.6	17.9	18.1	0.57
30.	30.10.2025	72.3	21.7	15.4	15.8	0.51
31.	31.10.2025	71.2	18.5	16.9	17.0	0.62
Average		**69.5**	**20.6**	**16.6**	**17.5**	**0.58**

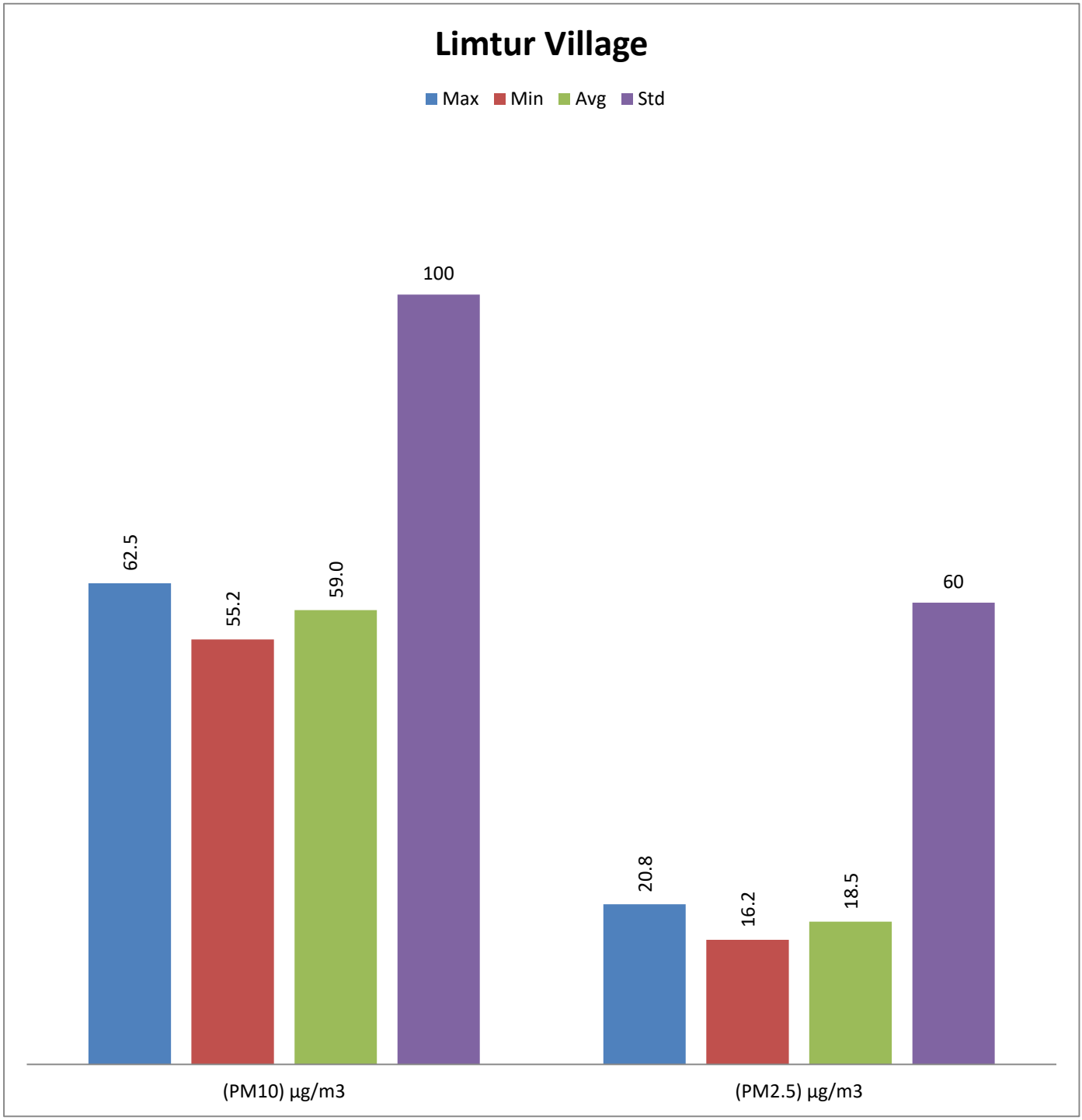
Note- No_x is Given as No_2

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 **62.5** µg/m^3 whereas minimum concentration was observed **55.2** µg/m^3 and $PM_{2.5}$ concentration ranges between **16.2** µg/m^3 to **20.8** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/180
Test Report Issue date: 02.11.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 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.

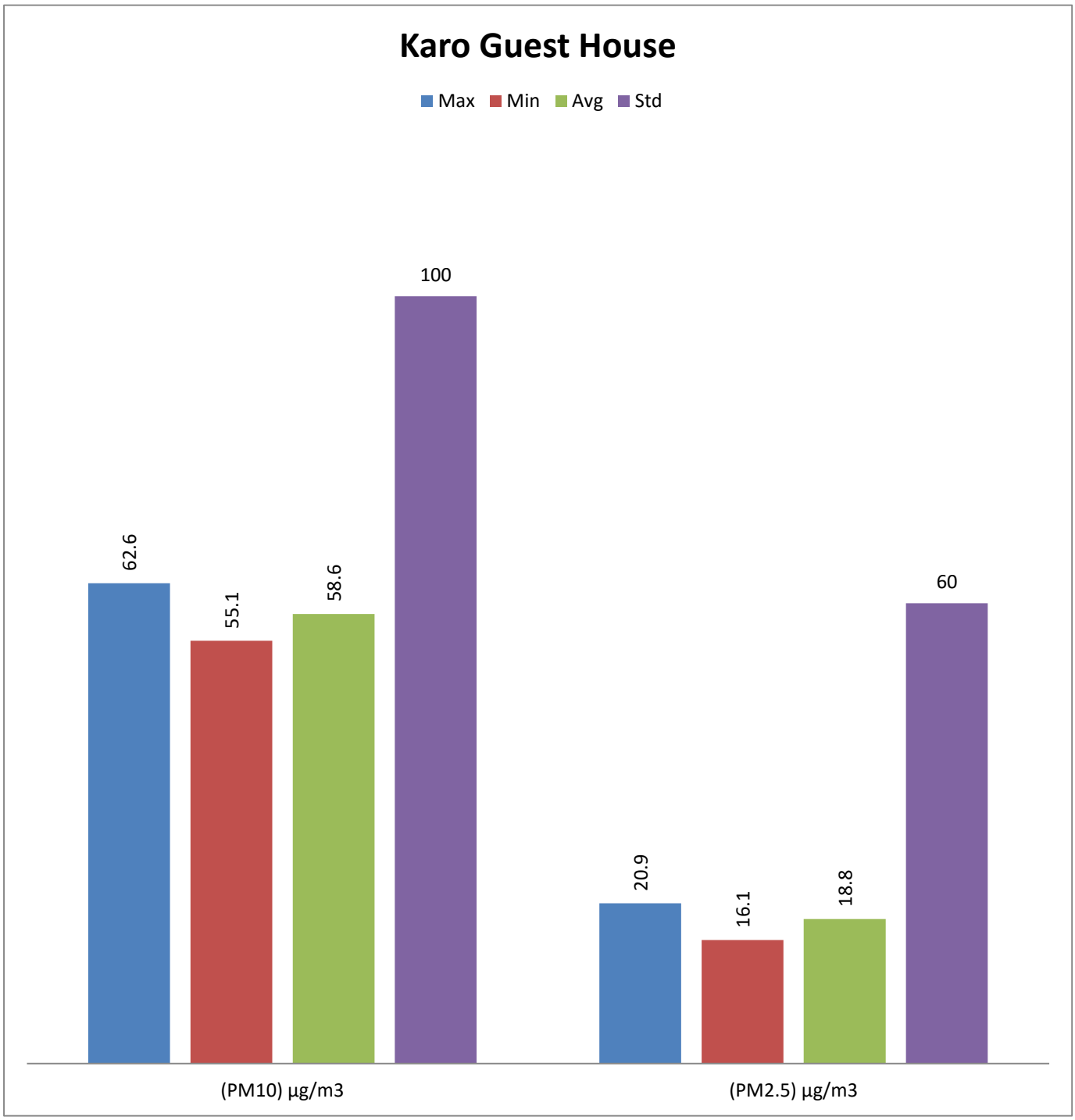
Parameters		Particulate Matter (PM_{10}) µg/m^3	Particulate Matter ($PM_{2.5}$) µg/m^3
PROTOCOL		IS:5182(Part-23)	IS:5182(Part-24)
Limits of Detection		10-1000	10-1000
Limit as per National Ambient Air Quality Standards		100	60
S. No.	Sampling Date	Result	
1.	01.10.2025	59.5	17.4
2.	02.10.2025	56.1	20.8
3.	03.10.2025	59.9	17.3
4.	04.10.2025	58.2	18.4
5.	05.10.2025	59.4	20.1
6.	06.10.2025	55.2	16.2
7.	07.10.2025	55.8	20.1
8.	08.10.2025	61.3	16.5
9.	09.10.2025	62.5	19.9
10.	10.10.2025	58.2	20.4
11.	11.10.2025	61.4	18.1
12.	12.10.2025	60.4	20.6
13.	13.10.2025	59.6	19.7
14.	14.10.2025	61.3	18.8
15.	15.10.2025	56.8	17.4
16.	16.10.2025	59.0	16.7
17.	17.10.2025	56.3	17.7
18.	18.10.2025	58.1	16.4
19.	19.10.2025	60.7	19.6
20.	20.10.2025	56.4	19.4
21.	21.10.2025	61.3	20.1
22.	22.10.2025	60.9	18.1
23.	23.10.2025	55.6	17.5
24.	24.10.2025	57.2	17.9
25.	25.10.2025	62.3	19.9
26.	26.10.2025	60.5	20.2
27.	27.10.2025	57.3	18.6
28.	28.10.2025	62.4	16.5
29.	29.10.2025	58.0	20.6
30.	30.10.2025	58.4	16.8
31.	31.10.2025	56.1	17.3
Average		**58.9**	**18.5**

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 **62.6** µg/m^3 whereas minimum concentration was observed **55.1** µg/m^3 and $PM_{2.5}$ concentration ranges between **16.1** µg/m^3 to **20.9** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/AAQ/181
Test Report Issue date: 02.11.2025

AMBIENT AIR QUALITY MONITORING REPORT FOR OCTOBER 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/m^3	Particulate Matter ($PM_{2.5}$) µg/m^3
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.	01.10.2025	55.1	19.2
2.	02.10.2025	59.1	17.9
3.	03.10.2025	59.0	17.4
4.	04.10.2025	60.1	17.7
5.	05.10.2025	57.4	20.7
6.	06.10.2025	61.9	19.7
7.	07.10.2025	55.3	20.1
8.	08.10.2025	58.3	19.4
9.	09.10.2025	58.8	17.7
10.	10.10.2025	61.7	18.0
11.	11.10.2025	56.1	20.9
12.	12.10.2025	56.1	17.4
13.	13.10.2025	60.6	18.7
14.	14.10.2025	55.6	19.3
15.	15.10.2025	58.8	17.3
16.	16.10.2025	60.2	19.6
17.	17.10.2025	62.6	19.7
18.	18.10.2025	56.4	17.1
19.	19.10.2025	56.4	19.1
20.	20.10.2025	55.6	19.7
21.	21.10.2025	57.3	16.2
22.	22.10.2025	57.3	18.5
23.	23.10.2025	60.6	18.8
24.	24.10.2025	59.4	20.3
25.	25.10.2025	60.4	20.0
26.	26.10.2025	57.5	18.4
27.	27.10.2025	60.6	18.4
28.	28.10.2025	59.4	19.2
29.	29.10.2025	60.7	20.8
30.	30.10.2025	59.8	16.1
31.	31.10.2025	59.8	20.7
Average		**58.6**	**18.8**

Verified By
Technical Manager

Authorized By
Quality Manager

3.2 Work Zone Air Quality/Fugitive Dust Emission Monitoring:

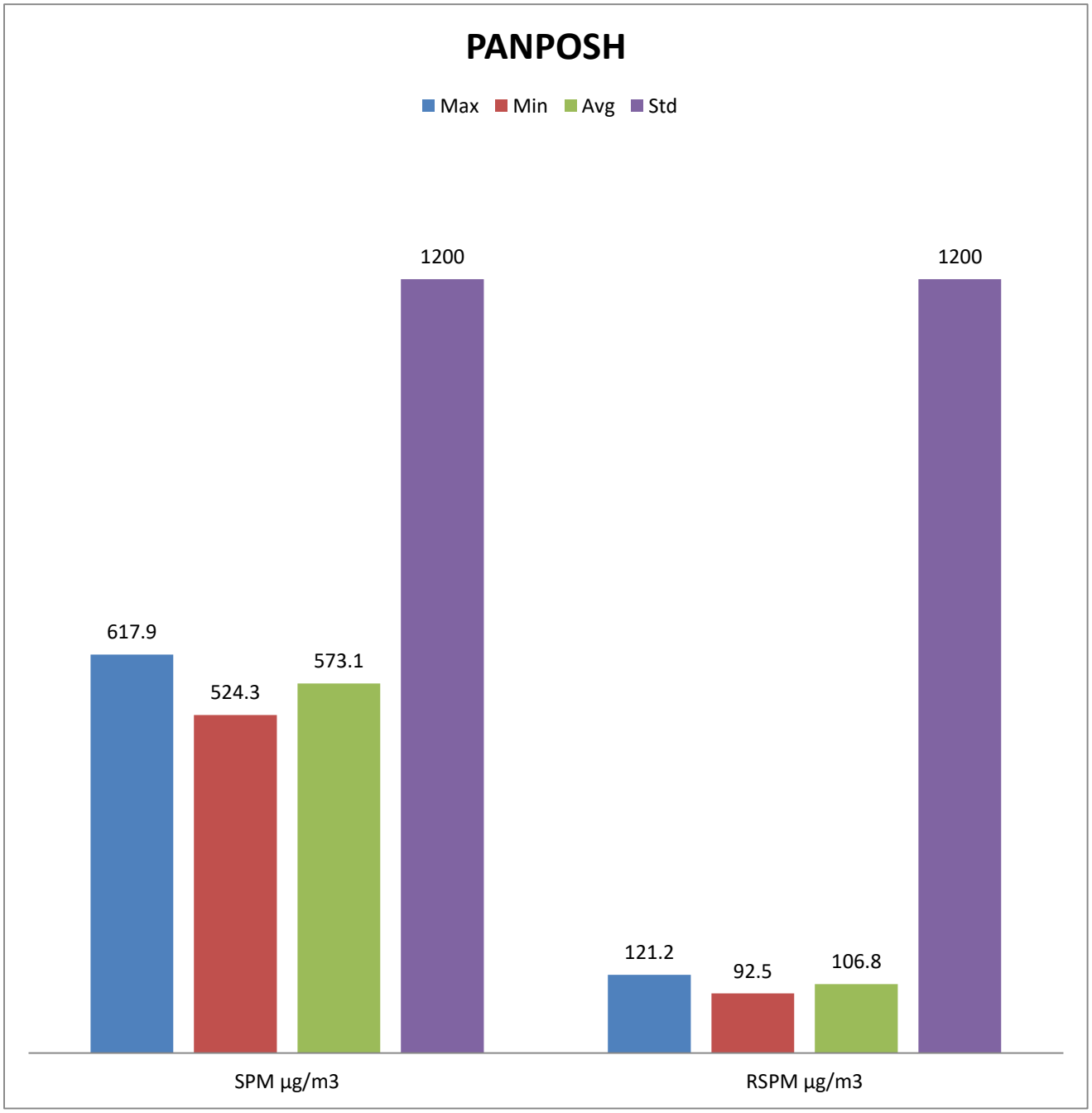
The Summarized results of Work Zone Air Quality/Fugitive Dust Emission for the month of October-2025 are given in the **Table below**

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	617.9	524.3	573.1	121.2	92.5	106.8
2.	D Area	F2	614.8	525	562.9	119.6	92.3	105.4
3.	F Area	F3	618.5	524.2	570.2	122.1	93.7	104.9
4.	G Area	F4	615.7	525.9	574.9	117.4	90.3	106.3
5.	Lump Loading Point (near 600TPH)	F5	614.4	528.5	566.6	118.6	93.2	104.7
6.	Fines Loading (20 Area)	F6	617.2	525.2	568.4	120.6	91.7	106.1
7.	Dump Fines handling route	F7	618.8	528.8	572.0	123	91.7	105.2
8.	SSP	F8	612.5	524.9	570.8	122.1	91.6	104.5
9.	Dump Fines Handling Site	F9	614.8	524.5	567.9	119.8	91.1	106.8
10.	Mn Quarry	F10	615.7	517.9	566.1	119.4	91.4	104.9
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 **617.9** µg/m³ whereas minimum concentration was observed **524.3** µg/m³ and RSPM concentration ranges between **92.5** µg/m³ to **121.2** µg/m³ during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/182
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.

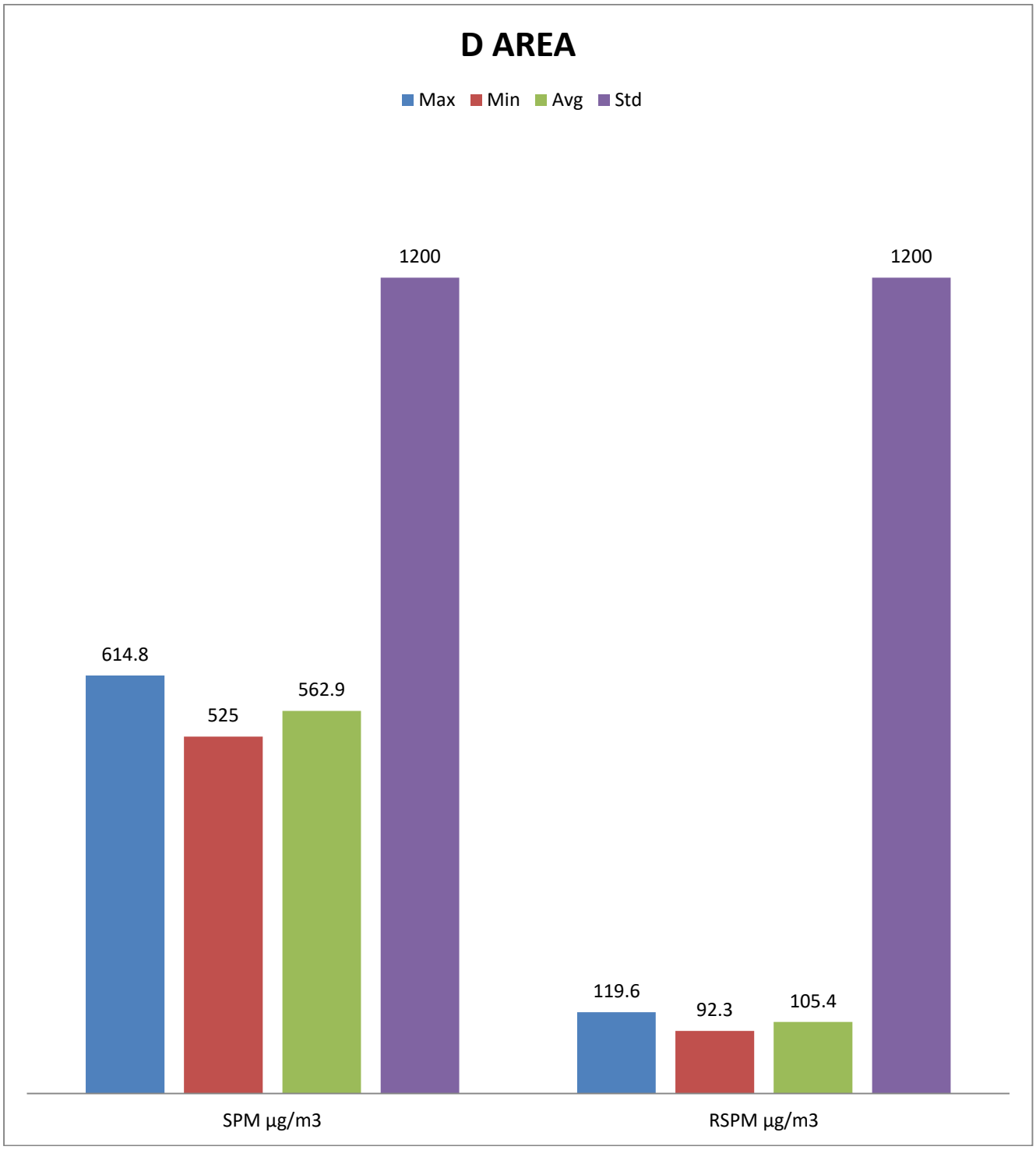
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2025	Panposh	559.8	102.0
2.	02-10-2025	Panposh	602.5	114.9
3.	03-10-2025	Panposh	589.3	110.4
4.	04-10-2025	Panposh	581.3	103.9
5.	05-10-2025	Panposh	617.9	118.2
6.	06-10-2025	Panposh	586.4	114.8
7.	07-10-2025	Panposh	586.5	108.4
8.	08-10-2025	Panposh	593.9	116.7
9.	09-10-2025	Panposh	541.7	103.9
10.	10-10-2025	Panposh	535.1	92.5
11.	11-10-2025	Panposh	584.5	101.7
12.	12-10-2025	Panposh	615.9	121.2
13.	13-10-2025	Panposh	551.7	98.1
14.	14-10-2025	Panposh	551.0	99.8
15.	15-10-2025	Panposh	564.3	98.1
16.	16-10-2025	Panposh	556.4	108.1
17.	17-10-2025	Panposh	527.1	93.3
18.	18-10-2025	Panposh	608.2	118.3
19.	19-10-2025	Panposh	575.5	107.0
20.	20-10-2025	Panposh	541.9	100.0
21.	21-10-2025	Panposh	583.5	113.4
22.	22-10-2025	Panposh	577.9	102.9
23.	23-10-2025	Panposh	529.9	104.6
24.	24-10-2025	Panposh	613.6	113.2
25.	25-10-2025	Panposh	568.0	112.3
26.	26-10-2025	Panposh	598.5	116.2
27.	27-10-2025	Panposh	582.7	104.3
28.	28-10-2025	Panposh	567.2	101.0
29.	29-10-2025	Panposh	617.8	114.9
30.	30-10-2025	Panposh	531.7	99.8
31.	31-10-2025	Panposh	524.3	96.3
Average			**573.1**	**106.8**

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 **614.8** µg/m^3 whereas minimum concentration was observed **525.0** µg/m^3 and RSPM concentration ranges between **92.3** µg/m^3 to **119.6** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/183
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.

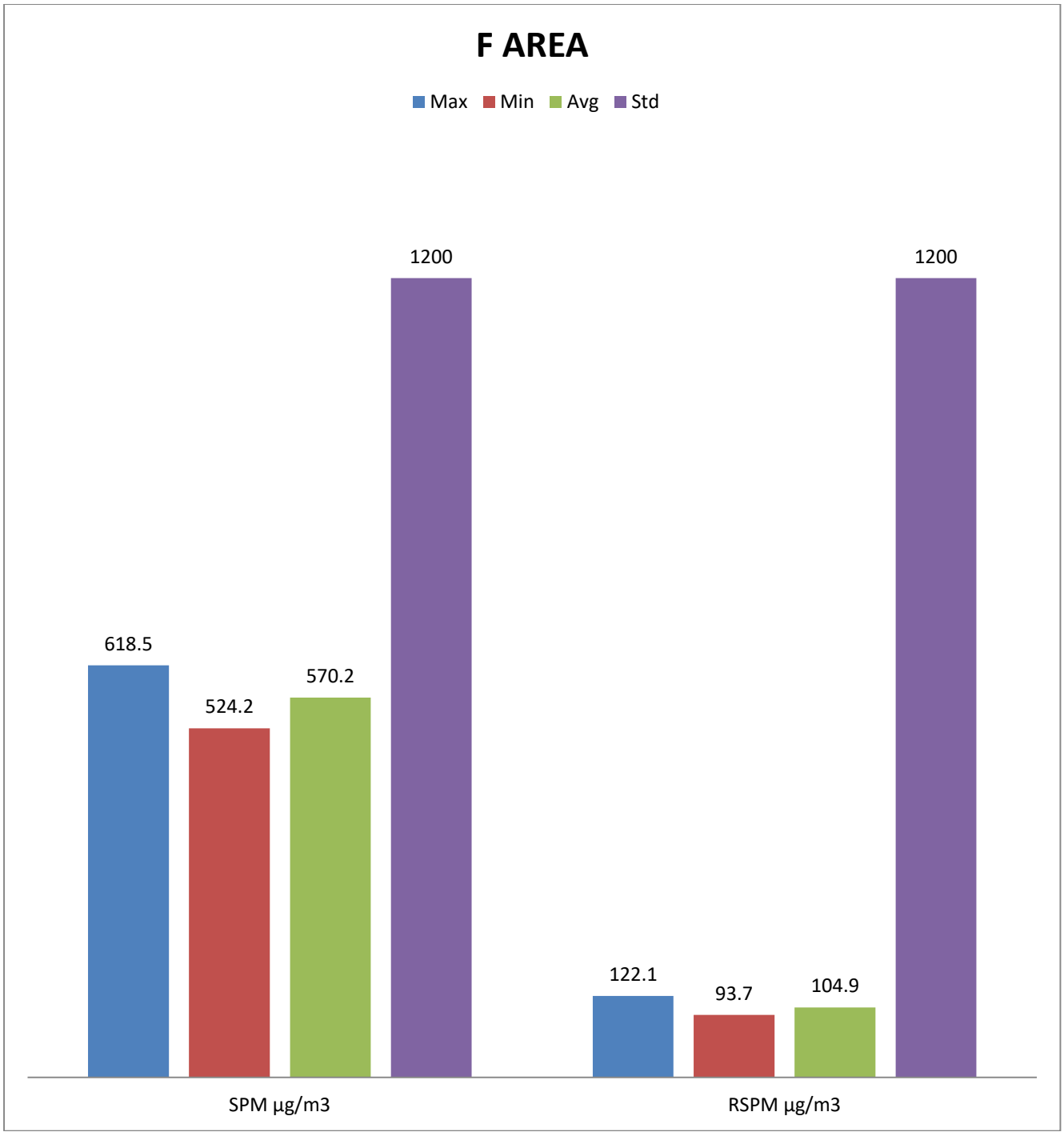
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2025	D Area	525.0	100.1
2.	02-10-2025	D Area	546.0	104.4
3.	03-10-2025	D Area	562.2	104.1
4.	04-10-2025	D Area	545.3	100.2
5.	05-10-2025	D Area	556.8	109.2
6.	06-10-2025	D Area	586.8	115.1
7.	07-10-2025	D Area	556.5	105.0
8.	08-10-2025	D Area	572.9	107.3
9.	09-10-2025	D Area	548.3	107.0
10.	10-10-2025	D Area	563.2	102.9
11.	11-10-2025	D Area	538.2	100.3
12.	12-10-2025	D Area	600.0	119.6
13.	13-10-2025	D Area	561.9	109.8
14.	14-10-2025	D Area	561.9	100.8
15.	15-10-2025	D Area	525.1	101.1
16.	16-10-2025	D Area	533.6	99.2
17.	17-10-2025	D Area	561.9	110.3
18.	18-10-2025	D Area	597.9	104.3
19.	19-10-2025	D Area	579.4	113.7
20.	20-10-2025	D Area	547.3	100.5
21.	21-10-2025	D Area	560.5	99.1
22.	22-10-2025	D Area	600.7	110.4
23.	23-10-2025	D Area	566.3	105.5
24.	24-10-2025	D Area	572.6	114.3
25.	25-10-2025	D Area	570.2	103.8
26.	26-10-2025	D Area	541.0	92.3
27.	27-10-2025	D Area	614.8	112.2
28.	28-10-2025	D Area	528.8	99.7
29.	29-10-2025	D Area	573.9	103.5
30.	30-10-2025	D Area	597.1	104.7
31.	31-10-2025	D Area	555.2	107.6
Average			**562.9**	**105.4**

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 **618.5** µg/m^3 whereas minimum concentration was observed **524.2** µg/m^3 and RSPM concentration ranges between **93.7** µg/m^3 to **122.1** µg/m^3 during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/184
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.

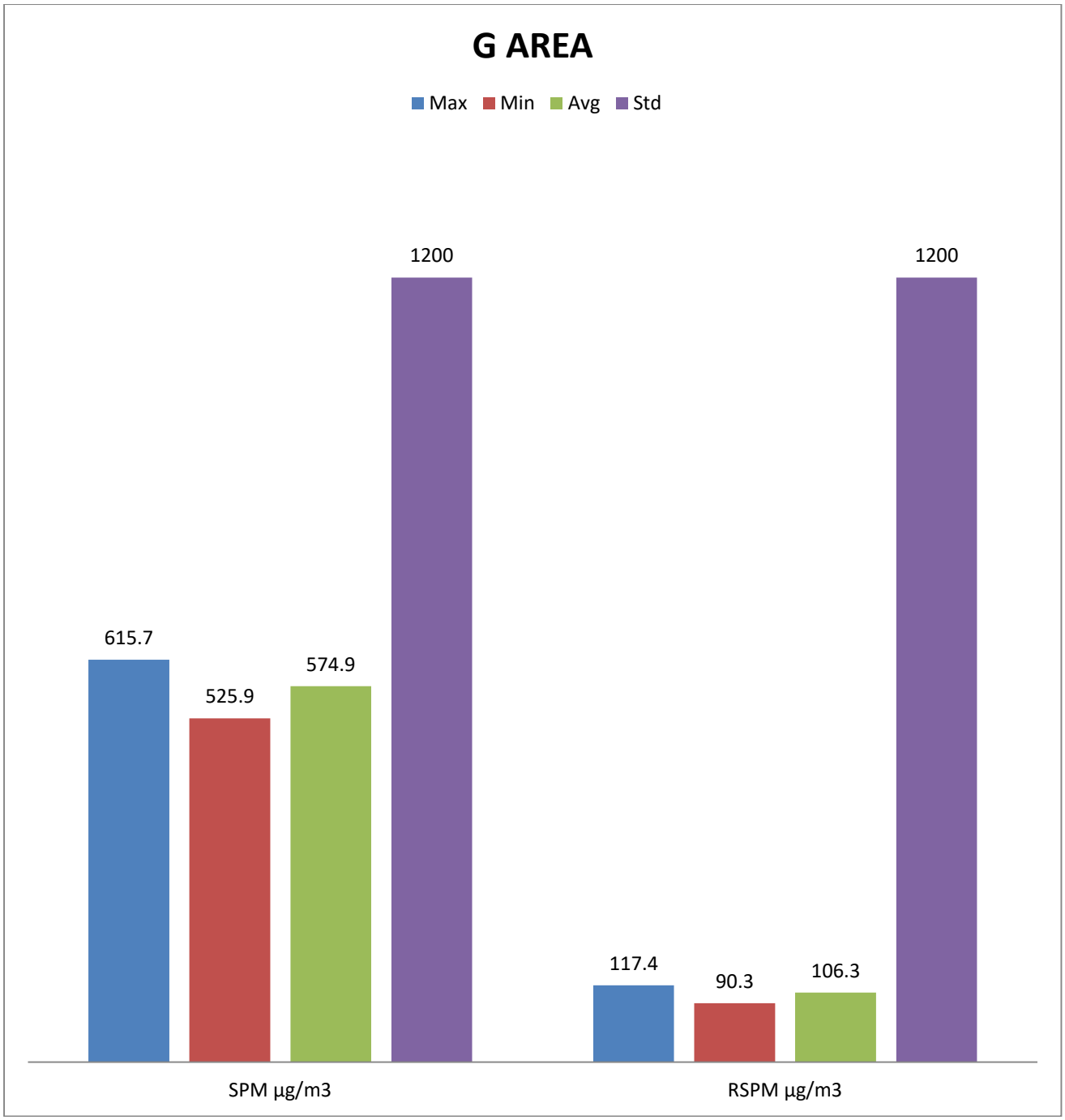
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2025	F Area	556.8	96.8
2.	02-10-2025	F Area	580.3	109.5
3.	03-10-2025	F Area	557.8	108.4
4.	04-10-2025	F Area	548.8	101.7
5.	05-10-2025	F Area	586.2	109.6
6.	06-10-2025	F Area	574.3	99.9
7.	07-10-2025	F Area	570.8	101.4
8.	08-10-2025	F Area	615.6	122.0
9.	09-10-2025	F Area	589.0	107.2
10.	10-10-2025	F Area	524.2	103.6
11.	11-10-2025	F Area	601.4	103.7
12.	12-10-2025	F Area	558.3	104.7
13.	13-10-2025	F Area	577.0	100.4
14.	14-10-2025	F Area	580.9	107.6
15.	15-10-2025	F Area	562.5	104.3
16.	16-10-2025	F Area	610.3	113.3
17.	17-10-2025	F Area	552.9	97.8
18.	18-10-2025	F Area	532.8	102.2
19.	19-10-2025	F Area	564.7	98.2
20.	20-10-2025	F Area	560.9	97.8
21.	21-10-2025	F Area	570.6	104.7
22.	22-10-2025	F Area	559.0	103.5
23.	23-10-2025	F Area	549.5	103.0
24.	24-10-2025	F Area	600.3	111.0
25.	25-10-2025	F Area	618.5	122.1
26.	26-10-2025	F Area	576.4	99.4
27.	27-10-2025	F Area	595.7	119.1
28.	28-10-2025	F Area	590.9	106.5
29.	29-10-2025	F Area	535.4	98.9
30.	30-10-2025	F Area	546.1	93.7
31.	31-10-2025	F Area	529.6	101.4
Average			**570.2**	**104.9**

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 **615.7** µg/m^3 whereas minimum concentration was observed **525.9** µg/m^3 and RSPM concentration ranges between **90.3** µg/m^3 to **117.4** µg/m^3 during the month



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/185
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.

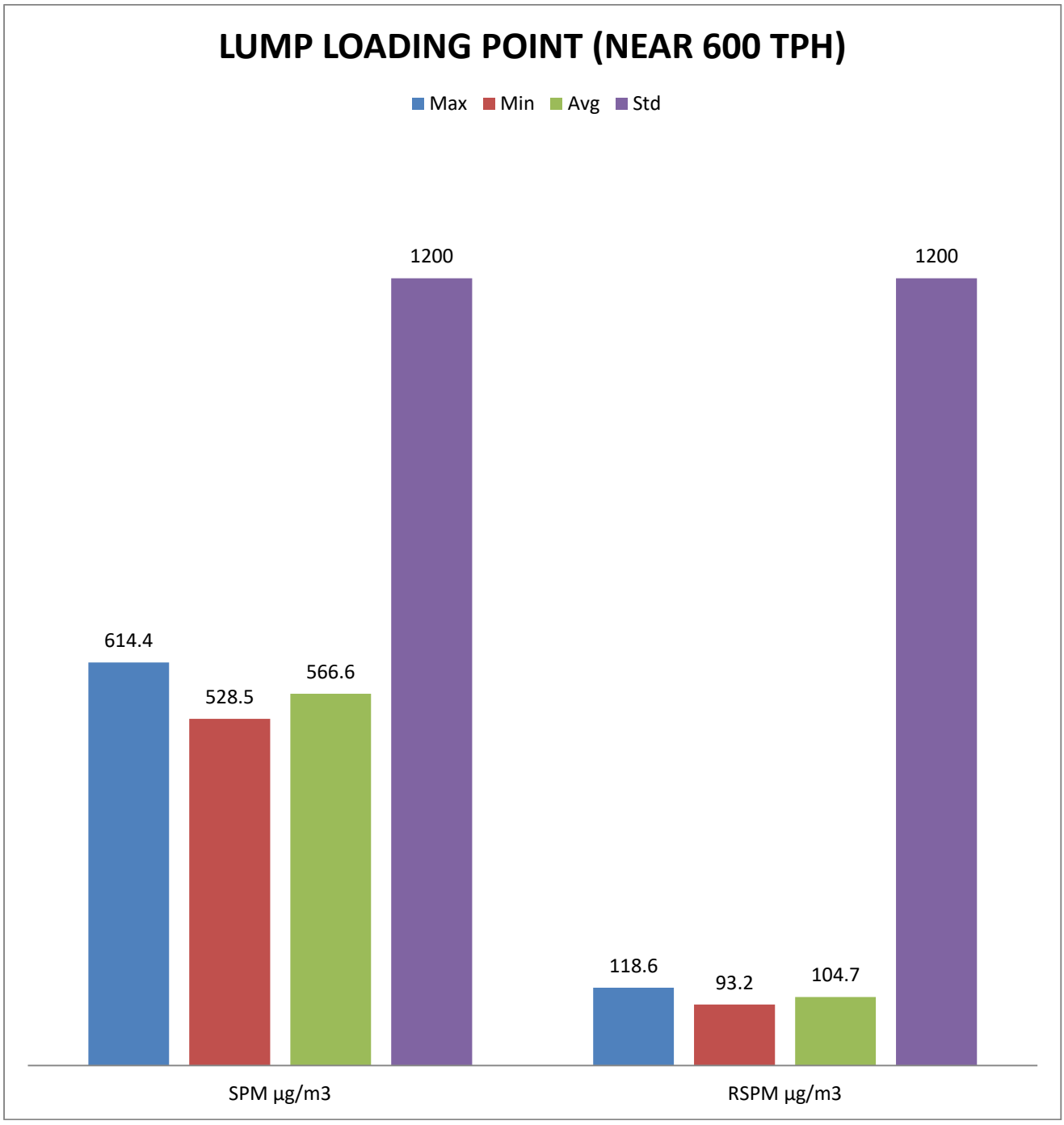
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2025	G Area	603.7	113.9
2.	02-10-2025	G Area	581.0	100.9
3.	03-10-2025	G Area	577.1	113.8
4.	04-10-2025	G Area	606.8	110.0
5.	05-10-2025	G Area	615.7	106.6
6.	06-10-2025	G Area	558.3	109.7
7.	07-10-2025	G Area	549.5	99.4
8.	08-10-2025	G Area	549.3	100.0
9.	09-10-2025	G Area	583.5	115.6
10.	10-10-2025	G Area	573.2	109.6
11.	11-10-2025	G Area	582.3	114.4
12.	12-10-2025	G Area	569.8	98.0
13.	13-10-2025	G Area	601.6	112.8
14.	14-10-2025	G Area	614.3	114.0
15.	15-10-2025	G Area	579.9	101.5
16.	16-10-2025	G Area	582.7	108.6
17.	17-10-2025	G Area	525.9	96.9
18.	18-10-2025	G Area	588.0	107.7
19.	19-10-2025	G Area	547.5	97.2
20.	20-10-2025	G Area	530.7	90.3
21.	21-10-2025	G Area	593.2	109.3
22.	22-10-2025	G Area	571.8	107.1
23.	23-10-2025	G Area	570.0	108.8
24.	24-10-2025	G Area	582.4	104.7
25.	25-10-2025	G Area	556.4	96.7
26.	26-10-2025	G Area	570.1	112.2
27.	27-10-2025	G Area	606.7	117.4
28.	28-10-2025	G Area	609.4	112.0
29.	29-10-2025	G Area	526.1	99.2
30.	30-10-2025	G Area	580.8	110.6
31.	31-10-2025	G Area	534.7	95.6
Average			**574.9**	**106.3**

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 **614.4** µg/m^3 whereas minimum concentration was observed **528.5** µg/m^3 and RSPM concentration ranges between **93.2** µg/m^3 to **118.6** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/186
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.

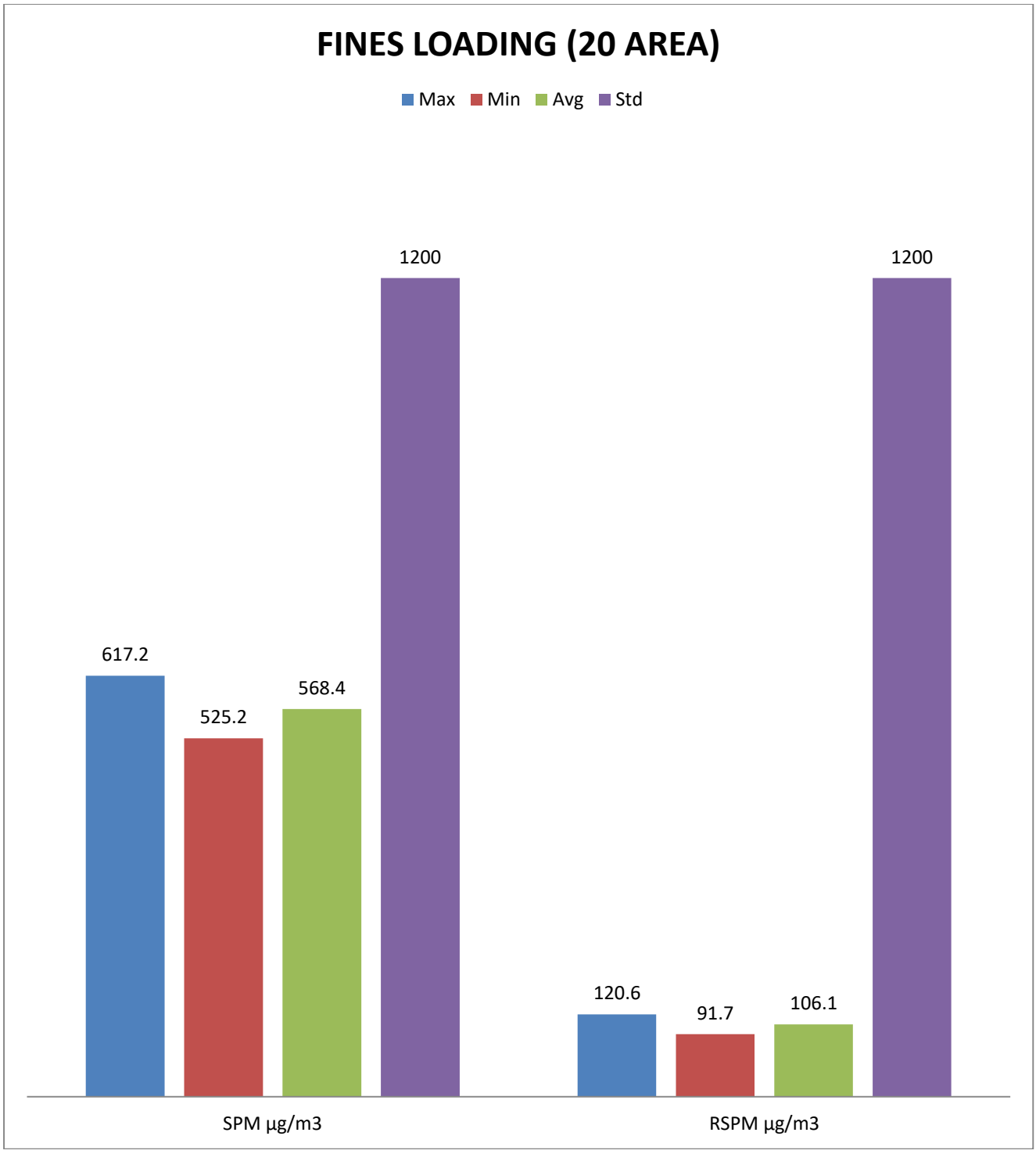
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2025	Lump Loading Point (Near 600 TPH)	529.8	98.6
2.	02-10-2025	Lump Loading Point (Near 600 TPH)	573.6	109.4
3.	03-10-2025	Lump Loading Point (Near 600 TPH)	601.9	111.7
4.	04-10-2025	Lump Loading Point (Near 600 TPH)	569.1	99.1
5.	05-10-2025	Lump Loading Point (Near 600 TPH)	535.0	103.2
6.	06-10-2025	Lump Loading Point (Near 600 TPH)	562.1	110.5
7.	07-10-2025	Lump Loading Point (Near 600 TPH)	595.9	113.6
8.	08-10-2025	Lump Loading Point (Near 600 TPH)	546.5	95.6
9.	09-10-2025	Lump Loading Point (Near 600 TPH)	583.2	100.1
10.	10-10-2025	Lump Loading Point (Near 600 TPH)	578.2	114.5
11.	11-10-2025	Lump Loading Point (Near 600 TPH)	528.5	96.3
12.	12-10-2025	Lump Loading Point (Near 600 TPH)	608.9	104.5
13.	13-10-2025	Lump Loading Point (Near 600 TPH)	535.0	103.5
14.	14-10-2025	Lump Loading Point (Near 600 TPH)	611.6	109.5
15.	15-10-2025	Lump Loading Point (Near 600 TPH)	539.0	93.2
16.	16-10-2025	Lump Loading Point (Near 600 TPH)	597.0	105.4
17.	17-10-2025	Lump Loading Point (Near 600 TPH)	555.2	107.8
18.	18-10-2025	Lump Loading Point (Near 600 TPH)	584.6	100.9
19.	19-10-2025	Lump Loading Point (Near 600 TPH)	580.7	108.3
20.	20-10-2025	Lump Loading Point (Near 600 TPH)	571.8	105.7
21.	21-10-2025	Lump Loading Point (Near 600 TPH)	547.5	95.8
22.	22-10-2025	Lump Loading Point (Near 600 TPH)	563.8	111.1
23.	23-10-2025	Lump Loading Point (Near 600 TPH)	555.9	108.3
24.	24-10-2025	Lump Loading Point (Near 600 TPH)	553.4	108.2
25.	25-10-2025	Lump Loading Point (Near 600 TPH)	543.8	94.6
26.	26-10-2025	Lump Loading Point (Near 600 TPH)	563.1	107.5
27.	27-10-2025	Lump Loading Point (Near 600 TPH)	534.0	97.4
28.	28-10-2025	Lump Loading Point (Near 600 TPH)	534.4	98.5
29.	29-10-2025	Lump Loading Point (Near 600 TPH)	614.4	118.6
30.	30-10-2025	Lump Loading Point (Near 600 TPH)	584.9	112.1
31.	31-10-2025	Lump Loading Point (Near 600 TPH)	582.1	101.4
Average			**566.6**	**104.7**

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 **617.2** µg/m^3 whereas minimum concentration was observed **525.2** µg/m^3 and RSPM concentration ranges between **91.7** µg/m^3 to **120.6** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/187
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.

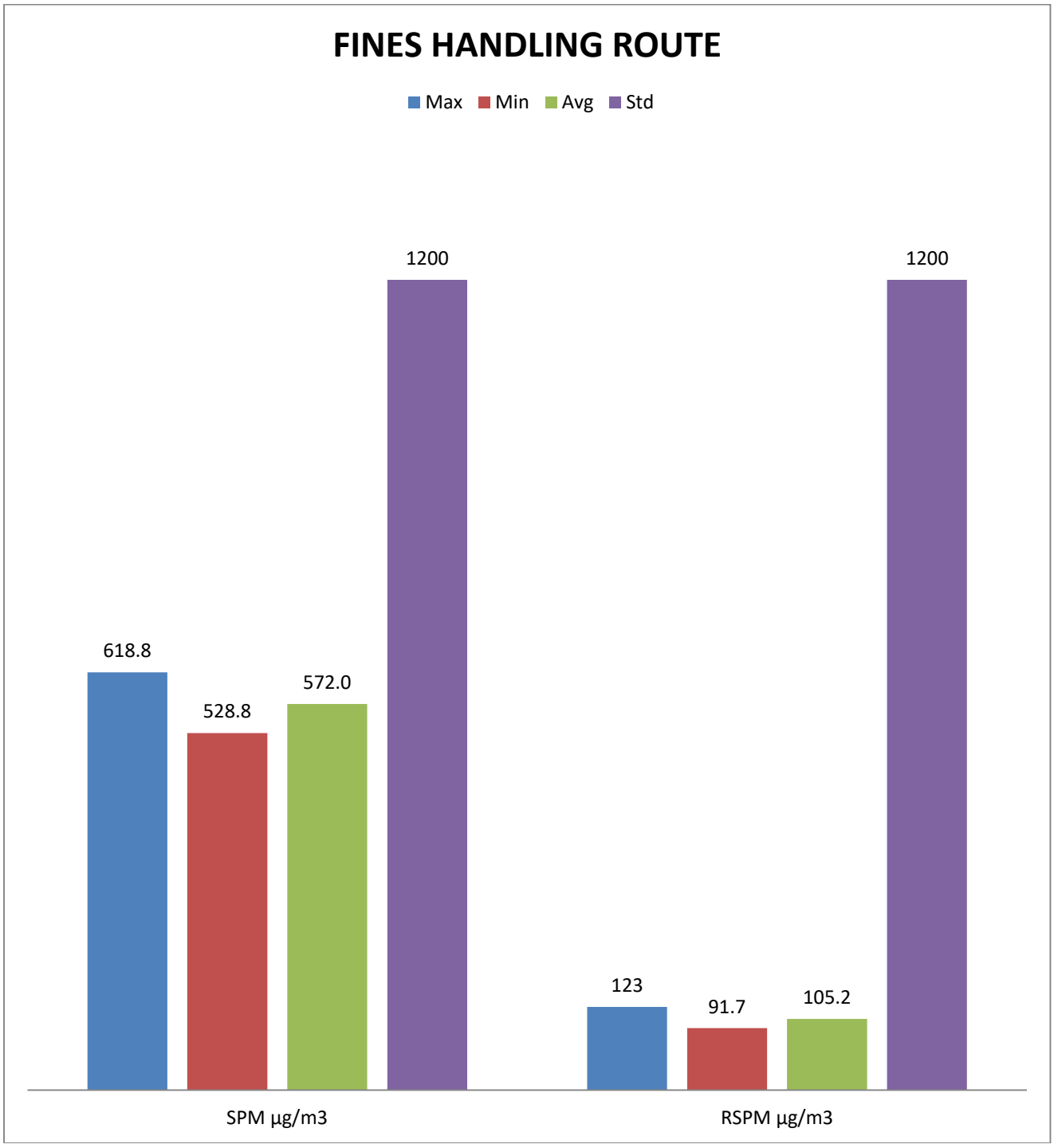
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2025	Fines Loading (20 area)	616.9	120.6
2.	02-10-2025	Fines Loading (20 area)	576.0	112.7
3.	03-10-2025	Fines Loading (20 area)	536.4	97.1
4.	04-10-2025	Fines Loading (20 area)	560.1	102.8
5.	05-10-2025	Fines Loading (20 area)	554.7	104.2
6.	06-10-2025	Fines Loading (20 area)	526.5	91.7
7.	07-10-2025	Fines Loading (20 area)	530.7	99.1
8.	08-10-2025	Fines Loading (20 area)	552.8	109.7
9.	09-10-2025	Fines Loading (20 area)	585.8	101.7
10.	10-10-2025	Fines Loading (20 area)	525.2	100.0
11.	11-10-2025	Fines Loading (20 area)	581.0	110.3
12.	12-10-2025	Fines Loading (20 area)	546.3	94.1
13.	13-10-2025	Fines Loading (20 area)	573.6	104.0
14.	14-10-2025	Fines Loading (20 area)	532.7	104.6
15.	15-10-2025	Fines Loading (20 area)	553.4	98.5
16.	16-10-2025	Fines Loading (20 area)	588.0	109.5
17.	17-10-2025	Fines Loading (20 area)	609.0	108.4
18.	18-10-2025	Fines Loading (20 area)	595.8	108.6
19.	19-10-2025	Fines Loading (20 area)	579.9	115.0
20.	20-10-2025	Fines Loading (20 area)	581.1	108.6
21.	21-10-2025	Fines Loading (20 area)	602.1	117.8
22.	22-10-2025	Fines Loading (20 area)	572.3	101.1
23.	23-10-2025	Fines Loading (20 area)	617.2	119.2
24.	24-10-2025	Fines Loading (20 area)	549.3	108.4
25.	25-10-2025	Fines Loading (20 area)	587.9	103.2
26.	26-10-2025	Fines Loading (20 area)	602.7	119.4
27.	27-10-2025	Fines Loading (20 area)	537.4	106.5
28.	28-10-2025	Fines Loading (20 area)	525.4	92.1
29.	29-10-2025	Fines Loading (20 area)	608.4	114.0
30.	30-10-2025	Fines Loading (20 area)	577.4	99.3
31.	31-10-2025	Fines Loading (20 area)	533.8	106.7
Average			**568.4**	**106.1**

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 **618.8** µg/m^3 whereas minimum concentration was observed **528.8** µg/m^3 and RSPM concentration ranges between **91.7** µg/m^3 to **123.0** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/188
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.

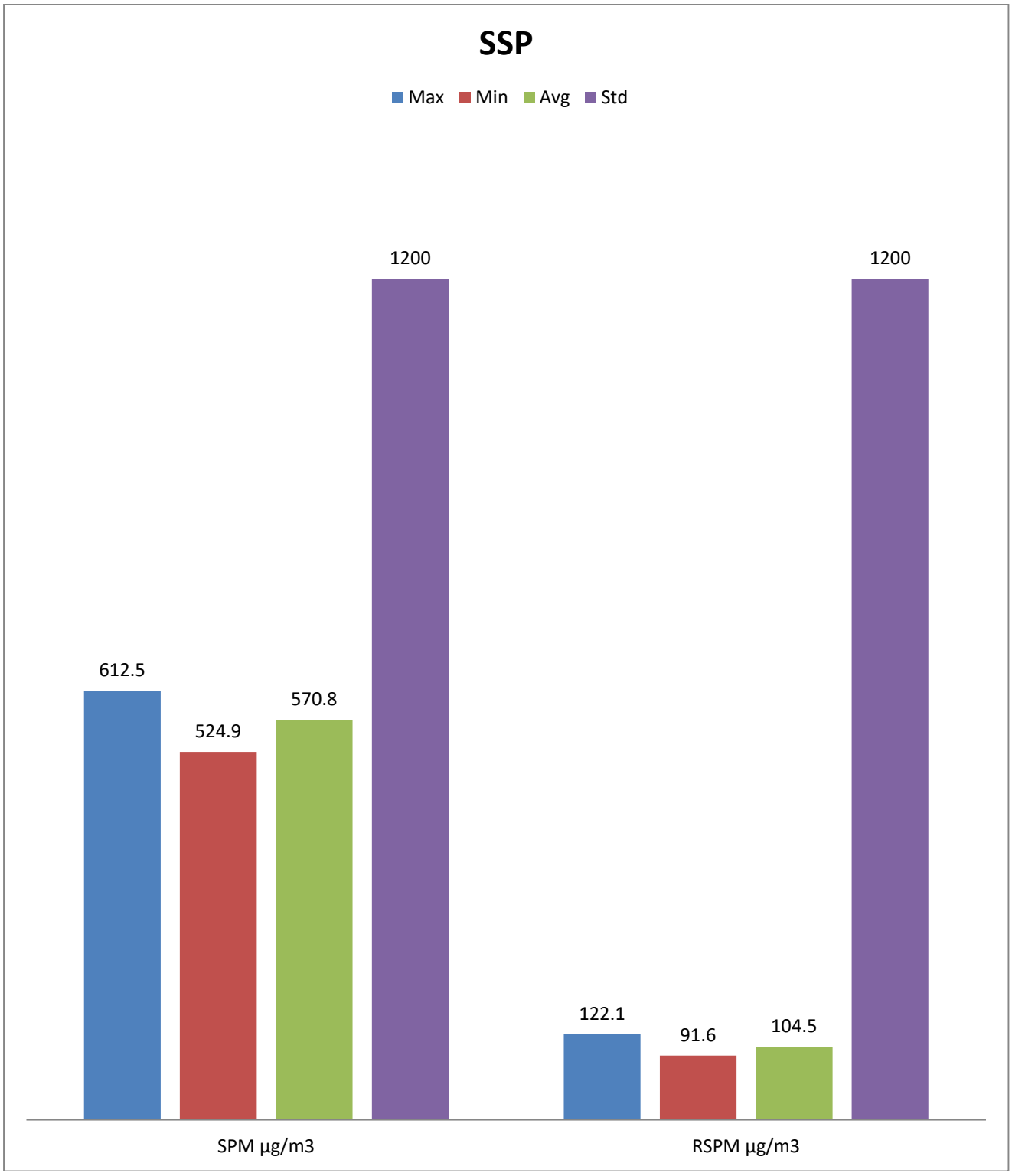
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2025	Fines Handling Route	535.9	102.4
2.	02-10-2025	Fines Handling Route	605.2	111.0
3.	03-10-2025	Fines Handling Route	606.7	115.0
4.	04-10-2025	Fines Handling Route	574.8	99.1
5.	05-10-2025	Fines Handling Route	603.6	107.9
6.	06-10-2025	Fines Handling Route	550.9	94.6
7.	07-10-2025	Fines Handling Route	596.4	115.1
8.	08-10-2025	Fines Handling Route	599.3	104.1
9.	09-10-2025	Fines Handling Route	562.1	108.9
10.	10-10-2025	Fines Handling Route	564.6	97.6
11.	11-10-2025	Fines Handling Route	596.0	102.3
12.	12-10-2025	Fines Handling Route	528.8	100.0
13.	13-10-2025	Fines Handling Route	539.4	106.4
14.	14-10-2025	Fines Handling Route	577.1	114.0
15.	15-10-2025	Fines Handling Route	552.4	97.4
16.	16-10-2025	Fines Handling Route	577.8	103.2
17.	17-10-2025	Fines Handling Route	613.4	106.9
18.	18-10-2025	Fines Handling Route	564.6	97.6
19.	19-10-2025	Fines Handling Route	567.7	109.8
20.	20-10-2025	Fines Handling Route	530.6	97.2
21.	21-10-2025	Fines Handling Route	554.8	102.8
22.	22-10-2025	Fines Handling Route	564.9	110.5
23.	23-10-2025	Fines Handling Route	616.5	119.5
24.	24-10-2025	Fines Handling Route	536.4	99.5
25.	25-10-2025	Fines Handling Route	563.4	110.6
26.	26-10-2025	Fines Handling Route	603.2	108.4
27.	27-10-2025	Fines Handling Route	538.7	91.7
28.	28-10-2025	Fines Handling Route	618.8	123.0
29.	29-10-2025	Fines Handling Route	549.6	108.9
30.	30-10-2025	Fines Handling Route	534.4	92.0
31.	31-10-2025	Fines Handling Route	603.7	104.3
Average			**572.0**	**105.2**

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 **612.5** µg/m^3 whereas minimum concentration was observed **524.9** µg/m^3 and RSPM concentration ranges between **91.6** µg/m^3 to **122.1** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/189
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.

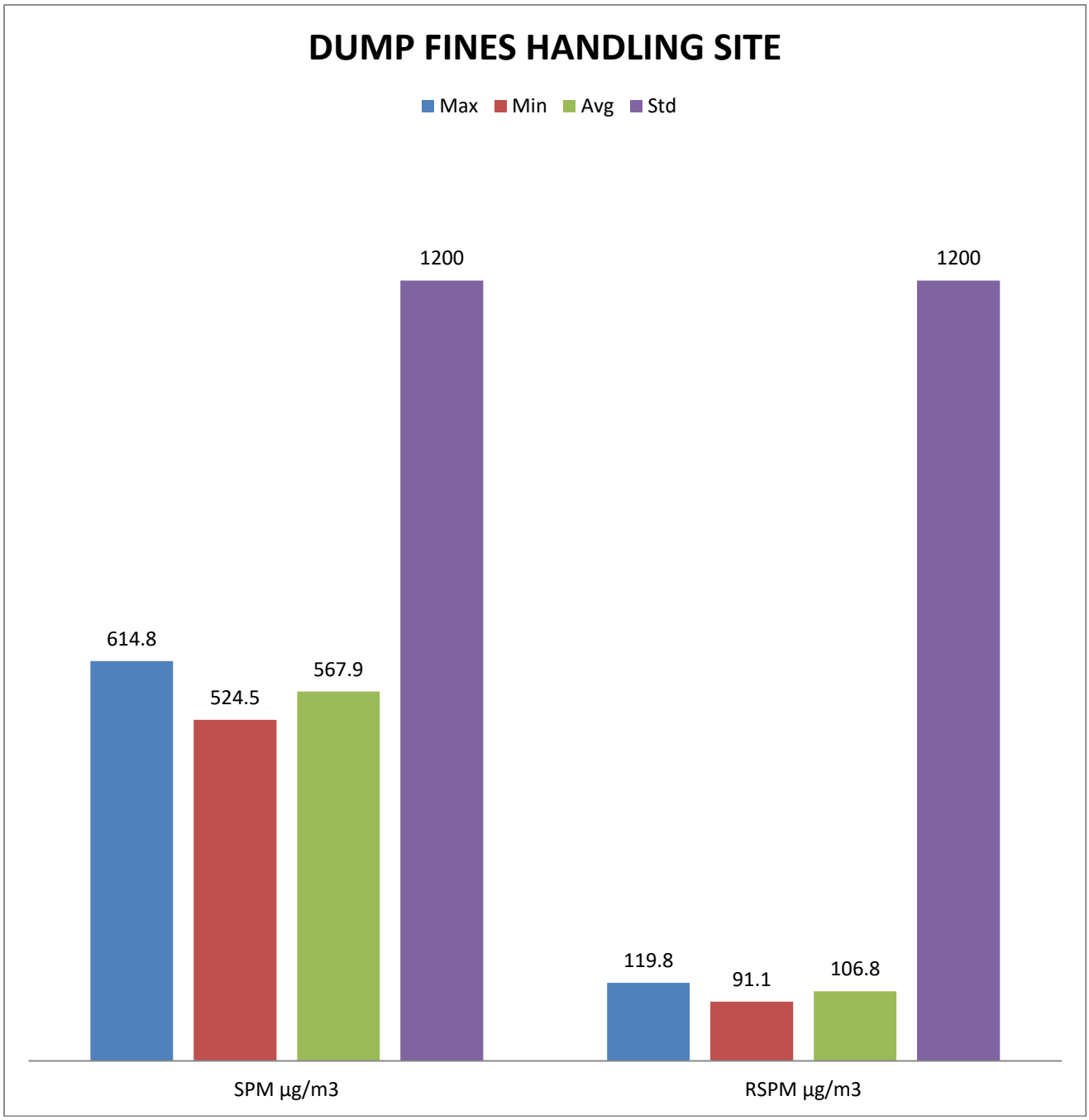
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2025	SSP	598.1	111.0
2.	02-10-2025	SSP	579.3	98.5
3.	03-10-2025	SSP	527.7	91.6
4.	04-10-2025	SSP	553.7	105.4
5.	05-10-2025	SSP	578.3	99.8
6.	06-10-2025	SSP	581.2	111.1
7.	07-10-2025	SSP	580.4	108.2
8.	08-10-2025	SSP	549.6	99.0
9.	09-10-2025	SSP	611.7	122.1
10.	10-10-2025	SSP	553.1	110.2
11.	11-10-2025	SSP	562.0	96.6
12.	12-10-2025	SSP	601.1	111.6
13.	13-10-2025	SSP	612.5	106.8
14.	14-10-2025	SSP	541.2	96.8
15.	15-10-2025	SSP	578.8	112.1
16.	16-10-2025	SSP	539.2	101.3
17.	17-10-2025	SSP	574.7	101.3
18.	18-10-2025	SSP	612.4	121.2
19.	19-10-2025	SSP	551.0	97.0
20.	20-10-2025	SSP	589.6	109.5
21.	21-10-2025	SSP	570.8	108.4
22.	22-10-2025	SSP	587.3	108.7
23.	23-10-2025	SSP	571.2	107.0
24.	24-10-2025	SSP	526.9	97.6
25.	25-10-2025	SSP	526.3	104.4
26.	26-10-2025	SSP	608.5	104.1
27.	27-10-2025	SSP	610.7	105.6
28.	28-10-2025	SSP	524.9	91.6
29.	29-10-2025	SSP	605.0	103.4
30.	30-10-2025	SSP	552.9	94.1
31.	31-10-2025	SSP	534.6	103.0
Average			**570.8**	**104.5**

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 **614.8** µg/m^3 whereas minimum concentration was observed **524.5** µg/m^3 and RSPM concentration ranges between **91.1** µg/m^3 to **119.8** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/190
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.

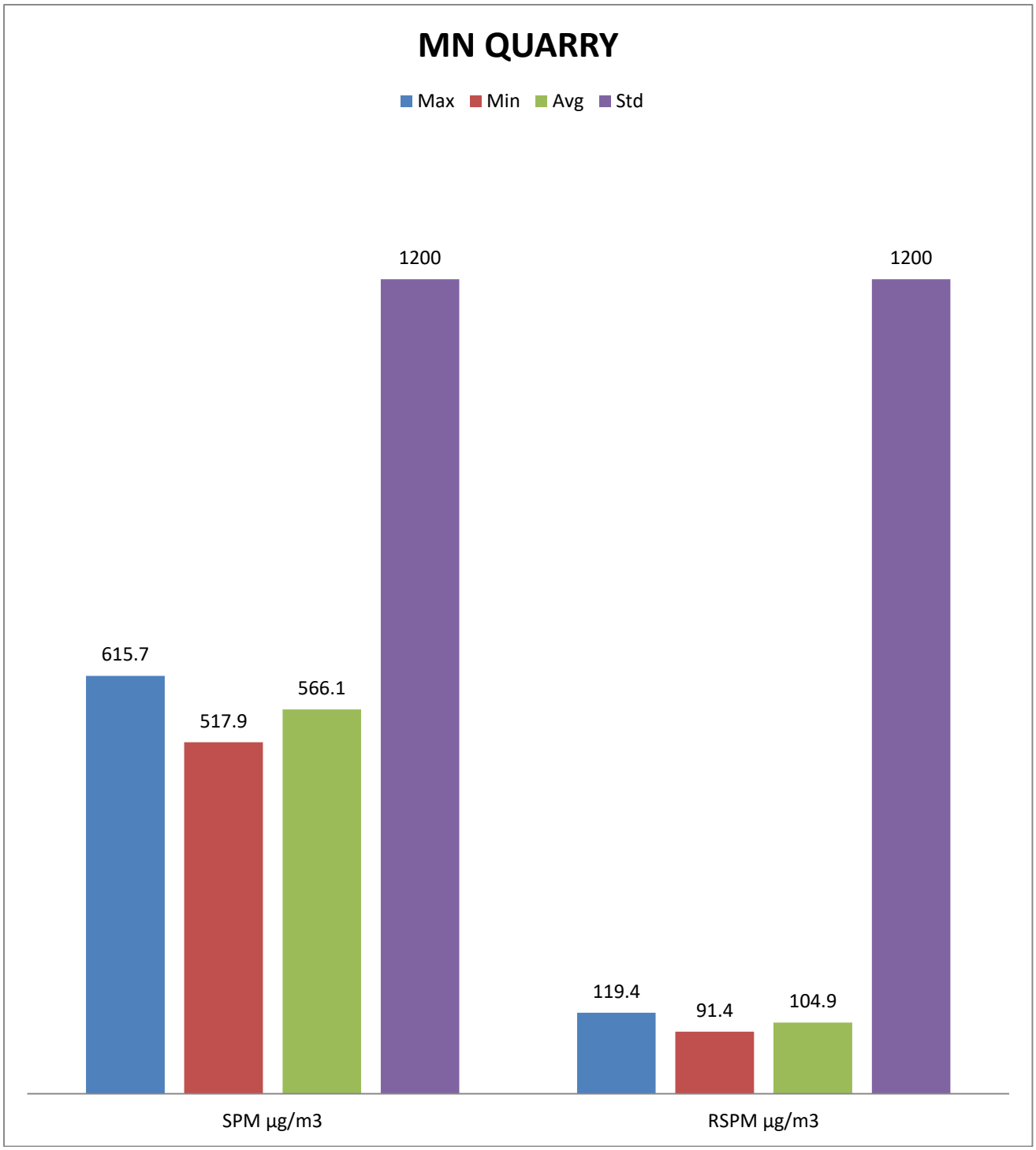
Sl. No.	Date	Sampling Location	Parameter	
			SPM µg/m3	RSPM µg/m3
1.	01-10-2025	Dump Fines Handling Site	592.5	112.8
2.	02-10-2025	Dump Fines Handling Site	593.9	112.8
3.	03-10-2025	Dump Fines Handling Site	587.7	109.4
4.	04-10-2025	Dump Fines Handling Site	524.5	106.6
5.	05-10-2025	Dump Fines Handling Site	535.9	97.5
6.	06-10-2025	Dump Fines Handling Site	570.2	111.2
7.	07-10-2025	Dump Fines Handling Site	604.4	114.6
8.	08-10-2025	Dump Fines Handling Site	530.2	91.1
9.	09-10-2025	Dump Fines Handling Site	583.4	113.8
10.	10-10-2025	Dump Fines Handling Site	530.9	100.9
11.	11-10-2025	Dump Fines Handling Site	554.2	105.4
12.	12-10-2025	Dump Fines Handling Site	596.2	111.0
13.	13-10-2025	Dump Fines Handling Site	614.3	115.6
14.	14-10-2025	Dump Fines Handling Site	543.0	93.0
15.	15-10-2025	Dump Fines Handling Site	606.7	108.3
16.	16-10-2025	Dump Fines Handling Site	528.1	92.6
17.	17-10-2025	Dump Fines Handling Site	528.7	104.1
18.	18-10-2025	Dump Fines Handling Site	613.1	118.6
19.	19-10-2025	Dump Fines Handling Site	546.7	109.0
20.	20-10-2025	Dump Fines Handling Site	549.8	99.4
21.	21-10-2025	Dump Fines Handling Site	576.8	106.6
22.	22-10-2025	Dump Fines Handling Site	536.1	106.8
23.	23-10-2025	Dump Fines Handling Site	533.4	92.7
24.	24-10-2025	Dump Fines Handling Site	565.7	98.1
25.	25-10-2025	Dump Fines Handling Site	527.3	104.7
26.	26-10-2025	Dump Fines Handling Site	602.7	108.3
27.	27-10-2025	Dump Fines Handling Site	563.9	104.2
28.	28-10-2025	Dump Fines Handling Site	557.2	110.5
29.	29-10-2025	Dump Fines Handling Site	614.8	119.8
30.	30-10-2025	Dump Fines Handling Site	589.7	114.8
31.	31-10-2025	Dump Fines Handling Site	603.5	116.4
Average			**567.9**	**106.8**

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 **615.7** µg/m^3 whereas minimum concentration was observed **517.9** µg/m^3 and RSPM concentration ranges between **91.4** µg/m^3 to **119.4** µg/m^3 during the month.



Format No: ECO/QS/FORMAT/01

Test Report No: ECO/BOM/FUG/191
Test Report Issue date: 02.11.2025

FUGITIVE EMISSION MONITORING REPORT FOR OCTOBER 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.	01-10-2025	Mn Quarry	534.2	93.8
2.	02-10-2025	Mn Quarry	546.3	98.0
3.	03-10-2025	Mn Quarry	597.0	115.4
4.	04-10-2025	Mn Quarry	577.3	108.9
5.	05-10-2025	Mn Quarry	568.8	97.1
6.	06-10-2025	Mn Quarry	576.5	105.4
7.	07-10-2025	Mn Quarry	588.0	108.2
8.	08-10-2025	Mn Quarry	531.1	108.1
9.	09-10-2025	Mn Quarry	556.6	97.6
10.	10-10-2025	Mn Quarry	567.5	108.0
11.	11-10-2025	Mn Quarry	541.9	101.6
12.	12-10-2025	Mn Quarry	590.7	104.3
13.	13-10-2025	Mn Quarry	573.9	100.3
14.	14-10-2025	Mn Quarry	609.3	119.4
15.	15-10-2025	Mn Quarry	552.7	97.7
16.	16-10-2025	Mn Quarry	559.4	102.5
17.	17-10-2025	Mn Quarry	606.7	106.0
18.	18-10-2025	Mn Quarry	526.2	96.4
19.	19-10-2025	Mn Quarry	584.3	107.9
20.	20-10-2025	Mn Quarry	592.8	111.1
21.	21-10-2025	Mn Quarry	571.6	104.9
22.	22-10-2025	Mn Quarry	528.5	91.4
23.	23-10-2025	Mn Quarry	612.4	106.9
24.	24-10-2025	Mn Quarry	555.0	108.1
25.	25-10-2025	Mn Quarry	528.6	100.6
26.	26-10-2025	Mn Quarry	517.9	118.1
27.	27-10-2025	Mn Quarry	536.9	100.8
28.	28-10-2025	Mn Quarry	572.1	99.5
29.	29-10-2025	Mn Quarry	578.0	114.1
30.	30-10-2025	Mn Quarry	615.7	111.0
31.	31-10-2025	Mn Quarry	550.9	107.6
Average			**566.1**	**104.9**

Verified By
Technical Manager

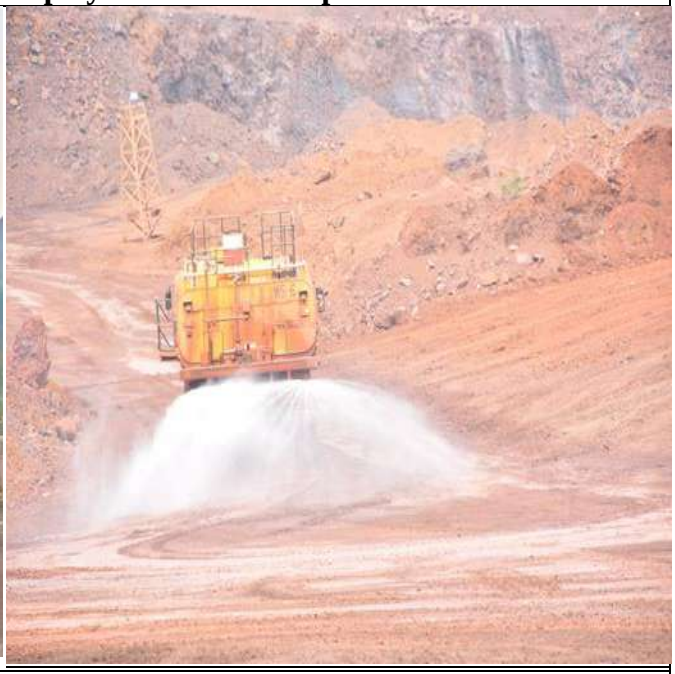
Authorized By
Quality Manager

ANNEXURE-II

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

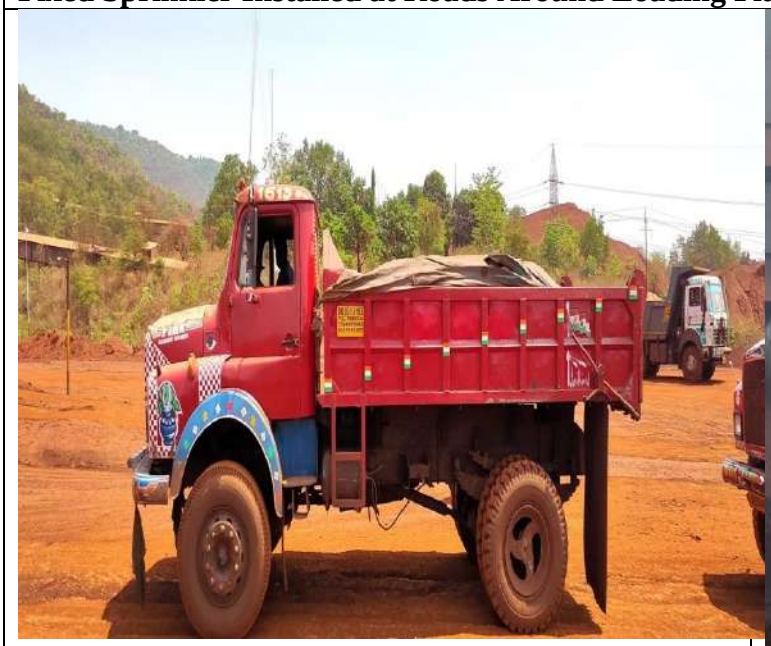
Fixed Sprinkler Installed at Permanent Haul Road of FandG Area

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

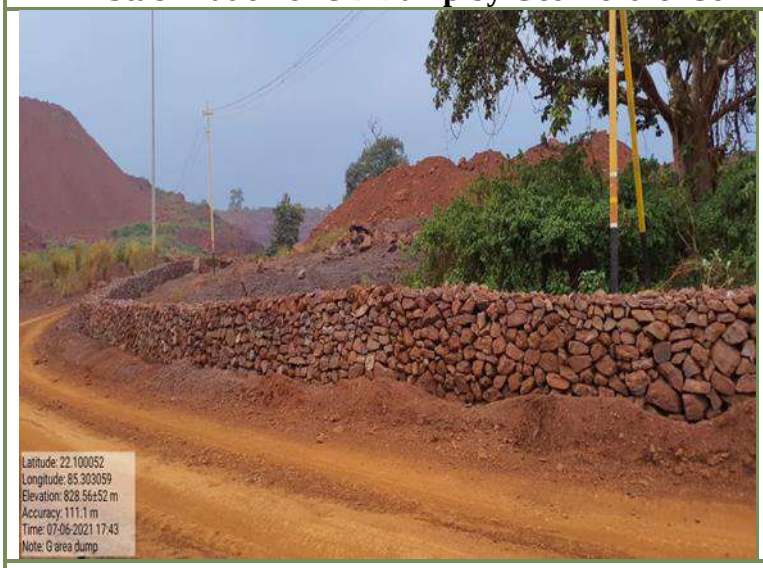
Road Sweeper Machine Deployed at Bolani Township Area

9 KL Mobile Water Tanker Deployed at Office Area

ANNEXURE-III

PHOTOGRAPHS SHOWING PLANTATION CARRIEDOUT WITHIN ML AREA

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

Creating awareness programmes among students for plantation

Development of Saplings in-house Mines Nursery

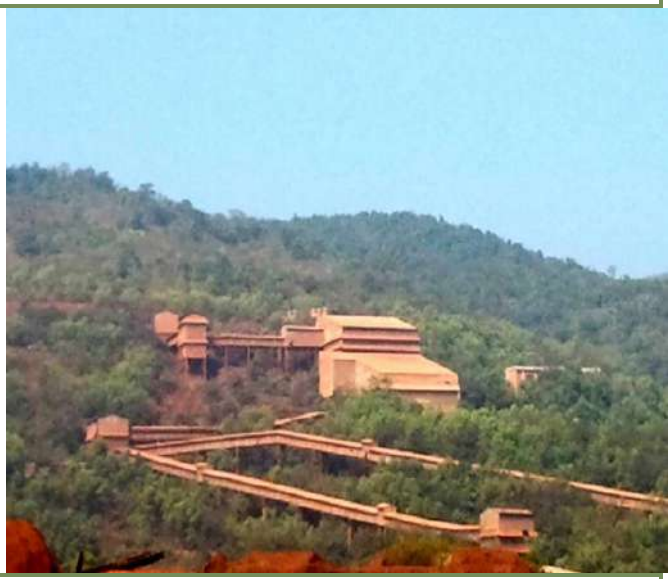
Sapling Distribution to Local Inhabitants Through In-House Nursery

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-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

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

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0087/0373/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Surface Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0373/07/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.61	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	20.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	22.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.2	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.14	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	5.88	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.13	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.04	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	IS 3025 (Part-46, Clause No-5)	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0087/0371/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Surface Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0371/07/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.43	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	28.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	18.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.5	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.14	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	<5	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.10	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.06	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulphide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	IS 3025 (Part-46, Clause No-5)	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0087/0375/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Surface Water		
Sample Registration No.	0087	**Name of Location**	Panpash Nallah
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0375/07/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.46	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	36.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	28.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.5	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	6.22	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.22	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.10	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	IS 3025 (Part-46, Clause No-5)	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0087/0376/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Surface Water		
Sample Registration No.	0087	**Name of Location**	Karo River Intake
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0376/07/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.28	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	32.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	30.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.7	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	6.12	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.08	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	<0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	IS 3025 (Part-46, Clause No-5)	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0087/0373/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	**05.08.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0373/07/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.98	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.10	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.08	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	0.04	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	IS 3025 (Part46, Clause No.5)	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 5210(B) 23rd:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Ecomen Laboratories Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.

CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3

Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka

+91 080 29533368

support@ecomen.in

www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0087/0374/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	**05.08.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0374/07/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.76	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.12	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.10	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	IS 3025 (Part46, Clause No.5)	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 23rd:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By

Technical Manager

(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0087/0375/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Waste Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0375/07/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.68	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540 D	5 -5000	38.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part 58)	1 -1000	20.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	IS 3025 (Part 44)	1 -1000	2.9	30.0
5.	Oil & Grease as O&G	mg/l	IS 3025 (Part39, Clause No.5)	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 4500 F D-24th Ed.: 2023	0.05 -10	0.24	2.0
7.	Nitrate nitrogen	mg/l	APHA 4500 NO2 B-24th Ed.: 2023	5-100	7.0	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.20	-
9.	Arsenic as As	mg/l	APHA 3125-B-23rd Edition: 2017	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	IEC 62321: 2021	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 3125 B-24th Ed.:2023	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 5530 C,D-24th Ed.:2023	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.: 2023	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	IS 3025 (Part46, Clause No.5)	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 3125 B-24th Ed.: 2023	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 3125 B-23rd Ed: 2017	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	4.4	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By

Technical Manager
(Dr. Midhun G)

Ecomen Laboratories Pvt. Ltd.
CIN : U71200KA2024PTC187556 / GSTIN : 29AAICE1418R1Z3
Second Floor, Sy. No. 91/A, Ward No. 7, MCHS Jakkur Layout, Jakkur, Bangalore - 560 064 Karnataka
+91 080 29533368
support@ecomen.in
www.ecomen.in

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0087/0376/07/2025**
		Issue Date of Test Report	**05.08.2025**
Type of Sample	Waste Water		
Sample Registration No.	0087	**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	22.07.2025	**Time of Sample Collection**	-
Date of Sample Receipt	24.07.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	24.07.2025	**End Date of Analysis**	05.08.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0376/07/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.74	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540 D	5 -5000	40.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part 58)	1 -1000	24.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	IS 3025 (Part 44)	1 -1000	3.2	30.0
5.	Oil & Grease as O&G	mg/l	IS 3025 (Part39, Clause No.5)	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 4500 F D-24th Ed.: 2023	0.05 -10	0.21	2.0
7.	Nitrate nitrogen	mg/l	APHA 4500 NO2 B-24th Ed.: 2023	5-100	5.47	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.22	-
9.	Arsenic as As	mg/l	APHA 3125-B-23rd Edition: 2017	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	IEC 62321: 2021	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 3125 B-24th Ed.:2023	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 5530 C,D-24th Ed.:2023	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.: 2023	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	IS 3025 (Part46, Clause No.5)	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 3125 B-24th Ed.: 2023	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 3125 B-23rd Ed: 2017	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	5.2	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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----

Ecomen Laboratory Pvt. Ltd. Bangalore

Authorized By
Technical Manager
(Dr. Midhun G)

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

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0088/0380/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0380/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.28	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	30.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	28.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.8	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.12	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	<5	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.14	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.08	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulphide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0088/0381/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0381/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.49	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	18.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	20.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.4	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.12	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	6.12	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.15	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.07	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0088/0382/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**Name of Location**	Panpash Nallah
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0382/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.50	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	32.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	30.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.7	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.10	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	6.56	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.20	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	0.08	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0088/0383/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**Name of Location**	Karo River Intake
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0383/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	IS 3025(Part-11)	2 - 12	7.34	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA,24th Ed. :2023,2540-D	5 -5000	36.0	-
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	1 -1000	32.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA, 23rd Ed. :2017,5210 B	1 -1000	2.9	3.0
5.	Fluoride as F	mg/l	APHA, 24th Ed.:2023 4500-F D	0.05 -10	0.08	1.5
6.	Nitrate Nitrogen	mg/l	IS 3025 (Part-34)	5-100	5.86	50
7.	Arsenic as As	mg/l	APHA, 24th Ed.: 2023,3125-B	0.01-2	<0.01	0.2
8.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025 (Part-52, Clause No-6)	0.05-20	<0.05	0.05
9.	Iron as Fe	mg/l	IS 3025 (Part-53, Clause No-6)	0.02-50	0.12	3.0
10.	Copper as Cu	mg/l	APHA, 24th Ed.: 2023,3125-B	0.05-5	<0.05	1.5
11.	Zinc as Zn	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-50	<0.02	15.0
12.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.05	0.005
13.	Sulfide as S^{2-}	mg/l	IS 3025 (Part-29, Clause No-5)	0.05-10	<0.05	-
14.	Mercury as Hg	mg/l	APHA, 24th Ed.: 2023,3125-B	0.001-1	<0.001	-
15.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	-
16.	Lead as Pb	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.01-1	<0.01	0.1
17.	Cadmium as Cd	mg/l	APHA, 24th Ed.: 2023,3125-B	0.002-2	<0.002	0.01
18.	Nickel as Ni	mg/l	APHA, 23rd Ed.: 2017,3125-B	0.02-10	<0.02	-
19.	Oil & Grease as O&G	mg/l	IS 3025 (Part-39, Clause No-5)	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part-26, Clause No-5)	0.5-10	<0.5	0.2
21.	Cyanide as CN^-	mg/l	APHA, 24th Ed:2023:2017, 4500-CN(K)	0.02-10	<0.02	0.05

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0375/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0375/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.90	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.12	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.06	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	0.08	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 23rd:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0376/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0376/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.80	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.12	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.12	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 23rd:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0377/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Ground Water		
Sample Registration No.	0088	**Name of Location**	Balagoda Village
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0377/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.86	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.14	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.10	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	0.08	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 24th Ed.:2023:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0378/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Ground Water		
Sample Registration No.	0088	**Name of Location**	Bolani Gouda Basti
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0378/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.86	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
3.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.12	1	1.5
4.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
5.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
6.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
7.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.12	0.3	No Relax
8.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
9.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	<0.02	5.0	15.0
10.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
11.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
12.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
13.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
14.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
16.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
17.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 24th Ed.:2023:2017	1 -1000	<1	-	-
18.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
19.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
20.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0088/0379/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Ground Water		
Sample Registration No.	0088	**Name of Location**	Bolani Basti Bolani Village
Sampling Method	APHA, 23rd Ed.:2017,1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	**05.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0379/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
22.	pH	-	IS 3025 (Part 11)	2 - 12	6.72	6.5-8.5	No Relax
23.	Total Suspended Solids as TSS	mg/l	APHA 2540 D 24th Ed: 2023	5 -5000	<5	-	-
24.	Fluoride as F	mg/l	APHA 24th Edition 4500-F B&D	0.05 -10	0.08	1	1.5
25.	Nitrate Nitrogen	mg/l	IS:3025 (Part 34)	5-100	<5	45	No Relax
26.	Arsenic as As	mg/l	APHA 3125-B-24th Ed.:2023	0.01-2	<0.01	0.01	0.05
27.	Hexavalent Chromium as Cr^{+6}	mg/l	IS 3025(Part 52,Clause No.6)	0.05-20	<0.05	-	-
28.	Iron as Fe	mg/l	IS 3025 (Part 53, Clause No. 6)	0.02-50	0.12	0.3	No Relax
29.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	0.05	1.5
30.	Zinc as Zn	mg/l	APHA 3125 B, 23rd Ed:2017	0.02-50	<0.02	5.0	15.0
31.	Phenolic Compound as C_6H_5OH	mg/l	IS:3025(P-43)(b):Sec:2:2021	0.05 - 10	<0.001	0.001	0.002
32.	Sulfide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	0.05	No Relax
33.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.001	0.001	No Relax
34.	Manganese as Mn	mg/l	APHA 3125 B-24th Ed.:2023	0.1-5.0	<0.1	0.1	0.3
35.	Cadmium as Cd	mg/l	APHA 3125 B-24th Ed.:2023	0.002-2	<0.002	0.003	No Relax
36.	Nickel as Ni	mg/l	APHA 3125 B, 23rd Edition:2017	0.02-10	<0.02	0.02	No Relax
37.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part-58):2023	2 -1000	<2	-	-
38.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 5210(B) 24th Ed.:2023:2017	1 -1000	<1	-	-
39.	Oil & Grease as O&G	mg/l	APHA, 24th Edition 5520 D	2.5-1000	<5	-	-
40.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2	No Relax
41.	Lead as Pb	mg/l	APHA 3125 B, 23rd Ed:2017	0.01-1	<0.01	0.01	No Relax
42.	Cyanide as Cn^-	mg/l	APHA, 24th Ed.:2023:2017,4500CN –(K)	0.02-10	<0.02	0.05	No Relax

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

Note:

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

----End of Report----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0088/0384/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Waste Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0385/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.62	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540 D	5 -5000	40.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part 58)	1 -1000	26.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	IS 3025 (Part 44)	1 -1000	2.9	30.0
5.	Oil & Grease as O&G	mg/l	IS 3025 (Part39, Clause No.5)	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 4500 F D-24th Ed.: 2023	0.05 -10	0.16	2.0
7.	Nitrate nitrogen	mg/l	APHA 4500 NO2 B-24th Ed.: 2023	5-100	6.62	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.16	-
9.	Arsenic as As	mg/l	APHA 3125-B-23rd Edition: 2017	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	IEC 62321: 2021	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 3125 B-24th Ed.:2023	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 5530 C,D-24th Ed.:2023	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.: 2023	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 3125 B-23rd Ed.:2023	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 3125 B-24th Ed.: 2023	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 3125 B-23rd Ed: 2017	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	4.2	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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----

Authorized By
Technical Manager
(Dr. Midhun G)

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0088/0386/08/2025**
		Issue Date of Test Report	**05.09.2025**
Type of Sample	Waste Water		
Sample Registration No.	0088	**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	19.08.2025	**Time of Sample Collection**	-
Date of Sample Receipt	21.08.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	21.08.2025	**End Date of Analysis**	05.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0386/08/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	IS 3025 (Part 11)	2 - 12	6.68	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540 D	5 -5000	36.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	IS 3025 (Part 58)	1 -1000	22.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	IS 3025 (Part 44)	1 -1000	3.0	30.0
5.	Oil & Grease as O&G	mg/l	IS 3025 (Part39, Clause No.5)	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 4500 F D-24th Ed.: 2023	0.05 -10	0.20	2.0
7.	Nitrate nitrogen	mg/l	APHA 4500 NO2 B-24th Ed.: 2023	5-100	5.72	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.20	-
9.	Arsenic as As	mg/l	APHA 3125-B-23rd Edition: 2017	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	IEC 62321: 2021	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 3125 B-24th Ed.:2023	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 3125 B-24th Ed.:2023	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 5530 C,D-24th Ed.:2023	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	IS 3025 (Part 29, Clause No. 5)	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 3125 B-24th Ed.:2023	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 3125 B-24th Ed.: 2023	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 3125 B-23rd Ed.:2023	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 3125 B-24th Ed.: 2023	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 3125 B-23rd Ed: 2017	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	4.8	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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----

Authorized By
Technical Manager
(Dr. Midhun G)

(Vikas Kumar) (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

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/SW/0088/0380/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0380/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.20	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	26.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	22.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.4	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	0.14	1.5
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	5-100	<5	50
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	0.01-2	<0.01	0.2
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	<0.05	0.05
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.18	3.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-5	<0.05	1.5
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	0.12	15.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05 - 10	<0.05	0.005
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	-
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.001-1	<0.001	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.1	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/SW/0088/0381/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0381/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.31	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	28.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	30.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.2	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	0.10	1.5
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	5-100	5.44	50
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	0.01-2	<0.01	0.2
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	<0.05	0.05
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.20	3.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-5	<0.05	1.5
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	0.06	15.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05 - 10	<0.05	0.005
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	-
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.001-1	<0.001	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.1	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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
(Vikas Kumar)

Authorized By
Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/SW/0088/0382/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**Name of Location**	Panpash Nallah
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0382/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.38	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	24.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	27.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.8	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	0.14	1.5
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	5-100	6.22	50
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	0.01-2	<0.01	0.2
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	<0.05	0.05
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.22	3.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-5	<0.05	1.5
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	0.08	15.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05 - 10	<0.05	0.005
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	-
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.001-1	<0.001	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.1	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/SW/0088/0383/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Surface Water		
Sample Registration No.	0088	**Name of Location**	Karo River Intake
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0383/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.38	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	32.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	34.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20°C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.7	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	0.06	1.5
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	5-100	6.0	50
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	0.01-2	<0.01	0.2
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	<0.05	0.05
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.18	3.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-5	<0.05	1.5
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	<0.02	15.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05 - 10	<0.05	0.005
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	-
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.001-1	<0.001	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.1	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<0.1	0.1
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	0.2
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Laboratories Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/DW/0088/0375/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	**30.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0375/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.02	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	<5	-	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	0.05 -10	0.14	1	1.5
4.	Biochemical Oxygen Demand as BOD (5 days at 20^{0}C)	mg/l	APHA 24Th ED.5210 A,B	5-100	<5	45	No Relax
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.01-2	<0.01	0.01	0.05
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 .C	0.05-20	<0.05	-	-
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03 2-F	0.02-50	0.10	0.3	No Relax
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-5	<0.05	0.05	1.5
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	0.06	5.0	15.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 Cra B	0.05 - 10	<0.001	0.001	0.002
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-10	<0.05	0.05	No Relax
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	0.001	No Relax
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.1-5.0	<0.1	0.1	0.3
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	0.02	No Relax
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	2 -1000	<2	-	-
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	1 -1000	<1	-	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<5	-	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.5-10	<0.5	0.2	No Relax
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05	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
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited, Gata No. 61, Mirzapur, Bakshi Ka Talab, Lucknow, U.P. 226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/DW/0088/0376/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	**30.09.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0376/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	6.86	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	<5	-	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	0.05 -10	0.14	1	1.5
4.	Biochemical Oxygen Demand as BOD (5 days at 20^{0}C)	mg/l	APHA 24Th ED.5210 A,B	5-100	<5	45	No Relax
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.01-2	<0.01	0.01	0.05
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 .C	0.05-20	<0.05	-	-
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03 2-F	0.02-50	0.12	0.3	No Relax
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-5	<0.05	0.05	1.5
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.02-50	<0.02	5.0	15.0
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 Cra B	0.05 - 10	<0.001	0.001	0.002
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-10	<0.05	0.05	No Relax
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	0.001	No Relax
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.1-5.0	<0.1	0.1	0.3
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.002-2	<0.002	0.003	No Relax
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	0.02	No Relax
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	2 -1000	<2	-	-
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	1 -1000	<1	-	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	2.5-1000	<5	-	-
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.5-10	<0.5	0.2	No Relax
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.01-1	<0.01	0.01	No Relax
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05	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
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/WW/0088/0384/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Waste Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0385/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	GSR 422 (E) Desirable Limit
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	6.42	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	48.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	38.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	3.6	30.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.05 -10	0.12	2.0
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B,A,C	5-100	5.86	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.12	-
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.300 CRA	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	4.0	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly Known as Ecomen Laboratories Private Limited)
Gata No. 61, Mirzapur, Bakshi Ka Talab, Dist. Lucknow, Uttar Pradesh - 226 021
Phone No.: 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Steel Authority of India limited, Bolani Ores Mines , At/P.O: Bolani , Dist. Keonjhar , Odisha**	**Test Report No.**	**ECO/LAB/WW/0088/0386/08/2025**
		Issue Date of Test Report	**05.10.2025**
Type of Sample	Waste Water		
Sample Registration No.	0088	**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	12.09.2025	**Time of Sample Collection**	-
Date of Sample Receipt	15.09.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	15.09.2025	**End Date of Analysis**	30.09.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0386/08/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	GSR 422 (E) Desirable Limit
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	6.80	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	42.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	28.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^{0}C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	3.4	30.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<2.5	10.0
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.05 -10	0.14	2.0
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B,A,C	5-100	7.04	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.01-2	0.24	-
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.05-20	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.300 CRA	0.02-50	<0.05	2.0
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5.0	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	3.9	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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
(Vikas Kumar)

Authorized By

Quality Manager
(Dr. Abhishek Kumar Singh)

Ecomen Mining Private Limited
Gata No.-61
Mirzapur
Bakshi Ka Talab
Lucknow, U.P.
226021

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

2.3.1 Surface Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0089/0387/10/2025**
		Issue Date of Test Report	**05.11.2025**
Type of Sample	Surface Water		
Sample Registration No.	0089	**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	04.10.2025	**Time of Sample Collection**	-
Date of Sample Receipt	06.10.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	06.10.2025	**End Date of Analysis**	15.10.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0387/10/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.12	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	20.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	18.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.4	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<0.1	0.1
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.05 -10	0.15	1.5
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	5-100	<5	50
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-50	0.28	3.0
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.01-2	0.04	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-20	<0.05	0.05
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	0.16	1.5
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02 -50	0.21	15.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	0.005
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	-
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0088/0388/10/2025**
		Issue Date of Test Report	**05.11.2025**
Type of Sample	Surface Water		
Sample Registration No.	0089	**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	04.10.2025	**Time of Sample Collection**	-
Date of Sample Receipt	06.10.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	06.10.2025	**End Date of Analysis**	15.10.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0388/10/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.37	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	22.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	26.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.4	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<0.10	0.1
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.05 -10	0.29	1.5
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	5-100	5.21	50
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-50	0.31	3.0
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.01-2	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-20	<0.05	0.05
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	0.06	1.5
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02 -50	0.12	15.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	0.005
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	-
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0089/0389/10/2025**
		Issue Date of Test Report	**05.11.2025**
Type of Sample	Surface Water		
Sample Registration No.	0089	**Name of Location**	Panpash Nallah
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	04.10.2025	**Time of Sample Collection**	-
Date of Sample Receipt	06.10.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	06.10.2025	**End Date of Analysis**	15.10.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0389/10/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.27	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	28.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	27.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.5	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<0.10	0.1
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.05 -10	0.27	1.5
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	5-100	<5	50
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-50	0.22	3.0
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.01-2	<0.01	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-20	<0.05	0.05
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	0.08	1.5
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02 -50	0.14	15.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	0.005
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	-
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.02	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/SW/0089/0390/10/2025**
		Issue Date of Test Report	**05.11.2025**
Type of Sample	Surface Water		
Sample Registration No.	0089	**Name of Location**	Karo River Intake
Sampling Method	APHA 23rd Ed.:2023, 1060 A+B	**Sample Collected By**	EMPL Representative
Date of Sample Collection	04.10.2025	**Time of Sample Collection**	-
Date of Sample Receipt	06.10.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	06.10.2025	**End Date of Analysis**	15.10.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0390/10/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards As Is-2296(C)
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.44	6.5-8.5
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	28.0	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	30.0	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	2.5	3.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<0.10	0.1
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.05 -10	0.47	1.5
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B	5-100	5.42	50
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-50	0.21	3.0
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.01-2	0.06	0.2
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 CRA,B	0.05-20	<0.05	0.05
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	<0.05	1.5
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02 -50	0.18	15.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05-10	<0.05	0.005
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	-
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	-
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	-
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	0.01
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.5	-
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05

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

2.3.2 Effluent Waste Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0089/0393/10/2025**
		Issue Date of Test Report	**05.11.2025**
Type of Sample	Waste Water		
Sample Registration No.	0089	**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	04.10.2025	**Time of Sample Collection**	-
Date of Sample Receipt	06.10.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	06.10.2025	**End Date of Analysis**	15.10.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0393/10/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	6.67	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	40.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	32.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	3.3	30.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	<0.05	2.0
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.5-10	0.20	0.2
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B,A,C	0.02-50	5.44	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	0.22	2.0
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	5-100	<5	-
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.300 CRA	0.01-2	<0.01	0.2
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	0.22	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	2.5-1000	2.8	10
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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

Note:

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

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/WW/0089/0394/10/ 2025**
		Issue Date of Test Report	**05.11.2025**
Type of Sample	Waste Water		
Sample Registration No.	0089	**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	04.10.2025	**Time of Sample Collection**	-
Date of Sample Receipt	06.10.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	06.10.2025	**End Date of Analysis**	15.10.2025
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0394/10/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	GSR 422 (E) Desirable Limit
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	6.88	5.5-9.0
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	34.0	100.0
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	24.0	250.0
4.	Biochemical Oxygen Demand as BOD (5 days at 20^0C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	3.0	30.0
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	0.05 -10	<0.05	2.0
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 A.C	0.5-10	0.14	0.2
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03,B,A,C	0.02-50	6.02	-
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-20	0.20	2.0
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	5-100	<5	-
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.300 CRA	0.01-2	<0.01	0.2
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	<0.05	3.0
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	<0.02	5.0
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	0.05 - 10	<0.05	1.0
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	2.0
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-10	<0.02	3.0
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	0.01
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5	<0.1	-
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.1
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.002-2	<0.002	2.0
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	2.5-1000	3.4	10
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.2

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

2.3.3 Drinking Water Quality:

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0089/0391/10/2025**
		Issue Date of Test Report	**05.11.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0089	**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	04.10.2025	**Time of Sample Collection**	-
Date of Sample Receipt	06.10.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	06.10.2025	**End Date of Analysis**	**15.10.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C Humidity: 53%	**Sample Quantity** **Sample ID Code**	As per Requirement ECO/LAB/0391/10/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.06	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	<5	-	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	<1	-	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^{0}C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	<1	-	-
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<2.5	-	-
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 .C	0.05 -10	0.08	1.0	1.5
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03 2-F	5-100	<5	45.0	No Relax
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-50	<0.05	0.3	No Relax
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.01-2	<0.1	0.01	0.05
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 Cra B	0.05-5	<0.05	-	-
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	<0.05	0.05	1.5
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02 - 50	<0.02	5.0	15
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	1-10	<0.1	0.007	0.007
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	0.05	No Relax
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	0.001	No Relax
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.007-1	<0.007	0.007	No Relax
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5	<0.1	0.10	0.30
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.05	No Relax
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.007-2	<0.007	0.007	No Relax
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.05	0.20	1.0
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05	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

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**Boloni Ore Mines (SAIL)**	**Test Report No.**	**ECO/LAB/DW/0089/0392/10 /2025**
		Issue Date of Test Report	**05.11.2025**
Type of Sample	Drinking Water		
Sample Registration No.	0089	**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	04.10.2025	**Time of Sample Collection**	-
Date of Sample Receipt	06.10.2025	**Time of Sample Receipt**	05:40 PM
Start Date of Analysis	06.10.2025	**End Date of Analysis**	**15.10.2025**
Laboratory Environmental Condition	Temperature: 27 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 53%	**Sample ID Code**	ECO/LAB/0392/10/2025

Sl. No.	TESTS	Unit	PROTOCOL	DETECTION RANGE	RESULT	INDIAN STANDARDS as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	pH	-	APHA 24Th ED.4500H A,B	2 - 12	7.04	6.5-8.5	No Relax
2.	Total Suspended Solids as TSS	mg/l	APHA, 24th Edition 2540- D	5 -5000	<5	-	-
3.	Chemical Oxygen Demand as COD	mg/l	APHA 24Th ED.5220 A.C	1 -1000	<1	-	-
4.	Biochemical Oxygen Demand as BOD (5 days at 20^{0}C)	mg/l	APHA 24Th ED.5210 A,B	1 -1000	<1	-	-
5.	Oil & Grease as O&G	mg/l	APHA 24Th ED.5520A.B.D	2.5-1000	<0.01	0.01	0.05
6.	Fluoride as F	mg/l	APHA 24th Ed.: 4500 .C	0.05-10	<0.05	1.0	1.5
7.	Nitrate nitrogen	mg/l	APHA 24th Ed.: 4500-N03 2-F	5-100	<5	45.0	No Relax
8.	Iron as Fe	mg/l	APHA 3125 B 23rd Ed:2017	0.05-50	0.08	0.3	No Relax
9.	Arsenic as As	mg/l	APHA 24th Ed.3125 A,B-ICPMS	0.01-2	<0.01	0.01	0.05
10.	Hexavalent Chromium as Cr^{+6}	mg/l	APHA 24th Ed.3500 Cra B	0.05-5	<0.05	-	-
11.	Copper as Cu	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.05-5	<0.05	0.05	1.5
12.	Zinc as Zn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.02-50	<0.02	5.0	15
13.	Phenolic Compound as C_6H_5OH	mg/l	APHA 24th Ed. 5530 A,C	1-10	<0.1	0.007	0.007
14.	Sulphide as S^{2-}	mg/l	APHA 24th Ed.4500 S2-F	0.05-10	<0.05	0.05	No Relax
15.	Nickel as Ni	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.001-1	<0.001	0.001	No Relax
16.	Mercury as Hg	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.007-1	<0.007	0.007	No Relax
17.	Manganese as Mn	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.1-5	<0.1	0.10	0.30
18.	Lead as Pb	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.01-1	<0.01	0.05	No Relax
19.	Cadmium as Cd	mg/l	APHA 24thEd.3125 A,B-ICPMS	0.007-2	<0.007	0.007	No Relax
20.	Total residual chlorine	mg/l	IS 3025 (Part 26, Clause No.5)	0.5-10	<0.05	0.20	1.0
21.	Cyanide as Cn^-	mg/l	APHA 4500 CN- (K) 23rd Ed: 2017	0.02-10	<0.02	0.05	No Relax

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

Note:

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

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

The peak particle velocity was monitored in June- 2025 at these following locations (at 300 m distance or within the nearest habitation):

SL. NO.	LOCATION
1	Near F-Area Hopper
2	Near Bolani Hospital
3	Near DAV Public School Bolani
4	Near Laxmi Mandap Bolani

इंडियन ऑयल कॉर्पोरेशन लिमिटेड
बी. डी.जी (ई) / एस.एम.एस. एक्सप्लोसिव्स संयंत्र, बोलानी
पोष्ट: बोलानी, जिला: केउंनझर (ओडिसा) - 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)

IndianOil
A Maharatna
Company

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**	**V**	**L**	
		2.152	**1.513**	**2.317**	
19	Corresponding Frequency (Hz)	**4.7**	**5.3**	**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)

Sandeep kumar

Blasting I/C
BOM, RSP, SAIL
Sandeep Kumar
DGM (Mining)
BOM-SAIL-RSP

Instantel

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	

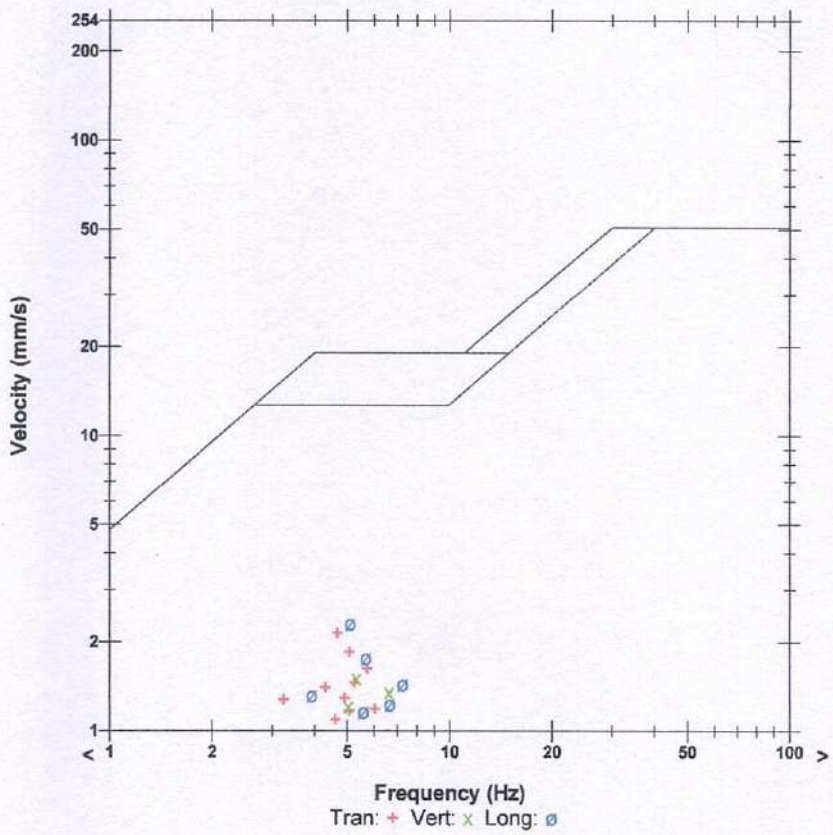
Notes
Location: BOLANI F AREA
Client: BOLANI ORES MINES
User Name: INDIAN OIL CORPRATION LIMITED
General:

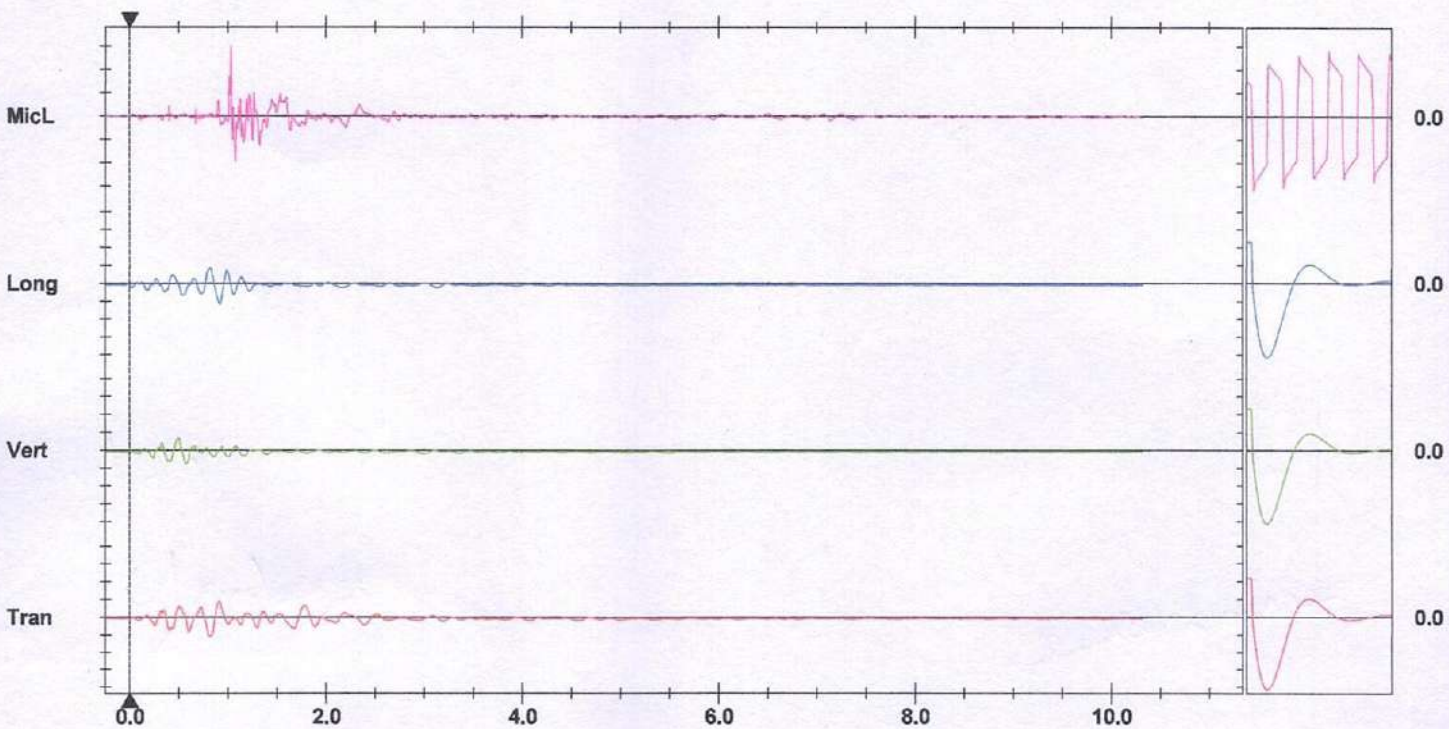
Microphone	Linear Weighting
PSPL	15.24 pa.(L) at 1.029 sec
ZC Freq	15.5 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1128 mv)

	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

USBM RI8507 And OSMRE





Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 5.000 pa.(L)/div Sensor Check
Trigger =

Format © 1995-2015 Xmark Corporation

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 2048 sps
Operator/Setup:	Operator/IOCL GVR.MMB

Serial Number	UM16986 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 7.517 N	085 19.999 E
Sensor1:	022 6.952 N	085 20.031 E
Distance:	1047.9 m	

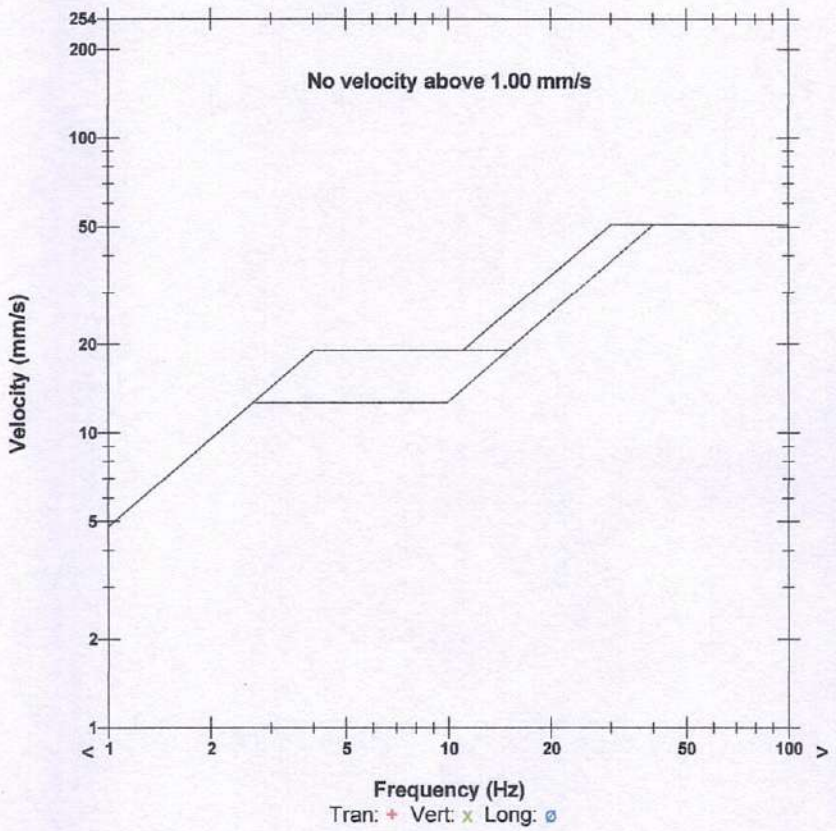
Notes
Location: BOLANI HOSPITAL
Client: BOLANI ORES MINES
User Name: INDIAN OIL CORPRATION LIMITED
General:

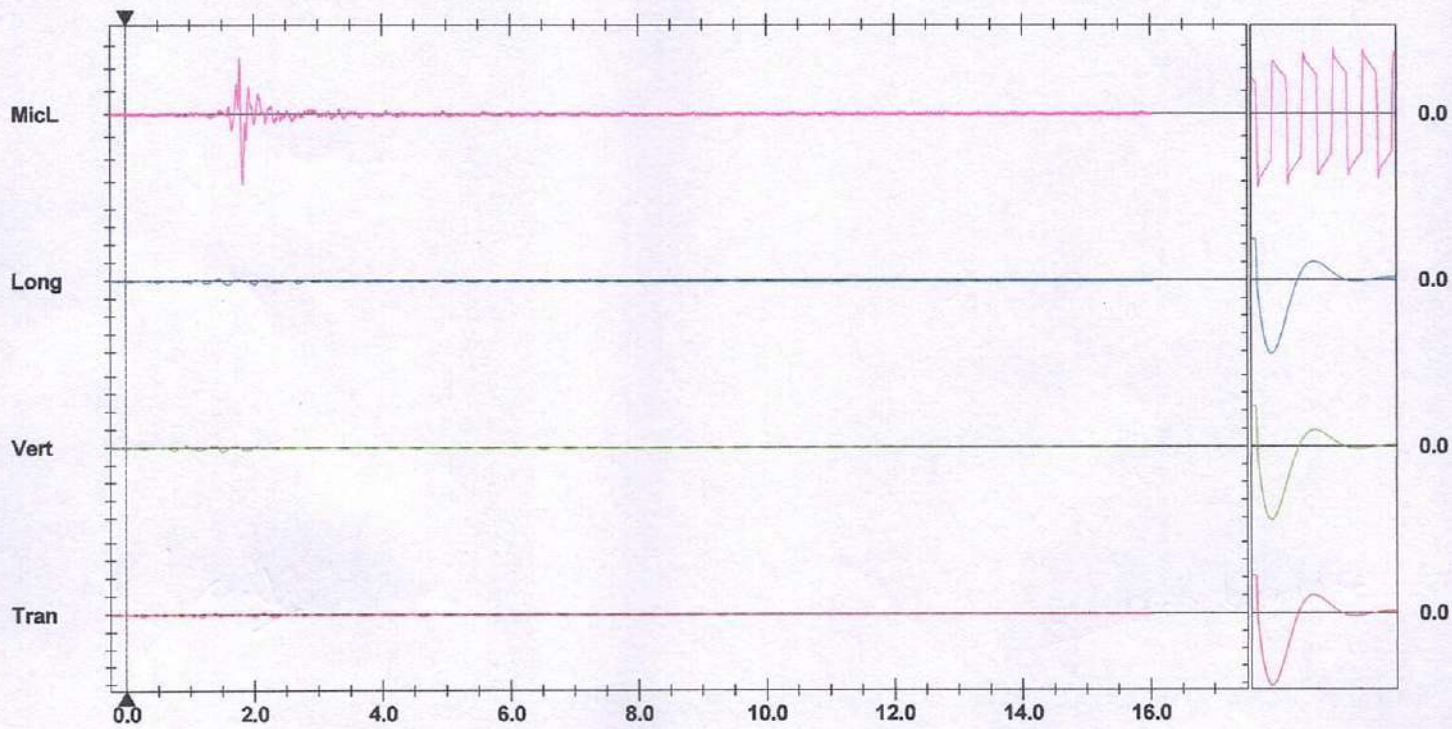
Microphone	Linear Weighting
PSPL	3.072 pa.(L) at 1.824 sec
ZC Freq	4.9 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1177 mv)

	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

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 = ▶——◀

Format © 1995-2015 Xmark Corporation

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 10-89 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 7.517 N	085 19.999 E
Sensor1:	022 7.146 N	085 20.206 E
Distance:	773.8 m	

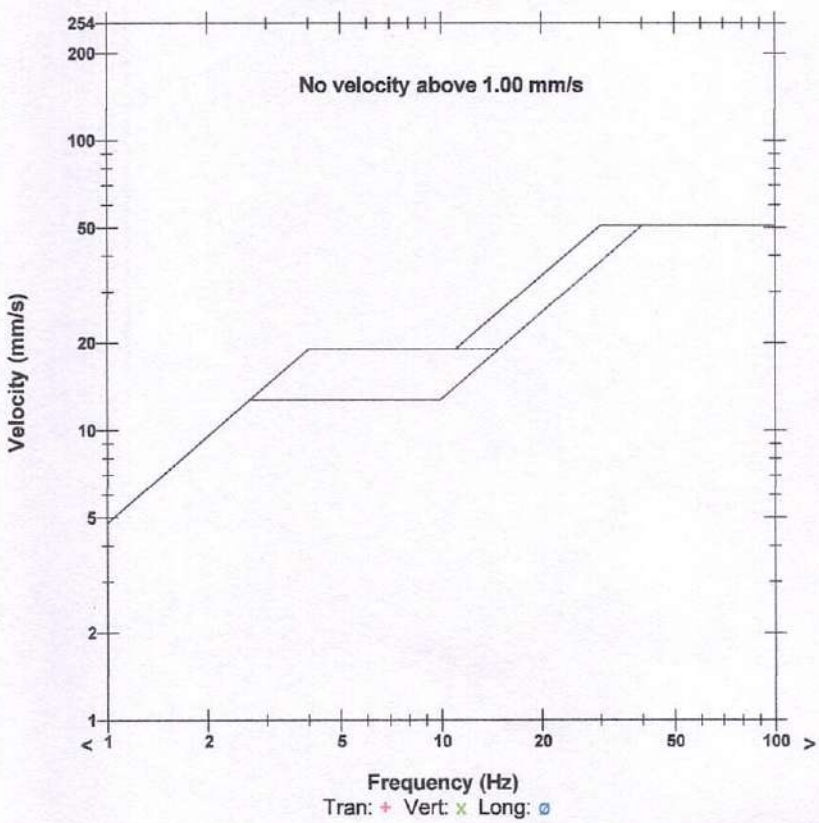
Notes
Location: DAV PUBLIC SCHOOL
Client: BOLANI ORES MINES
User Name: INDIAN OIL CORPRATION LIMITED
General:

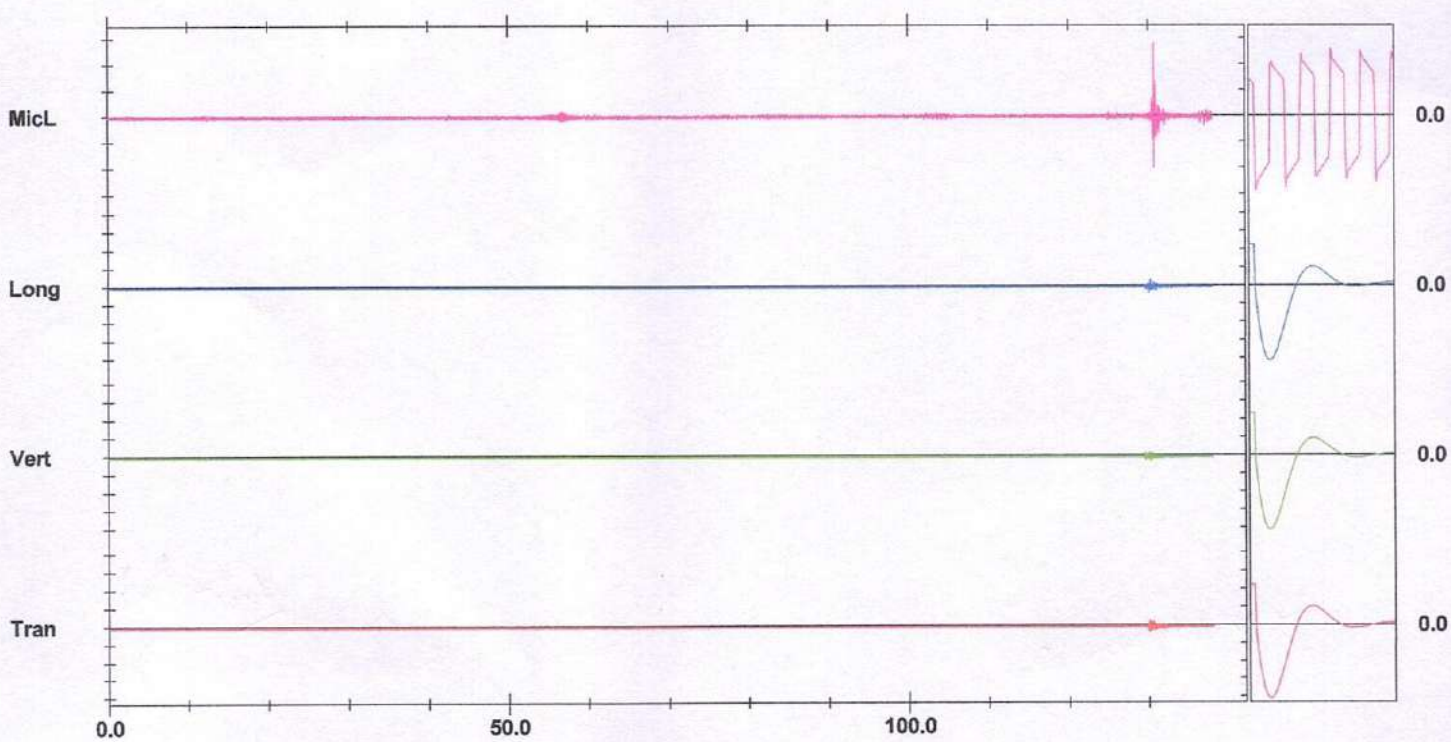
Microphone	Linear Weighting
PSPL	5.570 pa.(L) at 130.746 sec
ZC Freq	11.6 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1148 mv)

	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	130.063	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

Format © 1995-2015 Xmark Corporation

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)	T: **5.1** V: **4.8** L: **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

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	UM16986 V 10-89 Micromate ISEE
Battery Level	3.7 Volts
Unit Calibration	December 30, 2024 by UES New Delhi
File Name	__TEMP.EVT

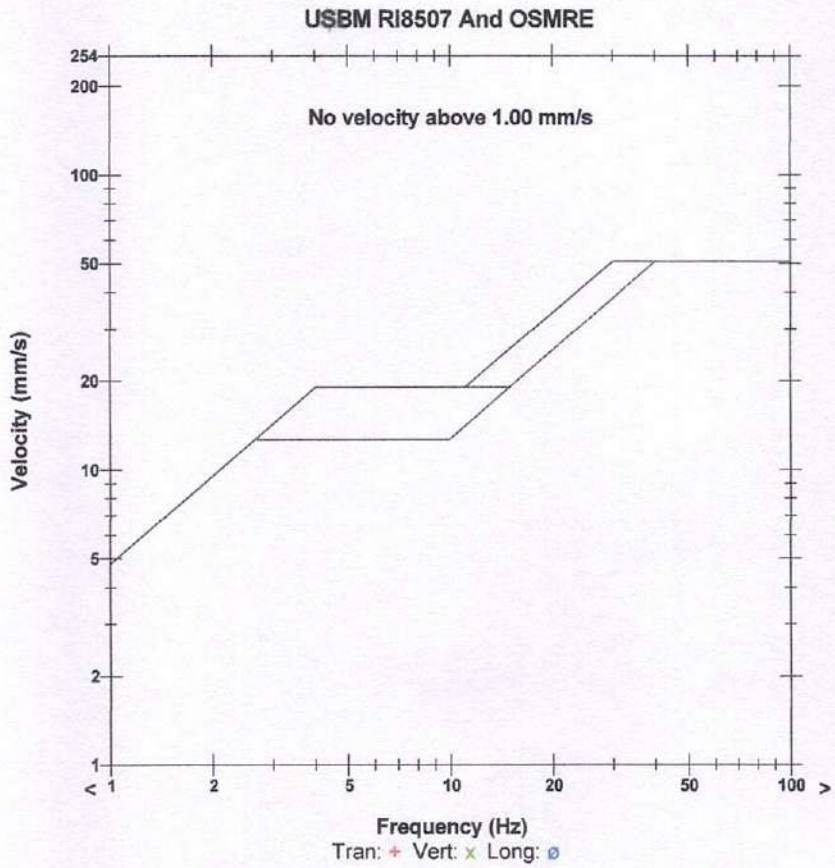
GPS Location	**Latitude**	**Longitude**
Source:	022 6.798 N	085 19.427 E
Sensor1:	022 6.609 N	085 19.876 E
Distance:	846.4 m	

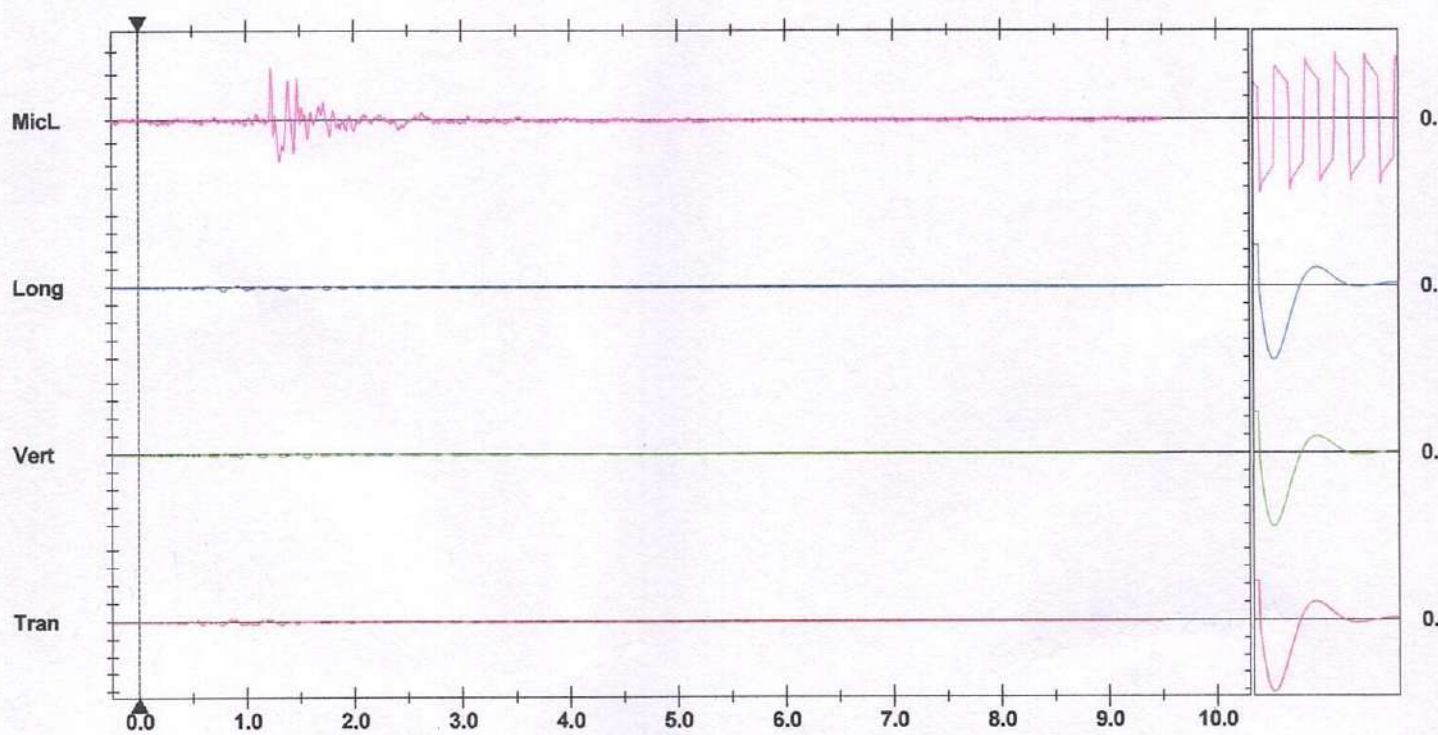
Notes
Location: LAXMI MANDAP
Client: BOLANI ORES MINES
User Name: INDIAN OIL CORPRATION LIMITED
General:

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





Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 2.000 mm/s/div Mic: 1.000 pa.(L)/div
Trigger = ▶——◀

Sensor Check

Format © 1995-2015 Xmark Corporation

ANNEXURE-VI

REPORT ON PEAK PARTICLE VELOCITY

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

PHOTOGRAPHS SHOWING DIFFERENT ENVIRONMENTAL MONITORING ACTIVITIES

Electronic Display Board Installed at Mines Entry Gate

AAQ Monitoring at Mines Main Gate

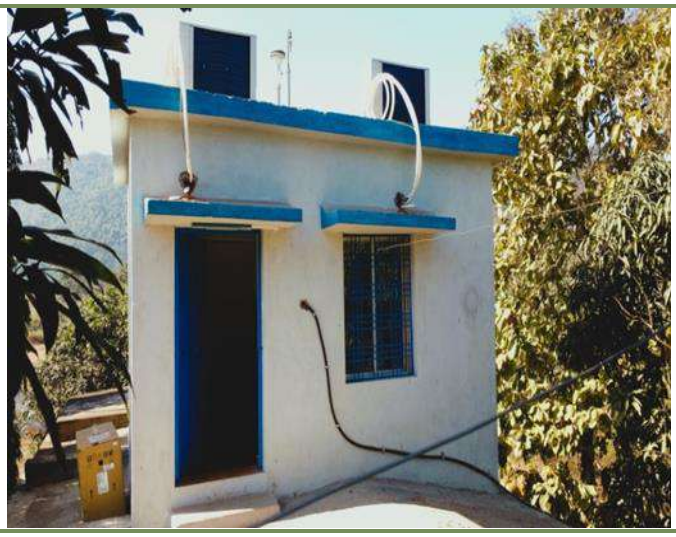
AAQ Monitoring at Township nursery near Residential Area

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-IX

REGULAR MONITORING OF GROUND WATER LEVEL

ecoMen

ECOMEN MINING PVT. LTD
(Formerly known as Ecomen Laboratories Pvt. Ltd.)
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

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	**SAIL-RSP Bolani Ores Mines**	**Test Report No.**	**ECOLAB/GWL/092/288/07/2022**
		Issue Date of Test Report	**12.07.2025**
Type of Sample	Ground Water Level Monitoring		
Sample Registration No.	092		
Sampling Method	As per Reference Method	**Sample Collected By**	Ecomen Lab Team
Date of Sample Monitoring	10.07.2025	**Time of Sample Collection**	11:10 AM
Laboratory Environmental Condition	Temperature: 25 ± 5 °C	**Sample Quantity**	As per Requirement
	Humidity: 30-60 % RH	**Sample ID Code**	ECOLAB/288/07/2025

Ground Water Level Report

S. No.	Name of Location	Unit	Ground Water Level (in Meter)
1.	Bolani Basti	Meter	0.53
2.	Gouda Basti Bolani	Meter	0.80
3.	Balagoda (1)	Meter	1.50
4.	Balagoda (2)	Meter	1.70
5.	Balagoda (3)	Meter	1.93
6.	Haramatha Nayak Basti	Meter	1.00
7.	Lasarda Gagarai Sahi	Meter	3.00
8.	Pacheri	Meter	3.50
9.	Tatiba	Meter	0.10

Statement of Conformity: The above tested parameters results are related to the sample tested.

Verified By
Technical Manager

Authorized By
Quality Manager

ANNEXURE-X

FORM G-1

[See rule 45(5)(c)(i)]

For the financial Year 1st April, 2024 to 31st March, 2025

ANNUAL RETURN

[To be used for minerals other than Copper, Gold, Lead, Pyrites, Tin, Tungsten, Zinc and precious and semi-precious stones]

Final Submitted

To

(i) The Regional Controller of Mines
Indian Bureau of Mines
Bhubaneshwar Region,
PIN:
(Please address to Regional Controller of Mines in whose territorial jurisdiction the mines falls as notified from time to time by the Controller General, Indian Bureau of Mines under rule 66 of the Mineral Conservation and Development Rules, 2017)

(ii) The State Government of Odisha

PART - I (General)

1. Details of Mine:	
(a) Registration number allotted by Indian Bureau of Mines *(to give registration number of the Lessee-Owner)*	IBM/5662/2011
(b) Mine Code (allotted by Indian Bureau of Mines)	30ORI08013
(c) Name of the Mineral	IRON ORE
(d) Name of Mine	BOLANI
(e) Name(s) of other mineral(s), if any, produced from the same mine	
2. Location of the Mine :	
Village	BOLANI
Post Office	BOLANI
Tahsil-Taluk	BARBIL
District	KENDUJHAR
State	ODISHA
PIN Code	758037
Fax No. :	0676726017
Phone No. :	0676726021
E-mail:	ppcbomrsp.sail@gmail.com
Mobile:	8895503579

3. Name and address of Lessee-Owner (along with fax no. and e-mail):	
Name of Lessee-Owner	M/s. STEEL AUTHORITY OF INDIA LIMITED (SAIL)
Address	ISPAT BHAWAN,LODI ROAD, NEW DELHI
District	NEW DELHI
State	DELHI
PIN Code	110003
Fax No. :	0676726017
Phone No. :	0676726021
E-mail:	ppcbomrsp.sail@gmail.com
Mobile:	8895503579
4. Registered Office of the Lessee:	SAIL,ISPAT BHAWAN,LODHI ROAD, NEW DELHI
5. Director in charge :	SHRI ALOK VERMA
6. Agent :	SHRI J CHATTOPADHYAY
7. Manager :	SHRI U K BHASKAR
8. Mining Engineer in charge:	SHRI B N SINGH
9. Geologist in charge :	SHRI R P MONDAL
10. Transferor (previous owner), if any, and date of transfer:	BOLANI ORES LIMITED 10/04/2060

Uploaded Document	
Upload PMCP Table in Excel:	Format-I_PMCP_2024-25_5.10_sq._miles_ML_of_Bolani_Ores_Mines,_SAIL.xlsx
Upload UAV Survey (KML/KMZ File) :	BOLANI_5.1.kml

11. Particulars of area operated-Lease

(Furnish information on items (i) to (vi) lease-wise in case mine workings cover more than one lease)

Lease - 1	
(i) Lease number allotted by the State Government	071813017102
(ii) Area under lease (hectares):	
Under Forest	1312.860 hectares
Outside Forest	8.590 hectares
Total	1,321.450 hectares
(iii) Date of execution of mining lease deed	11/04/1960
(iv) Period of lease	30
(v) Area for which surface rights are held (hectares)	
Under Forest	1312.860 hectares
Outside Forest	5.750 hectares
Total	1318.610 hectares
(vi) Date and period of renewal (if applicable)	10/04/2010

Final Submitted

	20

(vii) In case there is more than one mine in the same lease area, indicate name of mine and mineral produced	

Mine Name	Mine Code	Mineral Name
--	--	--

12. Lease area (surface area) utilisation as at the end of year (hectares):	Under forest	Outside forest	Total
(i) Already exploited and abandoned by opencast (O-C) mining	0.000	0.000	0.000
(ii) Covered under current (O-C) Workings	290.800	0.000	290.800
(iii) Reclaimed-rehabilitated	51.210	0.000	51.210
(iv) Used for waste disposal	29.830	0.000	29.830
(v) Occupied by plant, buildings, residential, welfare buildings and roads	71.360	3.990	75.350
(vi) Used for any other purpose (specify) MAGAZINE & POL STATION	1.000	0.000	1.000
(vii) Work done under progressive mine closure plan during the year	0.000	0.000	0.000
13. Ownership-exploiting Agency of the mine: (Public Sector-Private Sector-Joint Sector)	Public Sector		

Final Submitted

PART-II (Employment and Wages)

1.Number of supervisory staff employed at the mine		
Description	Wholly employed	Partly employed
(i) Graduate Mining Engineer	23	0
(ii) Diploma Mining Engineer	27	0
(iii) Geologist	3	0
(iv) Surveyor	3	0
(v) Other administrative and technical supervisory staff	74	0
Total:	130	0
2. (i) Number of days the mine worked:	365	
(ii) No. of shifts per day:	4	
(iii) Indicate reasons for work stoppage in the mine during the year (due to strike, lockout, heavy rain, non-availability of labour, transport bottleneck, lack of demand, uneconomic operations, etc.) and the number of days of work stoppage for each of the factors separately .	Reasons: Others — No. of days:	

3. Employment and salary-wages paid #:

Maximum number of persons employed on any one day during the year:

(i) In workings below ground on *(date)* (a) *(number)* 0

(ii) In all in the mine on *(date)* 01/03/2025 (a) *(number)* 1639

Classification	Total number of man days worked during the year			No. of days worked during the year	Average daily number of persons employed			Total Wages - Salary for the year (₹)
	Direct	Contract	Total		Male	Female	Total	
(1)	2(A)	2(B)	2(C)	(3)	4(A)	4(B)	4(C)	(5)
Below Ground	0	0	0	0	0	0	0	0.00
Opencast	104281	182	104463	365	285.7	0.5	286.2	202257765.00
Above Ground	391025	27849	418874	365	1071.3	76.3	1147.6	728547487.00
Total:	495306.0	28031.0	523337.0	365.000	1357.0	76.8	1433.8	930805252.00

To include all employees exclusive to the mine and attached factory, workshop or mineral dressing plant at the mine site

Final Submitted

PART-II A (Capital Structure)

1. Value of Fixed Assets* (₹ 5224740155)

(in respect of the mine, beneficiation plant, mine work-shop, power and water installation)

In case this information is furnished as combined information in another mine's return please specify Mine Code-Mine Name:

Mine Name	Mine Code	Mineral Name
BOLANI MANGANESE & IRON ORE MINE	30ORI08114	IRON ORE , MANGANESE ORE

Description	At the beginning of the year (₹)	Additions during the Year (₹)	Sold or discarded during the year (₹)	Depreciation during the year (₹)	Net closing Balance (₹) (2+3)-(4+5)	Estimated market value** (₹)
1	2	3	4	5	6	7
(i) Land***	1349166974	0	0	941369283	407797691	407797691
(ii) Building:						
Industrial	244791752	0	0	129330043	115461709	115461709
Residential	221404678	0	0	96274411	125130267	125130267
(iii) Plant and Machinery including transport equipment	8049962447	1567924531	31804260	5128320858	4457761860	4457761860
(iv) Capitalised Expenditure such as pre-production exploration, development, major overhaul and repair to machinery etc. (As prescribed under Income Tax Act)	0	118588628	0	0	118588628	118588628
Total:	9865325851	1686513159	31804260	6295294595	5224740155	5224740155

* In case the fixed assets are common to more than one mine, furnish combined information for all such mines together in any one of the mine's return. In the returns for other mines, give only a cross reference to the particular mine's return where-in the information is included.

** Optional and may be furnished in respect of items (i), (ii) and (iii) if the mine owner desires.

*** Including any non-recurring expenditure incurred on the acquisition of land.

2. Source of Finance (at the end of the year) :

(i) Paid up Share Capital (₹)	0
(ii)Own Capital (₹)	0
(iii)Reserve and Surplus (All Types)(₹)	0
(iv)Long Term loans outstanding (#)(₹)	0

Name of the Institution-Source	Amount of Loan (₹)	Rate of Interest
NA	0	0

(#) Indicate the names of the lending institutions such as State Finance Corporation, Industrial Development and other Public Corporations, Co-operative Banks, Nationalised Banks and other sources along with the amount of loan from each source and the rate of interest at which loan has been taken.

3. Interest and Rent (₹)

(i) Interest paid during the year	93576345
(ii) Rents (excluding surface rent) paid during the year	7590292

Final Submitted

PART-III (Consumption of Materials)

1. Quantity and cost of material consumed during the year			
Description	Unit	Quantity	Value (₹)
(i) Fuel			
(a) Coal	Tonnes	0	0
(b) Diesel Oil	Ltrs.	3413935	299991979
(c) Petrol	Ltrs.	1971	209133
(d) Kerosene	Ltrs.	0	0
(e) Gas	Cu.M	0	0
(ii) Lubricant			
(a) Lubricant oil	Ltrs.	144032	23592277
(b) Grease	Kgs.	33216	9988978
(iii) Electricity			
(a) Consumed	Kwh	21265632	158698733
(b) Generated	Kwh	0	0
(c) Sold	Kwh	0	0
(iv) Explosives (furnish full details in Part IV)			95650291
(v) Tyres	Nos.	31	8181817
(vi) Timber and Supports			0
(vii) Drill rods and kits	Nos.	21	1428862
(viii) Other spares and stores			397512458

2. Royalty, Rents and Payments made to DMF and NMET (₹):		
	Paid for current year	Paid towards past arrears
(a) Royalty	2805000000	0
(b) Dead rent	0	0
(c) Surface rent	3950381	0
(d) Payment made to DMF	960774498	0
(e) Payment made to NMET	68000000	0
3. Compensation paid for felling trees during the year (₹)		0
4. Depreciation on fixed assets (₹)		6295294595

Final Submitted

5. Taxes and cesses		
	Amount in Rupees paid during the year to:	
	Central Govt.	State Govt.
(i) Sales Tax	0	0
(ii) Welfare cess	0	0
(iii) Other taxes and cesses:-		
(a) Mineral cess	0	0
(b) Cess on dead rent	0	0
(c) Others (please specify)	0	0
6. Other expenses (₹):		
(i) Overheads		3810315259
(ii) Maintenance		426155218
(iii) Money value of other benefits paid to workmen		0
(iv) Payment made to professional agencies		0

Final Submitted

PART-IV (Consumption of Explosives)

Licensed capacity of magazine: (specify unit separately in kg-tonne, numbers, metres)	**Item**	**Unit**	**Capacity**
	Explosives	Kg.	13208
	Detonators	No.s	120000
	Fuses	Mts	185720

Classification of Explosives	Unit	Quantity consumed during the year		Estimated requirement during the next year	
		Small dia. (upto 32 mm)	Large dia. (above 32 mm)	Small dia. (upto 32 mm)	Large dia. (above 32 mm)
1. Gun Powder	Kg.	0		0	
2. Nitrate Mixture					
a. Loose ammonium nitrate	Kg.	0	0	0	0
b. Ammonium nitrate in cartridged form	Kg.	0	0	0	0
3. Nitro compound	Kg.	0	0	0	0
4. Liquid Oxygen soaked cartridges	Kg.	0	0	0	0
5. Slurry explosives (Mention different trade names) SME(INDOGEL-1136)	Kg.	0	1657332	0	1887
6. Detonators					
i) Ordinary	No.s	305		0	
ii) Electrical					
(a) Ordinary	No.s	1141		1000	
(b) Delay	No.s	0		2000	
7. Fuse					
(a) Safety Fuse	Mts	385		500	
(b) Detonating Fuse	Mts	15375		30000	
8. Plastic ignition cord	Mts	0		0	
9. Others (specify) NONEL	Nos.	67479		80000	

Different sizes of soaked liquid oxygen cartridges to be reported in equivalent kg. as per manufacturer's instruction.

Final Submitted

PART-V (General Geology & Mining)

(Items 2 and 3 to be submitted separately for each mineral)

1. Exploration

1(i) Exploration activities during the year:

		At the beginning of the year	During the year	Cumulative	Grid spacing-Dimension
Drilling	No of holes	859	0	859	100X100 200X200
	Metrage	68082	0	68082	100X100 200X200
Pitting	No of pits	0	0	0	0
	Excavation (in m^3)	0	0	0	0
Trenching	No of trenches	0	0	0	0
	Excavation (in m^3)	0	0	0	0
	Length covered (in metre)	0	0	0	0
Expenditure on exploration (₹)		0	0	0	0

1(ii). Any other exploration activity during the year: NA

2. Reserves and Resources estimated (in tonnes) (IRON ORE).

Classification	Code	At the beginning of the year 1.4.2024 as per latest approved mining plan- scheme	Assessed during the year	Depletion of reserves during the year	Balance resources as on 31.3.2025
(1)	(2)	(3)	(4)	(5)	(6)= (3+4-5)
A. Mineral Reserve					
1. Proved Mineral Reserve	111	87380000	698990000	0	786370000
2. Probable mineral Reserve	121	18930000	0	18930000	0
	122	180210000	0	180210000	0
3. Total Reserves		286,520,000.00	698,990,000.00	199,140,000.00	786,370,000.00
B. Remaining Resources					
1. Feasibility mineral Resource	211	9240000	57280000	0	66520000
2. Prefeasibility mineral resource	221	49730000	0	49730000	0
	222	34500000	0	34500000	0
3. Measured mineral resource	331	0	0	0	0
4. Indicated mineral resource	332	0	0	0	0
5. Inferred mineral resource	333	0	0	0	0
6. Reconnaissance mineral resource	334	0	0	0	0
7. Total remaining Resources		93,470,000.00	57,280,000.00	84,230,000.00	66,520,000.00

Final Submitted

Total (A+B)		379,990,000.00	756,270,000.00	283,370,000.00	852,890,000.00

3. Subgrade-Mineral Reject (in tonnes) (IRON ORE)

(Information to be given in respect of mineral fractions generated and stacked- dumped below cut-off grade and above threshold value, if prescribed, having no immediate sale value)

Generation of subgrade-mineral reject (in tones)	At the beginning of the year	Generated during the year	Disposed during the year	Total stacked at the end of the year	Average grade of the mineral reject generated
from unprocessed ore	460848	492000	492000	460848	55.94
from processed ore	0	0	0	0	0

4. Overburden and Waste (in m^3)

(Information to be given in respect of overburden- waste and mineral fractions generated below threshold value, if prescribed)

At the beginning of the year	Generated during the year	Disposed in dumps during the year	Backfilled during the year	Total at the end of the year
30961494.25	11909285	11909285	0	42870779.25

5. Trees planted- survival rate

Description	Within lease area	Outside lease area
i) Number of trees planted during the year	8965	15000
ii) Survival rate in percentage	94	90
iii) Total no. of trees at the end of the year	8427	13500

6. Type of Machinery: Give the following information for the types of machinery in use such as hoist, fans, drills, loaders, excavators, dumpers, haulages, conveyors, pumps, etc.

Type of machinery	Capacity of each type of machinery	Unit (in which capacity is reported)	No. of machinery	Electrical Non-electrical (specify)	Used in opencast underground (specify)
SHOVEL (HYDRAULIC)	9.500	CUM	3	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	6.500	CUM	2	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	2.600	CUM	3	Non Electrical	Opencast
DUMPER	100.000	TONNE	9	Non Electrical	Opencast
WATER TANKER	28000.000	LITRE	3	Non Electrical	Opencast
ROCK DRILL (NON-ELEC.)	160.000	MM	5	Non Electrical	Opencast
DOZER	410.000	HP	8	Non Electrical	Opencast
FRONT END LOADER	3.400	CUM	4	Non Electrical	Opencast
CRANE	14.000	TONNE	2	Non Electrical	Opencast
CRANE	20.000	TONNE	1	Non Electrical	Opencast

Final Submitted

CRANE	40.000	TONNE	1	Non Electrical	Opencast
CONVEYOR (ELEC.)	1600.000	T/H	10	Electrical	Opencast
CONVEYOR (ELEC.)	1500.000	T/H	4	Electrical	Opencast
CONVEYOR (ELEC.)	1400.000	T/H	4	Electrical	Opencast
CONVEYOR (ELEC.)	1200.000	T/H	23	Electrical	Opencast
CONVEYOR (ELEC.)	1000.000	T/H	8	Electrical	Opencast
CONVEYOR (ELEC.)	800.000	T/H	4	Electrical	Opencast
ROCK DRILL (NON-ELEC.)	100.000	MM	7	Non Electrical	Opencast
DUMPER	28.000	TONNE	38	Non Electrical	Opencast
DUMPER	25.000	TONNE	12	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	2.100	CUM	1	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	2.300	CUM	1	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	1.200	CUM	1	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	2.900	CUM	3	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	1.900	CUM	1	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	1.600	CUM	6	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	0.900	CUM	3	Non Electrical	Opencast
SHOVEL (HYDRAULIC)	0.700	CUM	1	Non Electrical	Opencast
FRONT END LOADER	3.000	CUM	3	Non Electrical	Opencast
FRONT END LOADER	5.000	CUM	1	Non Electrical	Opencast
FRONT END LOADER	2.500	CUM	1	Non Electrical	Opencast
CRUSHER	350.000	T/H	1	Electrical	Opencast
CRUSHER	250.000	T/H	1	Electrical	Opencast
WATER TANKER	10000.000	LITRE	1	Non Electrical	Opencast
WATER TANKER	6000.000	LITRE	1	Non Electrical	Opencast
WATER TANKER	12000.000	LITRE	2	Non Electrical	Opencast
CRUSHER	1600.000	T/H	1	Electrical	Opencast
CRUSHER	600.000	T/H	1	Electrical	Opencast

Final Submitted

7**(i) Details of mineral Treatment Plant, if any**: Give a brief description of the process capacity of the machinery deployed and its availability. (Submit Flow Sheet and Material Balance of the Plant separately).

NA

(ii) Furnish following information:

Item		Tonnage	Average Grade
Feed:		7403571.000	62.000
Concentrates-processed products :	(mention name)	7403571.000	62.000
By-products-Co-products:	(mention name)	0.000	0.000
Tailings:		0.000	0.000

PART-VI (PRODUCTION, DESPATCHES AND STOCKS) (IRON ORE (HEMATITE))

(To be submitted separately for each mineral)

(Unit of Quantity in Tonnes)

1. Type of ore produced:

(Applicable for Iron ore only; tick mark whichever is applicable)

(a) Hematite

2. Production and Stocks of ROM ore at Mine-head

Category	Opening stock	Production	Closing stock
(a) Open Cast workings	61522.000	7459295.000	117246.000
(b) Underground Workings	0.000	0.000	0.000
(c) Dump workings	1370000.000	0.000	528555.762

3(i) Grade-wise ROM ore despatches from mine head ($):

Grade of ROM	Despatches from mine-head	Ex-mine Price (₹)
(a) 45% to below 51% Fe ROM	0.000	0.00
(b) 51% to below 55% Fe ROM	0.000	0.00
(c) 55% to below 58% Fe ROM	0.000	0.00
(d) 58% to below 60% Fe ROM	0.000	0.00
(e) 60% to below 62% Fe ROM	0.000	0.00
(f) 62% to below 65% Fe ROM	0.000	0.00
(g) 65% and above Fe ROM	0.000	0.00

($): Applicable for iron ore and chromite only. For other minerals data of dispatches to be reported in 3(ii)

3(ii) Grade-wise Production, Dispatches, Stocks and Ex-mine prices:

Final Submitted

Grades**	Opening stock at mine-head	Production	Despatches from mine-head	Closing stock at mine-head	Ex-mine price (₹-Tonne)
(i) Lumps					
(a) 45% to below 51% Fe	0.000	0.000	0.000	0.000	0.00
(b) 51% to below 55% Fe	0.000	0.000	0.000	0.000	0.00
(c) 55% to below 58% Fe	0.000	0.000	0.000	0.000	0.00
(d) 58% to below 60% Fe	0.000	0.000	0.000	0.000	0.00
(e) 60% to below 62% Fe	0.000	0.000	0.000	0.000	0.00
(f) 62% to below 65% Fe	0.000	0.000	0.000	0.000	0.00
(g) 65% and above Fe	0.000	0.000	0.000	0.000	0.00
(ii) Fines					
(a) 45% to below 51% Fe	0.000	0.000	0.000	0.000	0.00
(b) 51% to below 55% Fe	2.540	19992.340	19983.200	11.680	435.83
(c) 55% to below 58% Fe	8299.480	123655.050	127956.880	3997.650	651.23
(d) 58% to below 60% Fe	5300.356	34699.624	39978.020	21.960	783.33
(e) 60% to below 62% Fe	23514.416	36462.224	51976.640	8000.000	1687.86
(f) 62% to below 65% Fe	1888709.810	4859824.000	5321048.570	1427485.240	772.15
(g) 65% and above Fe	0.000	0.000	0.000	0.000	0.00
(a) CONCENTRATES	0.000	0.000	0.000	0.000	0.00
(iii) Calibrated Lump Ore (CLO)					
(a) Below 62% Fe (CLO any size)	0.000	0.000	0.000	0.000	0.00
(b) 62% to below 65% Fe (5-18 mm size CLO)	0.000	0.000	0.000	0.000	0.00
(c) 62% to below 65% Fe (10-40 mm size CLO)	87565.090	2535747.000	2574872.540	48439.550	998.06
(d) 62% to below 65% Fe (CLO others)	0.000	0.000	0.000	0.000	0.00
(e) 65% and above Fe (5-18 mm size CLO)	0.000	0.000	0.000	0.000	0.00
(f) 65% and above Fe (10-40 mm size CLO)	0.000	0.000	0.000	0.000	0.00
(g) 65% and above Fe (CLO others)	0.000	0.000	0.000	0.000	0.00

Note.--- Any kind of Hematite Iron Ore below 45% Fe but above threshold value shall be included in the grade slab of'45% to below 51% Fe'.

3(iii) In case the mineral is being pulverized in own factory, please give the following particulars (*):

Grade**	Total quantity of mineral Pulverized (in tonnes)	Total quantity of pulverized mineral produced (for each mesh size)		Total Quantity of pulverized mineral sold during the month		
		Mesh size	Quantity (tonne)	Mesh size	Quantity (tonne)	Ex-factory Sale value (₹)

Final Submitted

3(iv) Average cost of pulverization (*) : ₹ per tonne

(*): Not applicable for Iron ore, Manganese ore, Bauxite and Chromite

4. Details of deductions made from sale value for computation of Ex-mine price (₹- Tonne)

Deduction claimed #	Amount (in ₹- Tonne)	Remarks
(a) Cost of transportation (indicate loading station and distance from mine in remarks)	0.00	NOT APPLICABLE
(b) Loading and unloading charges	0.00	NOT APPLICABLE
(c) Railway freight, if applicable (indicate destination and distance)	0.00	NOT APPLICABLE
(d) Port Handling charges- export duty (indicate name of port)	0.00	NOT APPLICABLE
(e) Charges for sampling and analysis	0.00	NOT APPLICABLE
(f) Rent for the plot at Stocking yard	0.00	NOT APPLICABLE
(g) Other charges (specify clearly)	0.00	NOT APPLICABLE
Total (a) to (g)	0.00	

 # Not applicable for captive dispatches and ex-mine sales

5. Sales- Despatches effected for Domestic Purposes and for Exports:

Grade	Nature of Despatch *(indicate whether Domestic Sale or Domestic Transfer or Captive consumption or Export)*	For Domestic Purposes				For export		
		Registration number as allotted by the Indian Bureau of Mines to the buyer ##	Consignee name ##	Quantity	Sale value (₹)	Country	Quantity	F.O.B Value (₹)
51% to below 55% Fe,Fines	DOMESTIC SALE	IBM/4135/2011	SREE METALIKS LIMITED	19983.200	52256068.00			
55% to below 58% Fe,Fines	CAPTIVE CONSUMPTION	IBM/5662/2011	STEEL AUTHORITY OF INDIA LIMITED (SAIL)	8000.000	3781000.00			
55% to below 58% Fe,Fines	DOMESTIC SALE	IBM/4135/2011	SREE METALIKS LIMITED	119956.880	349869831.50			
58% to below 60% Fe,Fines	DOMESTIC SALE	IBM/43917/2021	ORISSA ALLOY STEEL PRIVATE LIMITED	19990.150	55972420.00			
58% to below 60% Fe,Fines	DOMESTIC SALE	IBM/44076/2021	DNA MINERALS PRIVATE LIMITED	19987.870	65959971.00			
60% to below 62% Fe,Fines	CAPTIVE CONSUMPTION	IBM/5662/2011	STEEL AUTHORITY OF INDIA LIMITED (SAIL)	19991.150	0.00			
60% to below 62% Fe,Fines	DOMESTIC SALE	IBM/4167/2011	SMC Power Generation Limited	19990.460	75563938.80			

Final Submitted

60% to below 62% Fe,Fines	DOMESTIC SALE	IBM/741/2011	MSP SPONGE IRON LIMITED	11995.030	37064642.70			
62% to below 65% Fe,Fines	CAPTIVE CONSUMPTION	IBM/5662/2011	STEEL AUTHORITY OF INDIA LIMITED (SAIL)	5313048.570	1143491558.23			
62% to below 65% Fe,Fines	DOMESTIC SALE	IBM/787/2011	ARYA IRON & STEEL COMPANY PVT LTD	8000.000	42400000.00			
62% to below 65% Fe (10-40 mm size CLO),Calibrated Lump Ore (CLO)	CAPTIVE CONSUMPTION	IBM/5662/2011	STEEL AUTHORITY OF INDIA LIMITED (SAIL)	2536300.930	728853197.13			
62% to below 65% Fe (10-40 mm size CLO),Calibrated Lump Ore (CLO)	DOMESTIC SALE	IBM/13213/2012	SHYAM STEEL MANUFACTURING LIMITED	4384.800	32491368.00			
62% to below 65% Fe (10-40 mm size CLO),Calibrated Lump Ore (CLO)	DOMESTIC SALE	IBM/22863/2020	ORISSA FERROTECHS PRIVATE LIMITED	4121.790	22875934.50			
62% to below 65% Fe (10-40 mm size CLO),Calibrated Lump Ore (CLO)	DOMESTIC SALE	IBM/4167/2011	SMC Power Generation Limited	8185.170	60103359.05			
62% to below 65% Fe (10-40 mm size CLO),Calibrated Lump Ore (CLO)	DOMESTIC SALE	IBM/4227/2011	ORISSA METALIKS PRIVATE LIMITED	4064.200	25401250.00			
62% to below 65% Fe (10-40 mm size CLO),Calibrated Lump Ore (CLO)	DOMESTIC SALE	IBM/4341/2011	SHRI MAHAVIR FERRO ALLOYS PVT. LTD.	6815.000	42934500.00			
62% to below 65% Fe (10-40 mm size CLO),Calibrated Lump Ore (CLO)	DOMESTIC SALE	IBM/6015/2011	Shri Venkatesh Iron & Alloys (INDIA) Ltd.	11000.650	72766293.60			

To indicate separately if more than one buyer.

NOTE:- Mine owners are required to substantiate domestic sale value- FOB value for each grade of ore quoted above with copy of invoices (not to be submitted with the return; to be produced whenever required)

Final submitted

6. Give reasons for increase-decrease in production-nil production, if any, during the year compared to the previous year.

a) OVERALL PRODUCTION IS INCREASED BY 203553 Te IN COMPARISON TO PREVIOUS YEAR DUE TO BETTER UTILIZATION MINING MACHINERIES.

7. Give reasons for increase-decrease in grade wise ex-mine price, if any, during the year compared to the previous year.

a) EX-MINE PRICE IS DECREASED IN COMPARISON TO PREVIOUS YEAR AS PRODUCTION INCREASES.

PART-VII: COST OF PRODUCTION

Cost of production per tonne of ore-mineral produced

Sl. No.	Item	Cost per tonne (₹)
(i)	Direct Cost	53.00
	(a) Exploration	29.00
	(b) Mining	24.00
	(c) Beneficiation(Mechanical Only)	0.00
(ii)	Over-head cost	450.00
(iii)	Depreciation	56.00
(iv)	Interest	0.00
(v)	Royalty	889.50
(vi)	Payments made to DMF	266.85
(vii)	Payments made to NMET	17.79
(viii)	Taxes	0.00
(ix)	Dead Rent	0.00
(x)	Others (specify) NA	0.00
	Total	1733.14

Note: Information given under Part VII will be kept confidential. The Government, however, will be free to utilize the information for general studies without revealing the identity of the firm.

Mineral Name	Production proposal for financial year 2024 - 2025	Production reported during the financial year 2024 - 2025	Difference
IRON ORE - HEMATITE	11954670	7459295	4495375

Final Submitted

I Certify that the information furnished above is correct and complete in all respects.

Place:
Dist: KENDUJHAR, ODISHA
Pin: 758037
Date:

Signature

Name in full:
Designation:
Owner-Agent-Mining Engineer-Manager

From: 103.77.14.226 at 2025-06-28 18:43:27

Esigned by: Guest
Date: 28/06/2025 06:43:28 PM

ANNEXURE-XI

STEEL AUTHORITY OF INDIA LIMITED
(*A Government of India Enterprise*)
Regd. Office: Ispat Bhavan, Lodi Road,
New Delhi-110003.
GSTN: 21AAACS7062F2ZP.
Ref. No. CC/E&L/WO-162/2025-26/B-1287

CENTRAL MINING & LOGISTICS ORGANISATION
OGOM-BOLANI ORES MINES,CONTRACT CELL
P.O.: Bolani(758037), Distt. Keonjhar, Odisha.
Email: ccbom.rsp@sail.in, bolanicc.ogomcmlo@gmail.com
Contact: +91-89868-81074
Dated: 04/10/2025.
Delivery By: Courier/By Speed Post/E-Mail
MSME REGISTERATION NO: NO.

TO,
M/S PRADIP SWAIN.
Qtr. No.- F/28, AT: TARINI MANDIR MARKET COMPLEX,
PO- BOLANI, DIST: KEONJHAR,
PIN- 758037, ODISHA.

WORK ORDER
NO. CC/REV/162/2025-26, DATED: 04/10/2025.

PARTY PARTICULARS			
NAME OF BANK	**ACCOUNT NO.**	**PAN NO.**	**PARTY CODE**
SBI, BOLANI	**33900002068**	**BMGPS 7893Q**	**CP 00090**

NAME OF WORK: MAINTENANCE & AUGMENTATION OF GREENBELT DEVELOPMENT WITHIN THE MINING LEASE HOLD AREAS OF BOLANI ORES MINES, M/S SAIL AS PER CPCB GUIDELINE AND IN ALIGNED WITH"EK PED MAA KE NAAM" CAMPAIGN INCLUDING ROUTINE UPKEEP, BIOTIC SAFEGUARDS, PROTECTION, CONSERVATION AND NATURAL FOREST REGENERATION MEASURES.

REF: 1) LIMITED TENDER NOTICE NO. **BOM/CC/E&L-08/T-136/2025-26, Dt: 30/08/2025.**
2) **EMD: Nil** (Not applicable)
3) **ISD Amount - Rs. 24,440.00** : Deposited vide **Money Receipt No.- B2509-0023, Dated: 30/09/2025.**

Dear Sir,

With reference to your offer against the above mentioned work and subsequent confirmation, the management of BOM is pleased to inform you that the above work is entrusted to you as per the Schedule of Work, Quantities and Rates enclosed herewith.

The terms & conditions for the job is as per the above tender notice which will be binding on you - A copy of the same is also enclosed.

1. Scope of Work	:	As per the Schedule of Work, Quantities & Rates enclosed
2. Date of commencement of work	:	**10/10/2025.**
3. Date of completion	:	**09/10/2027. [02 (Two) Years]**
4. Ceiling Value of work	:	**Rs. 2,443,675.00**

(Rupees Twenty-Four Lakhs, Forty-Three Thousands, Six Hundred Seventy-Five Only)

Kindly acknowledge and confirm your acceptance of this Work Order by duly signing the duplicate copy and returning it to us.

Thanking you,

Yours faithfully,

4/10/25

General Manager, CC

MD. SHAHZAD
GM (MINING)
I/C LOADING PLANT & PPC
SAIL-RSP-BOM

Encl: As mentioned above
Copy to :
1. CGM (Mines) - For kind information.
2. GM (E&L) I/c Environment Cell- For kind information & needful action please.
3. GM (HR) - For Contract Labour Cell.
4. AGM (F&A) I/c - This has reference to fund booked at **Note No. 54, Dated: 23/09/2025** in the case file.
5. Contract cell - File copy.
6. Despatch copy.

WORK ORDER NO. CC/REV/162/2025-26, DATED: 04/10/2025.

LIMITED TENDER NOTICE NO. BOM/CC/E&L-08/T-136/2025-26, Dt: 30/08/2025.

NAME OF WORK: MAINTENANCE & AUGMENTATION OF GREENBELT DEVELOPMENT WITHIN THE MINING LEASE HOLD AREAS OF BOLANI ORES MINES, M/S SAIL AS PER CPCB GUIDELINE AND IN ALIGNED WITH"EK PED MAA KE NAAM" CAMPAIGN INCLUDING ROUTINE UPKEEP, BIOTIC SAFEGUARDS, PROTECTION, CONSERVATION AND NATURAL FOREST REGENERATION MEASURES.

SPECIAL CONDITIONS OF CONTRACT

- In addition to the General Conditions of Contract (enclosed with the tender documents), the following Special conditions of Contract shall also apply
- The following terms and conditions where they differ from the General Conditions of Contract, the Special Conditions of Contract shall prevail.
- Similarly, the description of work in the Scope of Work cum Price Bid Format wherever it differs from the specifications and/or Special Conditions of contract, or the description given in the Scope of Work cum Price Bid Format shall prevail.

1. **Scope of Work : Scope of work shall be as per the price schedule & include the followings :**
The successful bidder / contractor shall carryout the job be as per the enclosed schedule of work / quantity / rates and include the following or as per the direction of the Executing Authority / Engineer I/c for the job.

Sl. No.	Job Details
1	**Supplying of Black Top Soil preferabily from River/Stream Side flood plain areas@ 5.625 Kg/Plant, Well dried Cow Dung from Gowala / Gosala @ 2.4 Kg/ Plant, Vermicompost @ 200gm/Plant, Granular Insecticide @ 5gm/Plant, Urea @ 70gm/Plant in Four (04) subsequent doses (70 X 4 = 280 grams), NPK @ 50gm/Plant, DAP (Diammonium Phopsphate) @ 400gms/Plant, Potash @ 400gms/Plant from approved source & Stacking at plantation site.**
2	**Arrangement of water to each plantation sapling by 1000 m Garden pipes along with 04 (Four) nos of valves as per instruction of EIC (Water will be provided by company free of cost).**
3	**Provision for regular Watch & ward, watering, de-weeding, applying Fertilizer & pesticides, replacement of dead saplings (if any) and protecting from biotic interference for the maintenance of the sites as per the instruction of EIC by deploying at least 04 (Four) nos of Manpower's under USL category for Two (02) Years.**

2. **Conditions of Work :**
   a. **Job timings** : The job will be required to be done in **08 (Eight) Hour shifts per day for 618 working days in 02 (Two) Years** as per the scope of work & as per the instructions of the EIC. If required, the job may be got done on Holidays & Sundays also & No extra amount will be paid for working on these days. However, one day weekly rest will be given. **The contractor has to pay 04 National Holidays per year (Toal 08 National holidays in 02 Years) and the amount is already included in the estimate.**
   b. **Location of Work - The job shall be carried out in leasehold areas within 6.90 ML of Bolani Ores Mines or as per requirements & as per the directions of the EIC.**
   c. **Scope of Supply from Contractor: All the necessary tools & tackles (as required from time to time) shall be provided by the Contractor, as per the instructions of the EIC. Other required Safety Appliances & PPEs shall be provided by the Contractor within 15 days from the date of award of contract. PPEs like, Safety shoes, Helmets, Fluorescent Jackets, Dust musk, Hand Gloves, Ear Plug etc. shall be issued to each worker who will be engaged under this contract by the contractor, as per requirement. Additionally the contractor shall also provide replacement against faulty/wear-out PPEs & Safety Appliances. All tools & tackles, safety appliences, PPEs shall be as per relevant IS standards/DGMS approved and shall be ISI marked/certified. List of PPE & acceptable make is enclosed as Annexure-A.**
   d. **SAIL's Scope of Supply : NIL.**
   e. **Period of Contract: The contract shall be for a period of 02 (Two) Years, i.e. 618 working days** from the date of commencement of work. The successful tenderer shall commence the work on or before the date specified in the work order, after deposition of ISD. Failure to start the work within the stipulated period or such other extended period not exceeding 15 days, subject to specific approval of Head of Mines, shall result in forfeiture of ISD & termination of contract. Job has to be done 08 (Eight) hours shifts as per the instruction of the EIC for 309 working days in a year as per the scope of work.

3. **Awarding the Contract:** The Contract will be awarded to **Single Party** on the basis of **L-1** quotation and, if required negotiation will be held with L-1 tenderer only. All the tenderers may be required to explain / justify the basis of their quoted price as and when asked for. In case, any tenderers fails to justify his quoted price or refuses to co-operate in this regard, they will not be considered for participating in the re-tendering, if order/contract is not finalised from the present tender.

4. The Estimated rates / amount for different items of work and all items of work (total value) indicated in the **"Scope of Work cum Price Bid Format"**, is inclusive of amount towards insurance, as referred in **Clause No. 17 of SCC** and all applicable fringe benefits payable to workmen under various statutes, as referred in **Clause No. 30 of SCC** & Royalty, safety, tools & tackles, Overhead etc. But exclusive of amount towards GST as reffered in **clause no, 37 of SCC,** which shall be borne by the successful Tenderer & which will be reimbursed on actual on production of supporting documents.. The tenderer should consider both the aspect while submitting their offer.

5. The contractor shall ascertain local condition and all other factors likely to affect the rate to be quoted by him. He will be deemed to have quoted for the incidence of extra cost, if any due to such conditions and other factors. Employer is not liable for any damages whatsoever if conditions differ/varies during the operation of the Contract and no complaint shall be entertained in this regard. If required, tenderers may visit the site between **3 PM to 5 PM** on any working day to assess the quantum of work as well as site condition before submission of tender. No complain with regards to site condition will be entertained later.

WORK ORDER NO. CC/REV/162/2025-26, DATED: 04/10/2025.

LIMITED TENDER NOTICE NO. **BOM/CC/E&L-08/T-136/2025-26, Dt: 30/08/2025.**

NAME OF WORK: MAINTENANCE & AUGMENTATION OF GREENBELT DEVELOPMENT WITHIN THE MINING LEASE HOLD AREAS OF BOLANI ORES MINES, M/S SAIL AS PER CPCB GUIDELINE AND IN ALIGNED WITH"EK PED MAA KE NAAM" CAMPAIGN INCLUDING ROUTINE UPKEEP, BIOTIC SAFEGUARDS, PROTECTION, CONSERVATION AND NATURAL FOREST REGENERATION MEASURES.

SPECIAL CONDITIONS OF CONTRACT

6. **Payment of Wages/ other benefits:**
   a. **The contractor shall insure that the payment of wages to the workforce engaged by him is made to them keeping in view statutory provision with reference to the payment of wages (including provisions of minimum rates fixed by the State/Central Govt. from time to time) on or before 7th day of every following calendar month.**
   b. The tenderers while quoting the rates in the "Schedule of Rates" should take into account the following items related to the labour component and should also pay wages for Four National Holidays. The base rate for minimum wage for **Un-Skilled Category is Rs. 541/-** per day as on **01/04/2025. However, those workmens whose monthhly wages exceeds Rs. 21,000/- per month shall not be entitled for Annual Bonus.** (Ref: Notice for suspend of Annual Bonus as per Notice **No. HR/CLC/B-324, Dt: 20/05/2025.**)

SL. NO	ITEM	As a % of Minimum wages
1	Provident Fund (Including Pension, EDLI, Administrative & Inspection Charges.	**13.00**
2	Annual Bonus	**8.33**
3	Leave Salary	**5.00**
4	Retrenchment benefit/Gratuity	**4.16**
	TOTAL	**30.49**

   c. The liability against the above items towards statutory labour benefit shall be borne by the Contractor and out of the above, annual bonus @ 8.33 %, annual Leave Salary @ 5.00 % & retrenchment benefit @ 4.16 **% in total 17.49 % amount is to be recovered on** Minimum Wages from each of the running bill and will be kept in Company's Account. **This will be paid only on actuals against production of proof of payment/documentary evidence in original or certified copies from the indentor. However this amount shall be part of wages. The contractor shall pay the same amount to their labourers & the same is already included in the estimated price of the contract.**
   d. **Additional Welfare Amenity (AWA):** The contractor is required to pay Additional Welfare Amenity (AWA) to their contract labourers in the form of allowance (s) @ **Rs. 142.31** per day of actual attendance, not exceeding **Rs. 3,700/-** per month per worker. **This amount shall be part of wages. The contractor shall pay the amount to their labourers as AWA on monthly basis, the same is already included in the estimated price of contract.**
7. In case L-1 tenderer backs out they will not be considered while re-tendering. In addition, they shall be banned from participating in any tender inquiry (including open tender cases) for a period of **06 (Six) Months.**
8. The offer rates shall be composite and comprise of labour, equipment, materials, tools & tackles and workmanship including all leads, lifts, handling, conveyance etc and any other requirements needed to complete the job in totality.
9. The Employer reserves the right to foreclose the Contract at any point of time without assigning any reason, any claim for loss or any compensation on whatsoever account.
10. i) **LD Clause:** The contractor shall have to complete the work in terms of units mentioned in the Scope of Work cum Price Bid Format (for item no. 1 & 2 of the price schedule) within the contract period. If the Contractor fails to complete the work within the contract period, the company shall be entitled to recover Liquidated Damages charges not by way of penalty, a sum equivalent to **1%** of the Work Order Value per week of delay or part thereof by which the contractor is at fault subject to a maximum of **10%** of the Work Order Value. If the contractor fails to execute the Job for full value within the contract period, the remaining may be got executed through other parties, at his risk and cost without prejudice to company's right for recovery of Liquidated Damages.
    ii) **Penalty Clause:** Based on the nature of the contract and requirement of the job, following penalty provisions (as applicable), to be suitably incorporated in the tenderer (for item no. 3 of the Price schedule): Payment towards wages (including statutory payments/stipulated allowances) shall be made to the contractor based on the actual attendance of the deployed manpower required to be deployed , penalty as per following calculation shall be imposed:

    Penalty (Rs.) = (Required Manpower – Deployed Manpower) x Wage rate for the applicable skill rate x 0.25.
11. Before start of the work, the contractor has to submit the labour license, if required.
    (i) The Contractor has to provide safety appliance to the workers depending upon the type of work free of cost. In case the contractor fails to provide these protective equipment's as per statutes, employer may supply these protective equipments as per statutes to the workers of the contractor and cost of these equipments as fixed by the employer will be recovered from the contractor.
    (ii) The contractor has to maintain sanitary and hygienic condition of work site, labour camps and other statutory buildings at his own cost.
    (iii) The contractor shall not allow any visitor on the work site without the permission of the Engineer-in-charge.
12. Safety and protection of their employees, machinery's, equipments, works fittings, appliances etc. belonging to contractor shall be ensured by the Contractor.
13. **Registers and records**:

The contractor shall have to abide by and be responsible for compliance to provisions of various Acts, Rules, Regulations, Bye Laws, Orders, Circulars as applicable to him and shall maintain all Records And Registers in conformity with the same. The following Records and Registers shall always be kept updated by him at site office during the working hours and should be ready available for inspection by the Employer / his representative or the Statutory Authorities.

(a) Form A - Employee Register
(b) Form B - Wages Register
(c) Form C - Register of Leave Recovery
(d) Form D - Attendance Register
(e) Form E - Register Rest/Leave & Leave Wages

SPECIAL CONDITIONS OF CONTRACT

Any other Form/Register/Record as required and directed by the Mines Manager in case the work is carried out inside mines/plant premises.

All the above registers are to be kept in the site office during the working hours and should be ready available for inspection by the Employer / his representative or the Statutory Authorities.

During the execution of the work, if there is any change in Form B, the same should be reported forth with to the Engineer-in-charge.

The contractor shall submit the following statistical data to the Mines Manager (in case the work is to be performed inside Mines/Plant premises):-

a) Daily labour report (Based on the Form D&E).
b) Daily report regarding deployment of trucks and machines.
c) Daily progress report of work carried out.
d) Category wise man days utilised during the work.
e) Any other reports as prescribed/directed by the Mines Manager /Engineer-in-charge.

14. All persons employed by the contractor are to be exclusively under his direct employment and the rule of master and servant will apply as between the contractor and his employees. In addition, the contractor shall directly be responsible for statutory obligation of any or all kind passed from time to time under the law.
15. The contractor must engage minimum required workers for the job to be executed.
16. The contractor shall carry out such instructions of the company relating to the provisions of various Acts, applicable to mines as may be issued to him from time to time.
17. **INSURANCE :** The successful tenderer shall have to insure his workmen against Workmen Compensation Act, 1923 & also obtain Third Party Insurance to cover third party risk for the full contract period and produce the same to the Executing Authority before commencement of work. The work should not be commenced before the contractor obtains insurance, as above. In case of extension of Contract, Insurances, mentioned above, shall have to be obtained for the extended period also. The Third Party insurance for Public Liability should be for **Rs. 10,000=00 (Rupees Ten Thousand Only)** if the value of the work is below Rs. 50,000=00 (Rupees Fifty Thousand Only) and for **Rs. 50,000=00 (Rupees Fifty Thousand Only)** if the value of work is above Rs. 50,000=00 (Rupees Fifty Thousand Only).
18. **The contractor has to submit true copy of the monthly labour payments made by him/them to the Engineer-in-charge immediately after such payments are made.** All monthly payments are to be made to the workers on 7th of following calendar month (in case of monthly wages) of the month only during duty hours.
19. The company shall not entertain any complaints regarding bad working conditions such as roads, inundation due to water etc.
20. The contractor shall carry out such instructions of the company relating to the provisions of various Acts, applicable to mines as may be issued to him from time to time.
21. **Execution & Certification of satisfactory completion of the work:**
    - **Executing / Certifying Authority : Shri T. R. Sahoo, AGM. (Min) E&L.**
    - **Inspecting Authority / Engineer in Charge : Shri R. Jena, GM (E&L) I/c Environment Cell.**
22. **Evaluation of Lowest offer (L-1 offer) :**

(i) The tenderer shall quote a single percentage above or below or at par with the rates mentioned in the price schedule (Scope of work cum price bid schedule) equally applicable to all the items mentioned in the schedule. In case a tenderer quotes different rates for different items, then their tender shall be rejected. Tenderers are advised to quote their percentage both in **figures & words** as mentioned in the price bid. However, in case of any discrepancy, then rate quoted in words shall be considered for evaluation of L-1 bid.

(ii) If a tenderer quotes in a format other than as specified above, the tender shall be rejected summarily.

(iii) The parties are required to submit offer for all items together for the complete job. Based on amount quoted, the lowest tender (L-1 tender) shall be evaluated.

(iv) If two or more parties quote the same percentage and become L-1 in the order of ranking based on lowest offer received, then in such case all the parties who have quoted lowest amount and ranked L-1 will be asked to submit revised Price Bid within a stipulated date and time. Based on revised Price Bids received and the lowest offer, the L-1 tender will be decided. However in this case parties will not have the option to quote higher percentage for any item in comparison to their original offer and if any party quotes higher percentage in the revised Price Bid, then his original offer will only be considered for the purpose of ranking along with revised offer of other parties that may be received as mentioned above. In case even after receiving revised Price Bids, it is found that two or more parties have quoted the same percentage and become L-1, then the lowest offer will be finally decided by draw of lots.

(v) Order shall be placed on the basis of L-1 offer and, if required negotiation will be held with L-1 tenderer only. All the tenderers may be required to explain / justify the basis of their quoted price as and when asked for. In case, any tenderer fails to justify his quoted price or refuses to co-operate in this regard, they will not be considered for participating in the re-tendering, if order / contract is not finalized from the present tender. **Management reserves the right to award the job through Reverse Auction process.**

(vi) In case of Bank Guarantee, the same shall cover the completion period of the job. In case of time extension, the Bank guarantee shall be extended up to the date of extension of contract from an approved bank having a branch at Bolani. The approved bank having a branch at Bolani is State Bank of India.

NAME OF WORK: MAINTENANCE & AUGMENTATION OF GREENBELT DEVELOPMENT WITHIN THE MINING LEASE HOLD AREAS OF BOLANI ORES MINES, M/S SAIL AS PER CPCB GUIDELINE AND IN ALIGNED WITH"EK PED MAA KE NAAM" CAMPAIGN INCLUDING ROUTINE UPKEEP, BIOTIC SAFEGUARDS, PROTECTION, CONSERVATION AND NATURAL FOREST REGENERATION MEASURES.

SPECIAL CONDITIONS OF CONTRACT

23. PAYMENT TERMS: .
    I) The contractor will submit running account bill, if payable as per contract, which will be verified by the Engineer-in-charge (Operating Authority) through the quantity and quality of the work executed and recorded in the measurement book. The operating authority or his authorised representative and the contractor shall jointly sign bills of the work executed.
    Running Account (R/A) Bills shall be made as per measurement and payment shall be made to the contractor on submission of the bills along with requisite documents within 30 days, if found in order.

    II) 98% payment will be made against RA bills after certificate of the job(s) and 2% of the value of the work will be retained as security deposit in addition to 1% ISD which will be released after certification from Engineer-in-charge after expiry of the guarantee/Warranty/maintenance period and shall bear no interest.
    III) The bills in triplicate are to be submitted to Engineer-in-charge and on the basis of actual measurement duly certifies by concerned Department, bills will be forwarded to Finance department for payment.
    IV) Deduction of income tax shall be made from each bill as per rule.
    V) Final bill will be paid after satisfactory completion of the work and submission of completion report.
    VI) For payment through bank charges will be on contractors account.
    VII) Payment of wages including fringe benefits and other monetary benefits, if any, to contractual labours shall be made by the contractor only through individual Bank Account of the labours. The contractor shall have to submit duly acknowledged bank statement showing the amount due towards wages & other monetary benefits, if any, credited to the account of individual labour engaged by him along with the Register of Wages in Form-X prescribed under the Minimum Wages Central Rule, 1950 for signature as receipt of wages and other monetary benefits, if any , by the contract labour before the authorized representative of the management for its certification in compliance of the Contract Labour (Regulation and Abolition) Act, 1970 and rules framed thereunder for consideration for issue of CLC clearance.
    VIII) **Final Bill** : The Final payment will be made within 60 (sixty) days of completion of all formalities as per terms and conditions of the contract.

24. **Paying Authority :** Head of Finance & Accounts Department, SAIL-OGOM-CMLO-BOM shall be the Paying Authority for this contract.

25. **Security Deposit (SD)**: To indemnify the Company against any losses or any claim that the Company might have to suffer on account of non-fulfillment of the statutory and other obligations by the Contractor and also as a security deposit equivalent to **03%** of the Total work-value will be realized from the Contractor. Out of this, **01%** is Initial Security Deposit. The requisite ISD is to be deposited **within 10 days from date of issue of LOA** in the shape of Bankers Cheque/Demand Draft or can also be in the form of TT remittance/online transfer - NEFT, RTGS, SWIFT. **If the tenderer fails to deposit the applicable SD within stipulated period mentioned after issuance of LOA or delays on submission of Initial Security Deposit, a penalty of 0.2% of the original SD amount per each completed day of delay, limited to an amount not exceeding 5% of the original SD amount shall be applicable, also the contract with L-1 tenderer is liable to be canceled and the proposed job will be awarded under and risk and cost to other Agency. Such L-1 Tenderer will not be considered in re-tendering under Risk and Cost and they will be debarred for participation in SAIL, OGOM-CMLO-BOM tenders for next six (06) months.** The proof of such transfer / transaction is to be submitted in the Contract Cell Office, Bolani. The above transaction shall be in favor of **SAIL-BOLANI ORES MINES (A/C No. 11180766769), payable at STATE BANK OF INDIA, BOLANI BRANCH (IFSC Code SBIN0006079)**. Balance Security Deposit (if any) will be deducted from your running bills. The security deposit amount shall bear no interest & will be refunded after successful completion of work, guarantee / warranty (if any) and submission of completion certificate from executing department & labour clearance certificate from HR Deptt., as applicable

26. Contractor shall be bound to produce the original documents along with copy supporting for purchase, transportation, deployment, utilisation of any resources and materials consumed in work on demand by Engineer-in-charge.

27. **Refund of Security Deposit**: The Security Deposit shall be refunded to the Contractor after completion of contract period or extended period if any & Guarantee/Warranty/Maintenance Period subject to the condition that the Contractor shall submit an absolute "No Demand/ Claim Certificate" stating that he has no claim pending against the employer SAIL-OGOM-CMLO, BOM and produce a Job Completion Certificate and a certificate from the Engineer-in-charge of having disbursed all labour payments, other statutory payments and cleared all his obligations under the contract.

38. **Guarantee/Warranty/Maintenance Period**:
    A. Guarantee/Warranty: Hundred Percent (100%) survival of the saplings at the end of the 03 (Three) Months from the date of execution of work or the completion of jobs mentioned at sl No-1 & 2 of schedule of work, which ever is later.
    B. Maintenance Period: Maintenance period for the work executed shall be **02 (Two) Year** from the date of completion of the work. If any defect is observed during the maintenance period the same shall be rectified free of cost by the contractor. After expiry of the maintenance period and rectification of defects as aforesaid during the maintenance period the security deposit against the work will be released.

29. **Escalation:**
    i. The price shall remain firm and no escalation on any account will be allowed during the period of contract against the jobs mentioned in sl no 1to 2 of the Schedule of work. Escalation will be allowed only against the jobs mentioned in sl no 3 of the Schedule of work only for the statutory increase in minimum wages notified by the central Govt. from time to time and corresponding increase in other specified benefits.

SPECIAL CONDITIONS OF CONTRACT

ii. Formula for Price Variation in respect of statutory increase in Minimum Wages: Escalation shall be paid from the date of Gazette Notification. The escalation will include increase in statutory payment such as P.F., Annual Bonus, Leave Salary, Retrenchment benefit & Insurance:- The formula for escalation will be as under:

iii. Escalation payable = No. of labour employed as per CLC clearance x (Labour Rate Revised (-) Labour Rate as on Base Date, i.e. 01/04/2025).

iv. No escalation will be payable if the same takes place during the extended period of contract and the reason for time extension is not attributable to SAIL. De-escalation in wages, if any shall have to be passed on to SAIL.

30. The contract rate shall be inclusive of fringe benefits, as per statue, payable to his workmen by the Contractor Notification issued from time to time.

31. Contractor shall be bound to produce the original documents along with copy supporting for purchase, transportation, deployment, utilization of any resources and materials consumed in work on demand by Engineer-in-charge.

32. All material supplied by the contractor shall be the absolute property of the employer which shall not be on any account be removed from the site of work and shall be liable any time to be opened for inspection by the Engineer-in-charge.

33. All salvaged / dismantled materials received from the work shall be assessed by the Engineer-in-charge during execution of the work and returned to Central Store, or place as indicated by EIC, by the contractor at their own cost as per the direction of Engineer-in-charge within 30 days from the completion of the individual job order.

34. The signature of occupants or the area in charge shall be obtained & submitted for satisfactory completion of the work before preparation of bills where ever applicable.

35. **Default** : The performance of contractor will be considered unsatisfactory if:
   a. The contractor does not attend the work as per Contract in full or part in time without any valid reason
   b. The contractor does not carry out the instruction of the Engineer-in-charge.
   c. The contractor has executed excess work beyond allotted amount without any written clearance from the Engineer-in-charge.
   d. The contractor is found consistently irregular in reporting to the concerned Supervisor / Engineer-In-Charge for carrying out the day-to-day business.
   e. The Contractor incurs loss to the company in any of the activities.
   f. The contractor does not follow the terms and conditions as per Agreement.
   g. The contractor executes any defective/poor quality work.
   h. The contractor does not supply the materials/ equipments as per specification and does not respond to the instruction / information of department/legal authority in time.
   i. The contractor does not maintain discipline in work place.

36. **TDS FOR INCOME TAX :** Tax deduction of source (TDS) shall be mode towards income tax from all the bills of the contractor of applicable rotes as per Income Tax Act and Rules.

OTHER TAXES:-

A. For the purposes of levy and imposition of GST, the expressions shall have the following meanings.
   a. GST - means any tax imposed on the supply of goods and/or services under GST Law.
   b. Cess - means any applicable cess, existing as on date or applicable in future on the supply of Goods and Services as per Goods and Services Tax (Compensation to States) Act, 2017.
   c. GST Law - means IGST Act 2017, CGST Act 2017, UTGST Act, 2017 and SGST Act, 2017 and all related ancillary Rules and Notifications issued in this regard from time to time.

B. The rates quoted by the Vendor/Supplier/Contractor shall be inclusive of all taxes, duties, levies and Cess except GST and compensation cess. Vendor/Supplier/Contractor has to clearly show the amount of GST and compensation cess separately in the Tax Invoices raised by them. Further, it is the responsibility of the Vendor/Supplier/Contractor to make all possible efforts to make their Accounting and IT system GST compliant in order to ensure timely availability of Input Tax Credit (ITC) to SAIL.

C. In cases where GST is leviable on any facilities/supplies provided by SAIL and used by Vendor/Supplier/Contractors in the execution of any contract / purchase order / work order and the consideration for which is recovered by SAIL in the form of reduction in the value of invoice raised by Vendor/Supplier/Contractor, then SAIL will raise GST invoices on such transactions and the same will be borne by Vendor/Supplier/Contractors.

D. Evaluation of L-I prices shall be done based on landed cost net of Input Tax Credit (ITC) of GST, if ITC is available to SAIL. SAIL shall evaluate the offers on the basis of the quoted rates only and any claim subsequently by the Vendor/Supplier/Contractor for additional payment/liability shall not be admitted and has to be borne by the Vendor/Supplier/Contractor. The supplier under Composition Scheme should carefully understand the implication of Input Tax Credit (ITC) before quoting the rates.

E. For the purpose of this contract, it is agreed between the parties that if any new taxes, duties or levies other than GST is introduced subsequent to the final date of submission of tender or reverse auction by the Central/State Government & Local Authorities and such new taxes, duties or levies become payable, then an equitable adjustment on account of new taxes, duties or levies in the contracted price shall be made which shall be subject to the production of documentary evidence by the Vendor/supplier/Contractor. This provision shall be applicable only during the original period of contract. However, during the extended period of contract, if any, this provision shall be applicable as follows.
   a. If input tax credit (ITC) is available, the adjustment in contract price for such new tax shall be made.
   b. In other cases (i.e. where tax credit is not available), adjustment in contract price shall be mode only if the new tax is enacted during the period of extension arising out of reasons attributable to SAIL.

SPECIAL CONDITIONS OF CONTRACT

F. In case of variation (increase/decrease) in the rate of GST after the final date of submission of tender or reverse auction, the said revised rate shall be reimbursed or recovered on production of relevant statutory documentary evidence. This provision shall be applicable only during the original period of contract. However, during the extended period of contract, if any, this provision shall be applicable as follows

a. If input tax credit (ITC) is available, the said revised rate shall be reimbursed or recovered.

b. In other cases (i.e. where input tax credit is not available), the said revised rate shall be reimbursed or recovered only if the reasons for extension of the contract is attributable to SAIL. In any case, recovery shall be made in case of a downward variation in the rate of tax.

G. Vendor/Supplier/Contractor agrees to do all things not limited to providing GST compliant Tax Invoices and GST Debit notes or other documentation as per GST law relating to the supply of goods and/or services, payment of taxes, timely filing of valid statutory Returns for the tax period on the Goods and Service Tax Network (GSTN), submission of general information as and when called for by SAIL in the customized format shared by SAIL in order to enable SAIL to update its database etc. that may be necessary to match the invoices on GSTN common portal and enable SAIL to claim input tax credit in relation to any GST payable under this Contract purchase order / work order or in respect of any supply under this Contract / Purchase order / the most beneficial Notifications, abatements, exemptions etc., if any, as applicable for the supplies under the Goods and Service Tax Act.

H. SAIL shall charge GST over and above on the forfeiture of deposit due to violation of any of the terms and conditions of the contract by Vendor/Supplier/Contractor as well as on the liquidated damages deducted from the price payable to the Vendor/Supplier/Contractor against supply of goods or services. Similarly for recovery under the Contract / Purchase Order / Work Order for shortfall in guaranteed performance or deviation in quality in terms physical or chemical or other specified norms or for underloading or overloading of wagons while dispatching contractual production by SAIL to Steel Plant or any other entity as per direction of SAIL or any other recovery as per the terms of Contract / Purchase Order / Work Order, SAIL shall also charge GST on all such recoveries.

I. Bidder is required to provide the self-attested copy of his GST Registration certificate and complete address of his principle place of business and Work order. GST charged on debit notes shall be reimbursed only if such debit notes are issued within the prescribed time limit (given below) for availment of input tax credit.

J. In the event, supplier issues a credit note to the SAIL, such credit note shall include GST component only in circumstances set out under the GST law and upon mutual agreement between supplier and SAIL. This shall be subject to the condition that supplier shall comply with the procedural requirements relating to issuance of credit notes under the GST law.

K. The Vendor/Supplier/Contractor is required to ensure that the original copy of the invoice/debit note/credit note is submitted to SAIL within **15 (fifteen)** days from the date of issuance of such document.

L. The Vendor/Supplier/Contractor is required to provide the details of any amendments done on GST portal in respect of any invoice/debit note/credit note earlier uploaded by them to SAIL on real time basis.

M. In case Input Tax Credit of GST is denied or demand is recovered from SAIL by the Central/State Authorities on account of any non-compliance by Vendor/Supplier/Contractor, including non-payment of GST charged and recovered, the Vendor/Supplier/Contractor shall indemnify SAIL in respect of all claims of tax, penalty and/or interest, loss, damages, costs, expenses and liability that may arise due to such non-compliance. SAIL, of its discretion, may also withhold/recover such disputed amount from the pending payments of the Vendor / Supplier/Contractor with SAIL and also from any dues payable or deposit refundable by any other Plant or Unit of SAIL to such the Vendor / Supplier/Contractor.

N. Vendor/Supplier/Contractor shall maintain high GST compliance rating track record at any given point of time.

O. Vendor/Supplier/Contractor is required to pass on the benefit arising out of introduction of GST, including seamless flow of Input Tax Credit, reduction in Tax Rate on inputs as well as final goods by way of reduction of price as contemplated in the provision relating to Anti-Profiteering Measure as per CGST Act, 2017.

P. Vendor/Supplier/Contractor shall avail branches if any.

Q. In case of Bidder is registered under Composition Scheme, than they should clearly mentioned in the offer that they are covered under Composition Scheme and no GST will be charged separately against execution of the contract.

R. SAIL shall deduct tax deducted at source under GST as and when applicable per the provisions of GST law while making payment to the Vendor/Supplier/Contractor.

37. Contractor is required to pass on the benefit arising out of introduction of GST, including seamless flow of Input Tax Credit, reduction of Tax Rate on inputs as well as final goods by way of reduction of price as contemplated in the provision relating to Anti-Profiteering Measure as per CGST Act, 2017.

38. **Adverse Report Action** : In case any specific adverse report is received against a tenderer, as information or upon enquiry made by SAIL, in respect of capabilities and performance of the tenderer, after receipt of tender but before the opening of the Price Bids, the quotation/tender submitted by such tenderer shall be rejected. If such report is received after opening of the price bids, then also the quotation/tender of that tenderer shall be rejected.

39. **Additional / Supplementary items:** During execution of the work, if some new/additional/supplementary items/services are required for completion which is not available in the scope of work of work order, the same should be supplied/ rendered by the Contractor after getting clearance from Executing Authority. The rates will be mutually agreed rates. However, if the item is available in **DSR'16**, the rate as mentioned in **DSR'16** with percentage above/below/at par as finalized after tendering will be applicable. The said work will not be held up for want of settlement of rates. The execution of the said new / additional / supplementary items shall not entitle the contractor to claim extension of time period beyond the stipulated completion period.

SPECIAL CONDITIONS OF CONTRACT

40. All the regulatory terms and conditions, guidelines etc. as applicable in SAIL shall be followed while processing the tender and executing and executing the contract.
41. **Quantity Variation:** Weights and quantities indicated in the bill of Quantities are to be considered for submission of offer for Tender purpose. Actual amount payable shall be based actual site measurement approved by the purchaser or their authorized representative. The unit rate quoted by the tenderer shall be firm for the amount irrespective of the quantity variation.
The quantities in respect of different items of works mentioned in the Scope of Work Cum Price Bid Format are approximate and may vary during the execution of Contract and the total value of the work, to be executed, may vary up to (±)10% of work order value in total. However the deviation in individual items will not be beyond 20%. The payment for increased quantities of item will be paid as per work order rate.
42. Statutory Taxes whatever applicable, shall be deducted from the Contractor's bills, as per the existing rule. All other taxes, duties, levies etc. on the date of tender, shall be paid by the contractor and these should be included in his rates unless otherwise stipulated and agreed upon. All statutory taxes / duties levied after the date of tender if applicable shall be reimbursed on production of documentary evidence.
43. **Agreement:** An agreement shall be executed between the employer, SAIL and the contractor after award of work, if the value of work is Rs. 5.0 Lakh or More, falling which, the payment against the bills will not be released till such time, the agreement is signed. No agreement shall be executed, if the value is less than Rs. 5.0 Lakh . In such cases, the Work order, T&Cs of the contract & the NIT documents and any other documents relating to the work and issued to the contractor shall be treated as agreement between the two parties. The agreement shall be executed with executing department, in the prescribed format (Format available at Contract Cell, BOM), **within 10 days**, from the date of issue of work order, in three copies - first on non-judicial stamp paper worth **Rs. 50/-**, second & third on demy & plain paper respectively, only after which any bill will be entertained. Original Agreement is to be submitted to F&A Department & a copy may be sent to Contract Cell.
44. **Statuary and other Obligation on the part of the Contract:**
    i. During the period of the contract, if any, Govt. dues or other dues under whatsoever Act/ Attachment/ Notice related to the contractor may be received by the company; the same shall be realized from the contractor's bill.
    ii. Taxes, duties, levies etc. **(except Goods & Service Tax and educational cess thereon)** including local taxes if imposed by the Panchayat / Municipality /Local Government bodies on or before the date of the tender shall be borne by and paid by the contractor and these should be included in his rates. Any statuary taxes/ duties/ levies which are levied after the date of the tender shall be reimbursed to the tenderer on production of such documentary evidence if applicable to mine.
45. The Safety & security of any material issued by the dept. either free or on cost recovery basis will be the responsibility of the tenderer.
46. All the labours working in mines area have to put on Safety Appliances while on duty.
47. All disputes arising out of or in relation of this contract or any matter not mentioned herein but which may arise hereafter for the due execution of this contract shall be referred to arbitrator of the Executive Director (Mines), OGOM-CMLO- STEEL AUTHORITY OF INDIA LIMITED, or in case they said arbitrator is not available, to his nominee and the decision of the arbitrator or shall final, and binding on both the parties.
48. The work will be executed under the strict supervision of Executive-In-Charge/Operating Executives with whom the contractor is required to be in regular touch to receive instructions.
49. It will be the Contractors own responsibilities to keep himself in regular touch with Executive-In-Charge or his Representatives in all affairs related to work and to receive instruction.
50. Payment will be done on the basis of actual measurement duly certifies by concerned Department.
51. The contractor shall submit to DGMS returns indicating - Name of his Firm, Registration Number, Name & Address of Person Heading the Firm, Nature of Work, Type of Deployment of Work Persons, Number of Work Persons Deployed, how many work persons hold VT certificate, how many work persons undergone IME and type of medical coverage given to the work persons. The return shall be submitted quarterly (by 10th of April, July, October & January) for contracts of more than one year. However, for contracts of less one year, returns shall be submitted monthly.
52. The contractor shall comply with the provisions of various Acts, applicable to mines as may be issued time to time by DGMS.
53. The contractor shall not employ or terminate his worker without the knowledge of the mine management.
54. Payment of wages including fringe benefits and other monetary benefits, if any, to contractual labours shall be made by the contractor only through individual Bank Account of the labours. The contractor shall have to submit duly acknowledged bank statement showing the amount due towards wages & other monetary benefits, if any, credited to the account of individual labour engaged by him along with the Register of Wages in Form-X prescribed under the Minimum Wages Central Rule, 1950 for signature as receipt of wages and other monetary benefits, if any , by the contract labour before the authorized representative of the management for its certification in compliance of the Contract Labour (Regulation and Abolition) Act, 1970 and rules framed thereunder for consideration for issue of CLC clearance.
55. In addition to the above Special Conditions of the Contract, the tenderer shall have to abide by all the terms & conditions as stipulated in the GENERAL CONDITIONS OF CONTRACT (GCC) which is available with the Contract Cell. It shall be deemed that the contractor has made him-self aware of all the conditions laid down in the GCC & SCC. In case there is any conflict between the GCC & SCC, the Special Conditions of the Contract given herein shall prevail
56. **Duties & Liabilities of the contractor:**
    a) The contractor shall ensure proper perform, conduct & behaviour of the workforce engaged by him at any of the premises specified of the company & shall remove with immediate effect, the engagement of such person (s), who does/ do not give satisfactory performance, conduct himself/themselves properly or misbehave(s) with the regular employees/ personnel of the company in any place.

SPECIAL CONDITIONS OF CONTRACT

b) The contractor shall be held responsible for any damage/loss to the company caused due to negligence of his workforce and shall be compensate to the company adequately against such losses which will be assessed & determined by the company.

c) The contractor shall engage & perform the work assignment to the best satisfaction of the company by his workforce. In case, any of the work forces of the contractor indulge in theft, negligence or any irregular/ illegal activities, misconduct, company reserves the right to take suitable action which may extend up to cancellation of the contract forthwith.

57. **Liabilities & Remedies:** In the event of the failure of the contractor to provide service or part thereof as mentioned in the Terms & Condition for any reasons whatsoever, company shall be entitled to procure services from other sources and the contractor shall be liable to pay forthwith to the company the difference of payment made to such other sources, besides damages at double the rate of payment.

58. **Accident or Injury to Workmen:** The Employer shall not be liable for or in respect of any damages or compensation payable as per law in respect of and in consequences of any accident or injury to any workmen or any other person in the employment of the Contractor, save and except for accident or injury resulting from any act or default of the Employer, his representative or servant. The Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation (save and except as aforesaid) as against all claims demands, proceedings, costs, charges and expenses whatsoever in respect or in relation thereto. Measurement of work will be done in units as mentioned in the Scope of Work cum Price bid Format.

Penalty for Accidents: In case of any accident involving any contract person or any violation reported by any authorized person during the contractual operation in the mines while performing the contract, a penalty shall be charged on the contractor as indicated below, over and above the statutory responsibility of the contractor for payment of compensation:

Sl. No.	Description of Violation	Penalty (Rs.)
1	Occasional violation of not wearing safety helmet in works area/Uses of improper tools/tackles.	1,000.00
2	Minor violation.	2,500.00
3	Major violation, height work without full body harness & height pass.	7,500.00
4	High risk violation may leading to fatal accident (Near miss cases.)	20,000.00
5	Fatal accident cases.	1,00,000 or 20 % of contract value whichever is lower

The amount of penalty as above will be deducted from the bill (in a max. of 2 subsequent instalments) and if not possible, from the security deposit. However in the subsequent investigation / Enquiry report made by the committee duly approved by the Competent Authority, it is proved that the contractor has taken all reasonable steps to ensure that safety of his workmen and the cause contributing to the accidents are beyond of the contractor, then the amount deducted may be refunded to the contractor with the approval of Competent Authority without interest.

59. **Withdrawal of offer:** Any request from the tenderer in respect of additions, alterations, modifications, corrections etc. in either terms and condition or rates of his tenders after opening of the tenders, shall not be entertained under any circumstances. If the tenderer withdraws his tender after opening of the tender or backs out before the expiry of the validity period of the tender, the Earnest Money shall be forfeited and action shall be taken as per **Clause no. 7.**

60. **Safety & other obligations:**

a) **All the Labours/workers working in Mines area under this contract shall have to put on Safety Appliences while on duty & it is mandatory.** All statutory safety rules & regulations prevailing in the area shall be observed by the contractor as may be applicable from time to time. The contractor shall ensure that Safety Norms as detailed in the GCC are followed. Persons reporting to site must use PPE and possess a valid gate pass, as applicable.

b) Prior to engagement of persons in the job the Contractor has to send them to the Mines Vocational Training Centre (MVTC) for their Basic training and Initial Medical Examination (IME) for a period of 6 days, as applicable.

c) Also, the contractor shall provide safety necessary PPE (as applicable) within 15 days of award of contract to the workmen. List of PPE and acceptable make is enclosed at Annexure-A. Applicability of the PPE to the workmen shall be decided by EIC, the same shall be issued by contractor.

d) The contractor shall have to arrange for individual Identity cards, which will also serve as the gate-pass during the tenu.re of the contract. The format of I Card will be given by the company.

e) The workmen can be engaged on the job only after required formalities are completed and after getting the clearance from Incharge of Training and Safety, as applicable.

f) In case any workmen possess an Identity card issued earlier by Bolani Ores Mines or had worked in Bolani under any Work Order in the past, the details thereof has to be furnished to the I/c Training &Safety.

g) A separate B-register &statutory register/other statutory registers for the Contract Labour should be maintained as per Mines Act,1952/Contract Labour Act (R&A), 1970and should be readily available for inspection by the Employer/Statutory Authorities and in case of any change, the same should be reported forthwith to the Mines Manager/ concerned authority.

h) Prior to commencement of job, the successful tenderer shall asses the risk involved the job &ensure its compliance shall prepare SOP (Safe Operating Procedure) & ensure its compliance, for execution of job following the safety requirements.

SPECIAL CONDITIONS OF CONTRACT

i) The safety recommendations of "**12th Conference of Safety in Mines**", held on 28th & 29th January, 2020 at New Delhi, will be binding on the contractor. (The details of recommendation is available at ***www.dgms.net***).

j) Safety is the responsibility of the Contractor and his staff/ employees /workmen engaged/deployed for execution of work under the Contract, individually and collectively.

k) The Contractor shall prepare written Safe Operating Procedure (SOP) for the work to be carried out, including an assessment of risk, wherever possible and safe methods to deal with it/them. The contractor shall provide a copy of the SOP & updated SOP to the "Executing/Inspecting Authority of the contract.

l) The contractor shall ensure that all work is carried out in accordance with the Statue & SOP by deploying adequate qualified and competent personnel for the purpose of carrying out the job in a safe manner.

m) All the person deployed by the contractor for working in a mine must be issued Identity card by the contractor stating the name of the contractor, the work and its validity period etc. while entering into the work place.

61. **Validity of Tender:** Tender shall be valid for 90 days for acceptance. from the date of opening of tender.
62. **Foreclosure of Contract: The** employer shall have the right to foreclose the contract for whatever reasons by giving one month notice on the Contractor without any claim of damages by the Contractor.
63. **Termination of Contract:** If the performance of the contractor in not found satisfactory in relation to progress of work compared to the pro-rata contracted quantity considering the elapsed period of contract, the contract can be terminated by giving 15 days notice in writing to the contractor which shall be binding upon him and no claim for any loss or damage incurred by the contractor, if any will be considered. In case of termination of contract under this clause, the Security Deposit of the contractor will be forfeited and the job may be got done by other agency at the risk, cost and responsibility of the contractor.
64. **Breach of Contract**: If the Contractor has committed a breach of any of the terms of the contract and in particular minimum wages clause and labour regulations, the contract will be terminated and Security Deposit against the work will be forfeited and the job may be got done by other agency at the risk, cost and responsibility of the contractor.
65. **Accommodation:** The Employer may allot residential accommodation / quarter on rental basis for the tenure of contract period subject to availability & fulfilment of necessary formalities of the company as per rule, after which the allotted residential accommodation / quarter shall be vacated by the contractor failing which final bill will not be cleared for release of payment.
66. **Water :** The Employer will supply water at the nearest point at the work site, only if available, on free of charge. The contractor shall make its own arrangements to lay and maintain necessary distribution lines, valve etc at its own cost.
67. **Electricity :** The Employer will supply power at the nearest point at the work site, only if available, on free of charge. The contractor shall make its own arrangements to lay and maintain necessary distribution lines and wiring at its own cost.
68. All amount recoverable from the contractor under this contract or otherwise can be appropriated by the company from any of the bills payable to the contractor or from the Security Deposit and balance if any, shall be paid by the Contractor within **15 days** on demand thereof by the Company. The company shall be at liberty to deduct and appropriate from the Security deposit such penalties and dues as may be payable by the Contractor under the contract and the amount by which the Security Deposit shall get diminished will be made good by further deduction from the Contractor's subsequent bills in the same manner as aforesaid until the security deposit is restored to its full limit mentioned above. On due and satisfactory performance and completion of the contract in all respect and settlement of final bills, the Security Deposit will be returned to the Contractor without any interest on presentation of an absolute No Demand Certificate in the form as may be prescribed by the company. No claim shall lie against the company on any account whatsoever in respect of this contract after the receipt of No Demand Certificate from the Contractor.
69. The completion certificate will be issued only when the job is found completed satisfactorily from HOD of E&L Department, BOM.
70. The company shall have no responsibility for any loss or damage caused to the equipment deployed by the contractor due to destruction or otherwise for any reason whatsoever and shall have no liability to pay the staff or Agent of the contractor in the event of the equipment getting involved in any accident. The contractor shall take full responsibility in all such cases.
71. The Tenderer shall **accept** each and every page of these tender documents issued by us (if any) including the testimonials/other documents (if any) submitted by them along with the tender. Conditional Bids, i.e, bids not adhering to the tendered technical terms, will be rejected.
72. **Jurisdiction** : In the event of any litigation the **District Court of KEONJHAR** shall have exclusive jurisdiction thereupon.
73. The tenderer must provide / fill up their **PAN No., Name of Transacting Bank & Account No.**
74. Measurement of work will be done in units as mentioned in the Scope of Work cum Price bid Format.
75. **Contract Documents**: Several documents forming the contract are to be taken as mutually explanatory of one another. The tenderer shall have to abide by all the terms & conditions as stipulated in the General Conditions of Contract (GCC), which is available with the Contract Cell & Special Conditions of Contract (SCC) given herein. It shall be deemed that the contractor has made himself aware of all the conditions laid down in the SCC and GCC. In case there is any conflict between the GCC & SCC, the Special Conditions of the Contract given herein shall prevail. All materials required to execute the job as per Scope of Work Cum Price Bid Format, are to be provided by the Contractor at his own cost except.
76. **Performance Guarantee Bond**: If a tenderer quotes unworkable rates i.e if the quoted price for total value of work is less than the lower limit of the estimated price for total value of work and is considered for placement of order, he will be asked to justify the rate quoted and will have to give Performance Guarantee Bond (In addition to Security Deposit) in the form of Cash/Bank Draft / Bank Guarantee . The amount of Performance Guarantee Bond will be decided by SAIL- , Bolani Ores Mine at the time of placement of order. Earnest Money of the tenderers who refuse to give Performance Guarantee Bond will be forfeited and they will not be considered in re-tendering if order / contract is not finalized from the present tender. **PGB shall be retained for the full contract period and additional Three (03) Months.**

NAME OF WORK: MAINTENANCE & AUGMENTATION OF GREENBELT DEVELOPMENT WITHIN THE MINING LEASE HOLD AREAS OF BOLANI ORES MINES, M/S SAIL AS PER CPCB GUIDELINE AND IN ALIGNED WITH"EK PED MAA KE NAAM" CAMPAIGN INCLUDING ROUTINE UPKEEP, BIOTIC SAFEGUARDS, PROTECTION, CONSERVATION AND NATURAL FOREST REGENERATION MEASURES.

SPECIAL CONDITIONS OF CONTRACT

If the tenderer fails to deposit the applicable Performance Guarantee Bond/amount within stipulated period mentioned after issuance of LOA or delays on submission of Performance Guarantee Bond/amount, a penalty of 0.2% of the original Performance Guarantee amount per each completed day of delay, limited to an amount not exceeding 5% of the original Performance Guarantee amount shall be applicable, also the contract with L-1 tenderer is liable to be canceled and the proposed job will be awarded under and risk and cost to other Agency. Such L-1 Tenderer will not be considered in re-tendering under Risk and Cost and they will be debarred for participation in SAIL, OGOM-CMLO-BOM tenders for next six (06) months.

77. **Statutory Compliance:**

I) The contractor shall be solely responsible for compliance with all Labour laws, Payment of Wages Act 1936, Employees Provident Fund Act, Workmen Compensation Act, Works Contract Act, Minimum Wages Act 1948, Industrial Disputes Act 1947, Contract Labour (Regulation & Abolition) Act 1970, Equal Remuneration Act 1979, Child labour (Prohibition & Regulation) Act 1986, Mines Act 1952, Mines Rules 1955, Metalliferrous Mines Regulation 1961, Explosives Act, (where ever applicable) and other relevant Central / State Govt. Acts and Rules, Regulations & Bye-Laws made thereunder and as amended from time to time. The Contractor shall take full responsibility for stoppage of work, as a result of noncompliance to above rules and violations pointed by the enforcing agencies, thereof. The Contractor shall, at his own cost and time, rectify all the defects / violations pointed out by such statutory authorities. Such stoppage of work shall not be taken as a valid reason for not achieving the targets and the Company shall be free to impose penalty, stipulated, in the tender document. The Contractor shall defend, indemnify and hold the Company harmless from any liability or penalty which may be imposed by the Central / State or local authorities, by the reasons of any assorted violation, by the Contractor and also from all claims, suites or proceedings that may be brought against the Company.

II) The contractor shall be fully responsible to comply with all applicable statutory obligations as employer, e.g., all contributions under P.F. and Pension Scheme(EPF) etc. under the Employees Provident Fund and Misc. Provision Act, 1952, Employees" Deposit Linked Insurance(EDLI), Employees State Insurance Act, 1948, benefits under the Maternity Benefit Act, 1961, payment under Payment of Gratuity Act, Payment of Bonus Act, Industrial Disputes Act, etc., and all other such obligations / liabilities in respect of their labour engaged by them for the job undertaken under the contract as per applicable statutory provisions/law and Government Notifications, and will take full liability on this account.

4/10/25

General Manager, CC

MD. SHAHZAD
GM (MINING)
I/C LOADING PLANT & PPC
SAIL-RSP-BOM

WORK ORDER NO. CC/REV/162/2025-26, DATED: 04/10/2025.

LIMITED TENDER NOTICE NO. **BOM/CC/E&L-08/T-136/2025-26, Dt: 30/08/2025.**

NAME OF WORK: MAINTENANCE & AUGMENTATION OF GREENBELT DEVELOPMENT WITHIN THE MINING LEASE HOLD AREAS OF BOLANI ORES MINES, M/S SAIL AS PER CPCB GUIDELINE AND IN ALIGNED WITH"EK PED MAA KE NAAM" CAMPAIGN INCLUDING ROUTINE UPKEEP, BIOTIC SAFEGUARDS, PROTECTION, CONSERVATION AND NATURAL FOREST REGENERATION MEASURES.

ANNEXURE - 'A'

PERSONAL PROTECTIVE EQUIPMENTS (PPEs)

Sl. No.	Type of PPE	Recommended Make
1	SAFETY INDUSTRIAL SHOE (HIGH CUT): GENERAL SPECIFICATIONS: COLOR BLACK, PU DOUBLE DENSITY SOLE, UPPER BUFF BARTON LEATHER THICKNESS MIN.1.6MM. OIL, MILD ACID , ANTI-STATIC AND SLIP RESISTANT, ISI APPROVED IS:15298 (Part 2):2016 , NYLON LACE 80CM ROUND WITH BREAKING STRENGTH MIN 50 KG, SIZE RANGE-5-12	ALLEN COOPER / BATA / Liberty / Karam / ACME.
2	INDUSTRIAL SAFETY HELMET WITH RATCHET SUSPENSION AND LOGO, TECHNICAL SPECIFICATION:- IS-2925:1984 & EN 397:2012 APPROVED .HELMET MATERIAL LOW DENSITY POLYETHYLENE. REPLACEABLE 6-8 POINT PLASTIC SUSPENSION, UNIQUE RATCHET SUSPENSION WITH KNOB TO ADJUST THE RATCHET AND VENTILATION SLOTS, CHIN STRAP ADJUSTABLE. HELMET TO HAVE BOTH HEADBAND AS WELL AS FOREHEAD COMFORT PAD. HELMET COLOUR- BLUE WITH "SAIL LOGO" AND WORD BOM IN BLACK COLOUR IN FRONT OF THE HELMET.	Karam / 3M / Udyogi .
3	NOSE MASK: FFP1 FOLDED DISPOSABLE NOSE MASK WITH NOSE CLIP, EARLOOPS AND EXHALATION VALVE. ISI APROVED AS PER IS 9473-2002. WTH INHALATION AND EXHALATION VALVE. PARTICULATE FILTERING EFFICIENCY TO BE GREATER THAN 80% , BREATHING RESISTANCE AS PER CLAUSE 5.11 OF IS 9473-2002. BACTERIAL FILTERING EFFICIENCY TO BE GREATER THAN 90%.CARBON DI OXIDE CONTENT OF INHALATION AIR IN LINE WITH CLAUSE 5.6 OF IS 9473-2002. TOTAL INWARD LEAKAGE TO BE IN LINE WITH CLAUSE 5.4.1 OF IS 9473-2002. JACKET COLOUR- GREY /WHITE	KARAM / 3M / BLACK AND DECKER / VENUS / UDYOGI
4	REFLECTIVE VEST BELT JACKET: - HEAVY DUTY HIGH VISIBILITY CROSS BELT TYPE JACKET OF FINE QUALITY FABRIC. MADE UP OF PURE COTTON OF 200-220 GSM. AVAILABLE IN UNIVERSAL SIZES AND AS PER EN: 471. GREY REFLECTIVE TAPE (MAKE 3M MODEL 2925) OF 2" WIDTH AND SHOULD BE WATER PROOF AND DURABLE. COMPANY LOGO TO BE PRINTED/PASTED ON BOTH BACK AND FRONT SIDE OF VEST JACKET. VELCRO OF 2" TO BE PROVIDED FOR LOCKING AT FRONT SIDE OF JACKET. MINIMUM 50 WASHES GUARANTEED. JACKET COLOUR- ORANGE.	
5	HALF SIZE PVC GUMBOOT WITH LINING AND STEEL TOE CAP. THE STEEL TOE CAP SHOULD CONFORM TO IS: 5852.THE SOLE SHOULD BE ANTISKID TYPE AND IT SHOULD BE RESISTANT TO ACID / ALKALI & ELECTRIC SHOCK PROOF. THE MAXIMUM HEIGHT OF THE BOOT FROM IN SOLE TO THE TOP SHALL BE NOT LESS THAN 250 MM. GUMBOOTS SHOULD BE ISI APPROVED. AS PER IS: 15298, COLOUR: BLACK SIZE: 5 TO 11.	DUCKBACK / LIBERTY / BATA / ARVIND
6	RAIN SUIT HYPORA FABRIC WITH NITRILE PVC COATING. WATER REPELLENT, JACKET ATTACHED HOOD WITH DRAWSTRING CLOSURE, TWO POCKET WITH FLAP ON THE FRONT CHEST FASTENED BY PREMIUM GRADE PLASTIC ZIPPER WITH DOUBLE FLAP PROTECTION, WAIST ADJUSTED BY ELASTICIZED WAIST BAND, VELCRO FASTENER AT SLEEVE CUFFS AND TROUSER BOTTOM. BRIGHT COLOUR AND HIGHLY REFLECTIVE TAPE ON FRONT & BACK FOR SAFETY AT NIGHT/ FOG. RUBBER POLYMER MIN 25-30%: BREAKING STRENGTH WRAP WAY 40-45 KG. MIN, WEFT WAY 30-35 KG. MIN. AVAILABLE COLOUR NAVY BLUE/ BROWN/GREY AS PER IS: 7016. SIZES :MEDIUM / LARGE/ EXTRA LARGE/ XXL/XXXL	DUCKBACK / ACME / ADIDAS / REDTAPE / ZEEL / WILDCRAFT

WORK ORDER NO. CC/REV/162/2025-26, DATED: 04/10/2025.

LIMITED TENDER NOTICE NO. **BOM/CC/E&L-08/T-136/2025-26, Dt: 30/08/2025.**

NAME OF WORK: MAINTENANCE & AUGMENTATION OF GREENBELT DEVELOPMENT WITHIN THE MINING LEASE HOLD AREAS OF BOLANI ORES MINES, M/S SAIL AS PER CPCB GUIDELINE AND IN ALIGNED WITH"EK PED MAA KE NAAM" CAMPAIGN INCLUDING ROUTINE UPKEEP, BIOTIC SAFEGUARDS, PROTECTION, CONSERVATION AND NATURAL FOREST REGENERATION MEASURES.

ANNEXURE - 'A'

PERSONAL PROTECTIVE EQUIPMENTS (PPEs)

Sl. No.	Type of PPE	Recommended Make
7	GOGGLES. SAFETY SPECTACLES CONFIRMING TO ANSI Z & 7:1:2003 WITH CLEAR HARD COATED POLYCARBONATE FOR WIDE COVERAGE, SINGLE LENS, 99.9% UV PROTECTION, NEW FRAMELESS DESIGN, LIGHTWEIGHTDUAL BASE WRAP AROUND LENS BRIDGE GIVES COMFORT, POLYCARBONATE TEMPLES WITH SIDE SHIELD, COLOUR CLEAR WHITE, WEIGHT BELOW 25 GRAMES	Karam / 3M / Udyogi .
8	FULL BODY HARNESS; WITH DOUBLE LIFELINE, IS APROVED, AS PER 3521:2005. LIFELINE - DOUBLE 1.8 M POLYPROPYLENE ROPES, 12MM DIA WITH SH-60 HOOK, ECO TYPE, ONE D-RING. METAL BUCKLES OF HIGH STRENGTH ALLOY STEEL. ADJUSTABLE STRAPS AT CHEST AND THIGH. ITEM SHOULD BE RETROREFLECTIVE	Karam / 3M / Udyogi
9	EAR MUFF, FOLDING HEADBAND(SUR: 25DB), HEADBAND CAN BE FOLDED, LIGHT WEIGHT POCKET SIZE FOR CARRY, COMFORMS TO EN352-2:2000	3M / UDYOGI / VENUS / KARAM
10	EAR PLUG, SUITABLE QUALITY/ISI APPROVED	Karam / 3M / Udyogi
11	SPECIALIZED GOGGLES (FOR WELDING/GRINDING)	SUITABLE MAKE
12	SPECIALIZED HAND GLOVES SUITING TO REQUIREMENTS OF MECHANICAL/PLANT/LOADING (CUTTING/GRINDING/MATERIAL HANDLING), ELECTRICAL (FOR VARIOUS VOLTAGES), MINING/MM (FOR MATERIAL HANDLING), PP&QC (FOR LAB USAGE/SAMPLING), ENVIRONMENT (FOR MATERIAL HANDLING), HR (FOR GUEST HOUSES AND CANTEEN SERVICES)	SUITABLE MAKE
13	PROTECTIVE FACE SHIELDS/SCREENS FOR WELDING / CUTTING / GRINDING / LABORATORY.	SUITABLE MAKE

Important note:

1. Above Items shall be issued to the workmen by contractor as and when applicable or as per the instructions of the EIC (Engineer In-Charge. Item Sl. No. 1 to 7 is to be mandatorily provided as per quality norms, make and at prescribed frequency by the contractor. Records of issuance are to be maintained by him which is subject to audit. Upon transfer of one person in other contract, his PPE records are to be transferred too.

2. Adequate availability of the same to be ensured by the contractor.

3. Rest other items as mentioned above are to be furnished by the contractor as per job requirement and frequency of distribution to be determined by department concerned.

4. Timely issuance, usage and monitoring thereof will be joint responsibility of contractor and department concerned.

5. Safety officer, Departmental safety officer if any & workmen Inspectors can at any time check the PPE's being provided.

6. Any deviation in quality norms, make and prescribed frequency of distribution will attract serious penalties (to be decided by separate committee).

7. Records of purchase of PPE's to be maintained by the contractor which is subject to audit.

8. No person will be allowed in duties without recommended PPE's.

General Manager, CC

MD. SHAHZAD
GM (MINING)
I/C LOADING PLANT & PPC
SAIL-RSP-BOM

WORK ORDER NO. CC/REV/162/2025-26, DATED: 04/10/2025.

SCHEDULE OF WORK, QUANTITIES, RATES & AMOUNT.

LIMITED TENDER NOTICE NO. **BOM/CC/E&L-08/T-136/2025-26, Dt: 30/08/2025.**

NAME OF WORK: MAINTENANCE & AUGMENTATION OF GREENBELT DEVELOPMENT WITHIN THE MINING LEASE HOLD AREAS OF BOLANI ORES MINES, M/S SAIL AS PER CPCB GUIDELINE AND IN ALIGNED WITH"EK PED MAA KE NAAM" CAMPAIGN INCLUDING ROUTINE UPKEEP, BIOTIC SAFEGUARDS, PROTECTION, CONSERVATION AND NATURAL FOREST REGENERATION MEASURES.

SL. No.	Description	Unit	Qty	Rate (in Rs.)	Amount (in Rs.)
1	Supplying of Black Top Soil preferabily from River/Stream Side flood plain areas@ 5.625 Kg/Plant, Well dried Cow Dung from Gowala / Gosala @ 2.4 Kg/ Plant, Vermicompost @ 200gm/Plant, Granular Insecticide @ 5gm/Plant, Urea @ 70gm/Plant in Four (04) subsequent doses (70 X 4 = 280 grams), NPK @ 50gm/Plant, DAP (Diammonium Phopsphate) @ 400gms/Plant, Potash @ 400gms/Plant from approved source & Stacking at plantation site.	Nos	10000	₹ 45.26	₹ 4,52,564.19
2	Arrangement of water to each plantation sapling by 1000 m Garden pipes along with 04 (Four) nos of valves as per instruction of EIC (Water will be provided by company free of cost).	Lumpsum		₹ 74,907.52	₹ 74,907.52
3	Provision for regular Watch & ward, watering, de-weeding, applying Fertilizer & pesticides, replacement of dead saplings (if any) and protecting from biotic interference for the maintenance of the sites as per the instruction of EIC by deploying at least 04 (Four) nos of Manpower's under USL category for Two (02) Years.	Nos	2472.00	₹ 775.16	₹ 19,16,203.19
ALL THE ABOVE SHALL BE CARRIED OUT AS PER THE INSTRUCTION OF THE EIC.		Total (in Rs.) >>>			₹ 24,43,674.90
		Rounded of Total (in Rs.) >>>			₹ 24,43,675

In Words: Rupees Twenty-Four Lakhs, Forty-Three Thousands, Six Hundred Seventy-Five Only.

Notes:

1)	GST as per actuals as applicable rate shall be paid extra against submission of GST compliant Invoice and all the statutory compliances by the contractor as required under GST Laws for enabling the purchaser to avail Input Tax Credit on payment of said GST.
2)	PPEs like Safety shoes, Safety Belts, Helmets & Fluorescent Jackets etc. as applicable for the job, shall be issued by the contractor within 15 days from the date of award of contract. Accepted make of Safety Shoe: BATA, Allen Cooper, Coffer: Accepted make of Helmet: KARAM. In case of any damage during the contract period, same will be replaced by the contractor himself.

4/10/25

General Manager, CC

MD. SHAHZAD
GM (MINING)
I/C LOADING PLANT & PPC
SAIL-RSP-BOM

ANNEXURE-XII

ANNEXURE-XIII

People digging for diamonds at Jonnagiri, Kurnool district. Adults and children alike can be found scouring the surface washed by rain in the hope of landing a precious stone. They come with all kinds of tools, prepared to camp at these sites

Come rainy season, and stones worth crores can surface in this corner of Andhra. These discoveries may seem like isolated strokes of luck, but they draw fortune-seekers by the dozen

In land of Kohinoor, monsoon brings a harvest of diamonds

Hundreds stream in on bikes, riding in auto-rickshaws, or trudge on foot across the dusty plains of Vajrakarur in Anantapur and the parched riverbeds of Jonnagiri, Tuggali, and Maddikera in Kurnool. But there are no business or banks here. The only thing drawing the crowds to this corner of Andhra Pradesh is a whisper carried on by the monsoon winds — diamond rush.

As the first rains of June and July wash away layers of topsoil, hundreds of acres in these mandals transform into treasure fields. The morning after a downpour, hopefuls armed with sieves, sticks — even kitchen ladles and spatulas — fan out across these lands. On average, only one or two lucky individuals find stones valued at Rs 1.2 lakh, or occasionally as pricey as Rs 30 lakh. However, word of such discovery spreads the wildfire, drawing ever-larger crowds. Unofficial estimates suggest that each monsoon season, the Maddikera and Tuggali mandals alone yield diamonds valued around Rs 5 crore as the rains continue to reveal the hidden fortunes beneath.

What began as chance finds by local farmers has swelled into a full-blown seasonal spectacle in recent years. Entire families — homemakers, children, the elderly — camp in makeshift shelters under trees or the shade of village temples, turning these mandals into temporary mining towns. Traders lurk nearby, ready to snap up stones in discreet cash deals. Once purchased, the rough stones are moved to major commercial hubs like Mumbai and Surat.

Fortunes Found In Fields

In May 2019, a labourer in Jonnagiri unearthed a diamond worth Rs 14 lakh while tilling his field after early rains. Around the same time, a farmer in Peravali village found a Rs 2 lakh stone and sold it to a local merchant. Over a period of three days, villagers in Jonnagiri, Peravali, and nearby hamlets collectively uncovered diamonds worth Rs 10 lakh. That same season, in the Sirivella and Mahanandi zones, local estimates placed the diamond haul at an astonishing Rs 4 crore.

In 2021, two labourers in Jonnagiri sold their finds for Rs 70 lakh and Rs 50 lakh. In July a driver named Kasim struck it big on his farmland, netting Rs 1.2 crore from a single diamond. Just days later, three independent hunters camping near Jonnagiri uncovered stones valued at Rs 2.4 crore in just 48 hours.

The momentum carried into 2024. In May last year, four diamond finds across Tuggali and Maddikera were valued at a combined Rs 70 lakh. Near month, a farmer in Jonnagiri exchanged a Rs 12 lakh stone for Rs 12 lakh in cash and five tolas of gold. Most recently following a heavy downpour in June, a woman tilling her small patch got in Tuggali mandal stumbled upon a gleaming crystal. She sold it for Rs 10 lakh to a trader in nearby Gooty.

When TOI visited the diamond search zones in Kurnool and Anantapur districts, it was clear that the modern-day diamond rush now draws prospectors from far beyond local villages. Many arrive from neighbouring Telangana and Karnataka, with a mission to find a stone, cash it in, and change their lives.

N Veeresh, a resident of Jedcherla in Telangana's Mahabubnagar district, was spotted with his wife and daughter at Jonnagiri, hoping to strike it lucky. K Vasu, who runs a small hotel in Atmakur, 70km away, joined the seasonal hunt this year. Nalli Ramanamma, 75, from Yemakunda, is staying at a local temple in Jonnagiri, determined to take her shot at fortune.

Visitors like Dhruv Raj — who stopped short at these fields on his way to Bengaluru after visiting the nearby Mantralayam temple — expressed awe at the chance of finding a diamond. And for those who do, the payoff can be life-changing.

The diamond hunt may last only a few weeks each year, but the dream lingers. And when the monsoon ends, the crowds vanish as suddenly as they had arrived — leaving behind trampled fields and spent dreams. Many return, in the hope that the sands may yet reveal a fortune.

Local Voices

For some, the hunt is about heritage and persistence. Singanamala Usman, a senior YSRCP leader from Vajrakarur, shared insights into the region's long-standing association with diamond exploration and how some people have made quick bucks. "During the British era, this area was often referred to as 'Diamond Lake'."

Shaik Akram, a carpenter from Upwakonda, is among the many who return each year. "I come for a few days every monsoon, hoping to find a diamond. But so far, it's been in vain," he said.

Not everyone is pleased with the annual influx of treasure hunters. Khayum Khan, a farmer in Vajrakarur, said, "The craze for diamond hunting has grown in recent years, drawing crowds from neighbouring districts and even other states. They trample over newly sown crops. It's become a headache for us," he said.

Science And Royalty

The Wajrakarur Kimberlite Field (WKF), stretching across parts of Anantapur, contains over 45 kimberlite pipes. These pipes are deep, volcanic conduits capable of bringing diamonds from the Earth's mantle to the surface.

Per a study by the University of Madras on the 'Economic Conditions In Southern India 1000-1500 AD', diamond mines in the region were leased out, with one condition: all diamonds exceeding twenty mangelins (around 25 carats) were reserved for the exclusive use of the Vijayanagara kings. These mines — mainly along the northern bank of the Krishna river and in what is now Anantapur and Kurnool — were among the most renowned in medieval India.

The National Diamond Project, led by the Geological Survey of India (GSI), mapped vast parts of Anantapur, Kurnool, Krishna, and Guntur. The findings revealed widely variable yields — between 1 to 35 carats per 100 tonnes of material — highlighting the uneven spread of both primary (kimberlite, or a rock variety) and secondary (alluvial) diamond sources.

Recent surveys by the GSI and academic institutions have confirmed several mandals as key hotspots for alluvial diamond recovery: Jonnagiri, Tuggali, Maddikera, Peddakotla, and Peravali in Kurnool, and Vajrakarur in Anantapur. During the monsoon, rainwater erodes surface soils and exposes colluvial deposits at the base of slopes; gravels containing diamonds. These deposits can be traced back to ancient river systems like the Penna and Tungabhadra, as well as weathered kimberlite sources further inland.

A precious stone found in Vajrakarur, Anantapur district

It's not surprising to see travellers from all walks of life stopping by to try their luck on the diamond fields of Kurnool and Anantapur districts, which have yielded finds worth crores. In May last year, four diamond finds across Tuggali and Maddikera were valued at a combined Rs 70 lakh. Many of these finds are brought to Gooty for trade

GOLCONDA'S LEGACY IN STONE

The story begins several centuries ago with the famed Golconda kingdom's diamond mines. Though long closed, their legacy, which includes the legendary Kohinoor, fuels a dream of wealth that still draws thousands to the Krishna-Pennar river valley. A 300km stretch along the banks of the Krishna, particularly around the Sangam where it meets the Tungabhadra, was once the epicentre of intense diamond mining.

World-Famous Gems Found in Golconda

NOTICE

Inviting Applications for the Post of Vice-Chancellor:

• Pt. Govind Ballabh Pant University of Agriculture and Technology, Pantnagar, Udham Singh Nagar, Uttarakhand – 263145.
• The tenure of the present Vice-Chancellor of Pt. Govind Ballabh Pant University of Agriculture and Technology (GBPUAT), Pantnagar, will conclude on 28th August, 2025. Accordingly, it is proposed to appoint a new Vice-Chancellor, and a Search Committee has been constituted to prepare a panel of eminent persons for this purpose.
• As the Principal Executive and Academic Officer of the University, the Vice-Chancellor must possess exceptional leadership qualities, administrative experience, and a strong academic background. The incumbent should be a person of integrity, vision, and commitment to steer the University towards academic and institutional excellence.

Eligibility Criteria:
• At least 10 years of experience as Professor in a University or equivalent experience in a reputed academic/research organization in Teaching, Research or Extension in the field of Agriculture or allied sciences.
• Experience in senior management positions in the above areas will be considered a desirable qualification.
• The applicant should not be more than 67 years of age as on the last date of receipt of application, i.e., **18th August 2025.**

Tenure:
The Vice-Chancellor shall hold office for a term of three years from the date of joining or until the age of superannuation, whichever is earlier.

Application Procedure:
• Applications in the prescribed format (available at **www.gbpuat.ac.in**) must be submitted either:
1. By Speed Post in Person in the address mentioned below; or
2. By Email to **uktarmerprosperityposi@gmail.com**.
4. Last Date for Submission: **19th August 2025.**

Applications received after the due date will not be considered.

Address for Submission:
(Dr. S. N. Pandey)
Secretary, Agriculture and Farmers Welfare, Vishwakarma Bhawan, Room No. 905, Uttarakhand Secretariat, 04-Subhash Road,Dehradun-248001
Email: ukfarmerprosperityposi@gmail.com

NAVODAYA VIDYALAYA SAMITI
An Autonomous Organization under
Ministry of Education
Department of School Education & Literacy
Govt. of India

NOTIFICATION FOR EXTENSION OF LAST DATE TO SUBMIT ONLINE APPLICATIONS FOR CLASS VI JNVST 2026

Online registration for Admission to Class-VI (session 2026-27) in Jawahar Navodaya Vidyalayas through selection test is in progress. The last date of submission of online applications is extended up to 13th August, 2025. Eligible candidates may apply free of cost by visiting the link **https://cbseitms.rcil.gov.in/nvs.**

Issued by Navodaya Vidyalaya Samiti

MSME TECHNOLOGY CENTRE
2 DAYS GOVERNMENT TRAINING ON
GST PRACTITIONER
(With New Portal Updates)
Course Duration: 2 Days (ONLINE) Date: 02 & 03 August 2025 Time: 4.30 PM to 8.30 PM
Content: GST Registration, CMPT, RCMT & TRCT, Returns Filing, Annual Audit, Annual Return, Tax Payment, reversing Migration, GST Refund Process, GST Accounting, E-Way Bill, e-invoice, GST TDS, GST TCS, Utilization of TDS and TCS in GST, GSTR9, GSTR9C, GSTPCR (With Latest updates). Invoice GST TDS, GST TCS, WCWP/GSTR9/GSTR9C
Fees : Rs 3,000/- (Fees once paid is not liable to be refunded)
Coordinator: 8093769908, 9871528494, 9868164246
Government of India certificate will be awarded

योजना तथा वास्तुकला विद्यालय, विजयवाड़ा
School of Planning and Architecture, Vijayawada
An Institute of National Importance, Ministry of Education, Govt. of India
Survey No.4/4, ITI Road, Vijayawada – 520 008, AP, India.
No. SPA/Admn/PG-SPOT ROUND/2025-26 Date: 30-07-2025

NOTIFICATION FOR SPOT ROUND- (through Direct Admissions) including sponsored category seats for Post Graduate Programmes for the Academic Year 2025-26

SPA Vijayawada announces Direct Admissions to Master's Degree in Architecture, Planning, Building Engineering & Management and Design in "SPOT ROUND- (through Direct Admissions) including sponsored category seats for Post Graduate Programmes for the Academic Year 2025-26". For further details, fees, admission and application process, please visit our website **www.spav.ac.in**

Sd/- Registrar

TAMILNADU MEDICAL SERVICES CORPORATION LTD.
(A Government of Tamilnadu Undertaking)
No. 417, Pantheon Road, Egmore, Chennai - 600 008. Phone: 044-2819 1600, 2819 0201
Website: www.tnmsc.tn.gov.in E-Mail: grading.tnmsc@tn.gov.in, megnondrug.tnmsc@tn.gov.in

Online Tenders is invited by the Tender Inviting Authority, Tamilnadu Medical Services Corporation Ltd., Chennai – 600008, from the bidders meeting the eligibility criteria indicated in the tender document for the supply of **Blood Collection Drape** to TNMSC Ltd for two years from the date of acceptance of the tender.

Sl. No	Description	e-Tender Reference	Tender Hosting Period	e-Tender Submission Duration	Date and time of online opening of Technical Bids
1	Online Tender for the supply of **Blood Collection Drape** to TNMSC Ltd., under rate contract system for two years from the date of acceptance	e-01/MP/y BCD/ TNMSC/ 2025, Dated 30.07.2025	30.07.2025 at 12.00 Noon to 28.08.2025 upto 3.00 PM	30.08.2025 at 10.00 AM to 28.08.2025 upto 3.00 PM	28.08.2025 at 3.30 PM

The tender document can be downloaded and the tender shall be submitted at **https://tntenders.gov.in.** The tender document can also be downloaded at **www.tnmsc.tn.gov.in** for reference purpose.

Tender Inviting Authority / General Manager (Drugs)

DIPR/3830/Tender/2025

योजना तथा वास्तुकला विद्यालय, नई दिल्ली
(संसद के अधिनियम के तहत राष्ट्रीय महत्व का संस्थान, शिक्षा मंत्रालय, भारत सरकार)
School of Planning and Architecture, New Delhi
(An Institution of National Importance enacted by an Act of Parliament,
Ministry of Education, Government of India)
प्रवेश एवम परीक्षा विभाग ADMISSION AND EXAMINATION SECTION

SPOT ROUND - I FOR VACANT SEATS IN PG COURSES

Applications are invited against the following vacant seats available for admission to the Master's Degree Courses for the Session - 2025-26 for a Spot Round.

S No.	Course	CATEGORY				
		OG	EWS	SC	ST	OBC
1	Master of Architecture (Architectural Conservation)	2	1	4	2	5
2	Master of Architecture (Landscape Architecture)	1	2	0	0	5
3	Master of Architecture (Urban Design)	1	1	0	0	1
4	Master of Building Engineering & Management	4	0	1	0	0
5	Master of Design (Industrial Design)	1	2	0	1	3
6	Master of Planning (Environmental Planning)	1	2	0	1	1
7	Master of Planning (Regional Planning)	0	1	0	0	2
8	Master of Planning (Transport Planning)	2	1	0	0	1
9	Master of Planning (Urban Planning)	0	1	0	0	0
10	Master of Planning (Housing)	1	3	0	1	1

Applications are also invited for:-
(1) PG seats for Wards of Kashmiri Migrants / Kashmiri Pandits and Kashmiri Hindu Families (Non-Migrants) living in Kashmir Valley are reserved as per the Central Government Norms.
(2) PG seats for **Physically Challenged Persons**, on a horizontal basis, these will be adjusted against the respective reservations by OG, SC, ST and OBC Categories as per the Central Government Norms.

The last date for receipt of the applications under the all categories is **05th August, 2025.** For complete details, kindly refer to the School's website: www.spa.ac.in under the Tab - "Admission - 2025-26".

Sd/-
Registrar

STEEL AUTHORITY OF INDIA LIMITED
Rourkela Steel Plant
Rourkela - 769 011, Odisha, India

PUBLIC NOTICE

It is hereby informed to all that, Environmental Clearance was granted vide letter No. J-11015/418/2008-IA.II (M) dated 21st December, 2012 by Ministry of Environment, Forest and Climate Change (MoEF&CC), New Delhi for "Bolani Iron Ore Mine (5.10 Sq. Mile ML) Project" of M/s Steel Authority of India Limited (SAIL), located at Village Bolani, Tehsil Barbil, District Keonjhar, Odisha. The Environmental Clearance was extended by MoEF&CC vide even letter dated 17th February, 2014 and further amended by MoEF&CC letter Dt. 5/07/2020, Dt.05.08.2021, Dt.19.08.2022 & Dt.13.09.2023. The extension of Environmental Clearance amendment orders issued vide Dt. 30.07.2020, Dt. 05.08.2021, Dt.19.09.2022 & 13.09.2023 by the Ministry Further, MoEF&CC vide even letter Dt. 24.07.2023 (EC Identification No. EC25A000JOR531817IA) has been granted the EC amendment proposal for Bolani Ore Mines. Copy of the amended Environmental Clearance letter dated 24.07.2023 is available with the State Pollution Control Board, Odisha and website of the MoEF&CC at **www.parivesh.nic.in** and also website of the SAIL at **www.sail.co.in**

Chief General Manager (Mines)
SAIL, Rourkela Steel Plant
Bolani Ore Mines

Registered Office : Ispat Bhawan, Lodi Road, New Delhi 110 003
Corporate Identity Number : L27109DL1973GOI006454, Website : www.sail.co.in

There's a little bit of SAIL in everybody's life

AA-23

ଓଡ଼ିଶା ସରକାର
ପଞ୍ଚୁପାଲି ମୁକ୍ତାକାଶ ମାଧ୍ୟମ, ଓଡ଼ିଶା
ଓଡ଼ିଶା ବିଶ୍ୱ-ବିଦ୍ୟାଳୟ ଶିକ୍ଷାଦାନ ପରିଷଦ, ଓଡ଼ିଶା
ପ୍ରଥମ ମହଲା, ଶିକ୍ଷାଶ୍ରମ ମୁକ୍ତା ଭବନ
ଭୁବନେଶ୍ୱର - ୭୫୧୦୦୧

ଟେଣ୍ଡର

ନଂ. ଏଏଏଡି/ ତାରିଖ ୨୮/୦୭/୨୫

ସହି/-
ଅତିରିକ୍ତ ମୁଖ୍ୟ ସଚିବ / ଅତିରିକ୍ତ ନିର୍ଦ୍ଦେଶକ
ପଞ୍ଚୁପାଲି ମୁକ୍ତାକାଶ ମାଧ୍ୟମ, ଓଡ଼ିଶା

ODISHA COAL AND POWER LTD.
(A GOVT. OF ODISHA COMPANY)
Zone-A, Fourth Floor, Fortune Towers, Chandrasekharpur
Bhubaneswar, Odisha – 751023
Ph No: 0674-2300654 / 0674-2300664

OCPL Odisha Coal and Power Limited

NOTICE FOR SPOT E-AUCTION SALE OF COAL

Ref : EA/06S/25 Dt. 30/07/2025

Odisha Coal and Power Ltd(OCPL) a State PSU of Odisha is operating Manoharpur Coal Mine in Sundergarh District. OCPL intends to place Five Lakes ton surplus coal for Spot E-Auction sale, in accordance with amended Mineral Concession Rule and MMDR Act as per the following schedule via MSTC auction portal, on 7th August 2025.

(https://www.mstcecommerce.com/auctionhome/odisha/index.jsp)

Auction Quantity	Coal Grade	Base Price for Auction (INR)	Date of Auction	Time for lifting
5,00,000 Ton	G-14	2500 (Rate Inclusive and fifty only)	07 August 2025 (1pm)	60 days

Interested Agencies/ Industries are invited to register themselves on MSTC website as a buyer on or before 6th August 2025. For any assistance the following officials of MSTC may be contacted:

Mr. Mahesh Ranawath,
Mail id : rmahesh@mstcindia.co.in
Mobile no. : +91-8001281904, 8674-254199 (Board)

Sd/-
Chief Operating Officer

TIMES APPOINTMENTS

Advertisement for the post of Manager-FMCG & Logistic Officer

A reputed Company having business in all over India invite application for the post of Manager-FMCG and Logistic Officer for Odisha location.

1. **MANAGER** : FMCG MBA in Marketing having 5 to 6 years of experience and can handle independently for sale of Sugar, Soya, Tofu & other FMCG products.
2. **LOGISTIC OFFICER** : Graduate, preferably MBA having 3 to 4 years of experience and can handle Ethanol, DDGS, Indent, loading and supply independently.

Interested candidates having experience in relevant field only, send resume along with educational qualification, experience and last salary drawn proof in PDF to E-mail: **mktquality123@gmail.com** within 7 days of publication.

Scanned with CamScanner

ଯୋଗାଣ ମନ୍ତ୍ରୀଙ୍କୁ ଠକେଇ ମାମଲା

ଅଭିଯୁକ୍ତ ଗିରଫ ପରେ ଜାମିନରେ ମୁକୁଳିଲେ

ଢେଙ୍କାନାଳ ସଦର, ୨୯।୭(ନି.ପ୍ର): ରାଜ୍ୟ ଯୋଗାଣ ମନ୍ତ୍ରୀ କୃଷ୍ଣଚନ୍ଦ୍ର ପାତ୍ର ଏକ ଜାଗା କିଣା ବାବଦରେ ୨୫ ଲକ୍ଷ ଟଙ୍କା ଠକେଇର ଶିକାର ଘଟଣାରେ ଅଭିଯୁକ୍ତକୁ ଗିରଫ କରି ଅଦାଲତ ଚାଲାଣ କରିଛି ଟାଉନ ପୁଲିସ। ଅଦାଲତ ଚାଲାଣର କିଛି ଘଣ୍ଟା ମଧ୍ୟରେ ଅଭିଯୁକ୍ତଙ୍କୁ ଜାମିନ ମଞ୍ଜୁର ହୋଇଛି। ଅପରପକ୍ଷେ ଅଭିଯୁକ୍ତଙ୍କ କେତେକ ଚାଞ୍ଚଲ୍ୟକର ତଥ୍ୟ ମନ୍ତ୍ରୀ କୃଷ୍ଣଚନ୍ଦ୍ର ପାତ୍ରଙ୍କୁ ନେଇ ରାଜ୍ୟ ରାଜନୀତିରେ ପୁଣି ଚର୍ଚ୍ଚା ଜୋର ଧରିଛି। ନିର୍ବାଚନ ସତ୍ୟପାଠରେ ଟଙ୍କା କିମ୍ବା ଜମି ବିଷୟରେ କିଛି ଉଲ୍ଲେଖ ନଥିଲା। ଏପରିକି ଚାରିବର୍ଷ ଧରି ସେ କାହିଁକି ଚୁପ ଥିଲେ ବୋଲି ସାଧାରଣରେ ପ୍ରଶ୍ନବାଚୀ ସୃଷ୍ଟି କରିଛି। ନିଜ ଅଭିଯୋଗ ଖୋଦ୍ ମନ୍ତ୍ରୀଙ୍କ ପାଇଁ ନାନା ପ୍ରଶ୍ନବାଚୀ ସୃଷ୍ଟି କରିଥିବା ଆଲୋଚନାର ବିଷୟ ହୋଇଛି।

କଥାକୁହା ମନ୍ତ୍ରୀ ଭାବେ ରାଜ୍ୟ ରାଜନୀତିରେ ଖାଦ୍ୟଯୋଗାଣ ଓ ଖାଉଟି କଲ୍ୟାଣ ମନ୍ତ୍ରୀ କୃଷ୍ଣଚନ୍ଦ୍ର ପାତ୍ର ସଦାସର୍ବଦା ଚର୍ଚ୍ଚାରେ ଥାଆନ୍ତି। ତେବେ ଏକ ଜମି କିଣାବିକା ମାମଲାରେ ଜଣେ ଦଲାଲ ତାଙ୍କଠାରୁ ୨୫ ଲକ୍ଷ ଠକେଇ କରିଥିବା ଢେଙ୍କାନାଳ ଟାଉନ ଥାନାରେ ଗତ ୨୬ ତାରିଖରେ ସେ ଅଭିଯୋଗ କରିଥିଲେ। ଏହି ମାମଲାରେ ପୁଲିସ ଆଜି ଅଭିଯୁକ୍ତ ସଦର ଥାନା ବଣସିଂହ ପଞ୍ଚାୟତ ଶଙ୍କରପୁର ଗ୍ରାମର ନିରଞ୍ଜନ ଶତପଥୀଙ୍କୁ ଗିରଫ କରି ଅଦାଲତ ଚାଲାଣ କରିଛି। ତେବେ କେଉଁ ଜାଗା, କେତେ ଜାଗା ଆଉ କେତେ ଟଙ୍କାର ଡିଲ ହୋଇଥିଲା ବୋଲି ମନ୍ତ୍ରୀ ୨୫ ଲକ୍ଷ ଠକେଇ ଟଙ୍କାର ହେଲେ ସେ ସମ୍ପର୍କରେ ପୁଲିସ ପାଟି ଖୋଲି ନଥିଲା। ଜାଗା ବାବଦକୁ ୨୫ ଲକ୍ଷ ଅଗ୍ରିମ ନେଇ ଜାଗା ନ ଦେଇ ନଥିଲେ ଏବଂ ଟଙ୍କା ଫେରସ୍ତ ପାଇଁ ଦେଇଥିବା ଦୁଇଟି ଚେକ ବାଉନ୍ସ ପରେ ଆଉ ଧରାଛୁଆଁ ଦେଉ ନଥିବା ଅଭିଯୋଗ ହୋଇଥିଲା। ଅଭିଯୋଗକୁ ଭିତ୍ତିକରି ଟାଉନ ଥାନାରେ ଏକ ଠକେଇ ମାମଲା ରୁଜୁ କରି ଅଭିଯୁକ୍ତକୁ ଗିରଫ କରାଯାଇଥିଲା। ଜାଗା ସମ୍ପର୍କରେ ତଦନ୍ତ ଚାଲିଛି ଆମେ ଚାର୍ଜସିଟରେ ଦାଖଲ କରିବୁ ବୋଲି ଢେଙ୍କାନାଳ ଏସ୍‌ପି ଅଭିନବ ସୋନକର ଗଣମାଧ୍ୟମ ଆଗରେ ପ୍ରକାଶ କରିଛନ୍ତି।

ତେବେ ଥାନାରେ ଅଭିଯୋଗ ଏକ ପ୍ରକାର ଥିବାବେଳେ ମନ୍ତ୍ରୀ କହୁଛନ୍ତି ଅଲଗା କଥା। ଯୋଗାଣମନ୍ତ୍ରୀ ଶ୍ରୀ ପାତ୍ର ନିଜେ ଲିଖିତ ଅଭିଯୋଗ କରିଥିବାବେଳେ ନିଜ ପାଇଁ ଜାଗା କିଣିବାକୁ ନୁହେଁ, ଆମେ ମିଶି ଏକ କମ୍ପାନୀ କରିବା ପାଇଁ ଜାଗା କିଣାବିକା ଚାଲିଥିବା ଘଟଣାରେ ସେ ୨୫ ଲକ୍ଷ ଟଙ୍କା ଲେଖିଦେଇ ଫେରାଇବାକୁ ବାଧ କରୁଥିଲେ। ସେ ଟଙ୍କା ଫେରାଇଦେବେ ବୋଲି ମଧ୍ୟ ସ୍ୱୀକାର କରିଛନ୍ତି। ଏପରିକି କୃଷ୍ଣ ପାତ୍ରଙ୍କ ପକ୍ଷରୁ କୋର୍ଟରେ ଏକ ଚେକ ବାଉନ୍ସ ମାମଲା ରୁଜୁ ମୁତାବକ ନିରଞ୍ଜନ ଜାମିନରେ ଥିବା ପ୍ରକାଶ କରିଛନ୍ତି।

ମନ୍ତ୍ରୀ କୃଷ୍ଣଚନ୍ଦ୍ର ପାତ୍ର

ଅଭିଯୁକ୍ତ ନିରଞ୍ଜନ ଶତପଥୀ

ଏହିପରି ଭାବେ ମନ୍ତ୍ରୀ କୃଷ୍ଣ ପାତ୍ର ୮୨ ଏକର ଜାଗା କିଣିବାକୁ ଡିଲ୍ କରିଥିବା କୁହାଯାଉଛି। ଆଉ ଜାଗା କିଣାକୁ ନେଇ ୨୫ ଲକ୍ଷ ଟଙ୍କା ଠକେଇର ଶିକାର ହୋଇଥିବା ଥାନାରେ ମଧ୍ୟ ଅଭିଯୋଗରୁ ସ୍ପଷ୍ଟ ହୋଇଛି। ଗଣମାଧ୍ୟମକୁ ମନ୍ତ୍ରୀ ଦେଇଥିବା ମନ୍ତବ୍ୟ ଭିନ୍ନ ରହୁଥିବା ଏବଂ ସେ କାହିଁକି ୪ ବର୍ଷ ଧରି

ନିର୍ବାଚନ ସତ୍ୟପାଠରେ ଟଙ୍କା ବିଷୟ ଉଲ୍ଲେଖ ନଥିଲା

ଚାରିବର୍ଷ ଧରି କାହିଁକି ଚୁପ୍ ଥିଲେ କୃଷ୍ଣ ?

ଦେଉ ନ ଥିବା ଦର୍ଶାଇଛନ୍ତି। ଏପରିକି ଚେକ ବାଉନ୍ସ କରିବାରୁ ଅଭିଯୋଗ କରିଛି ବୋଲି ଗଣମାଧ୍ୟମ ପ୍ରତିନିଧିଙ୍କ ଆଗରେ କହିଛନ୍ତି।

ଏସବୁ ଭିତରେ କିନ୍ତୁ ଅଭିଯୁକ୍ତ ନିରଞ୍ଜନ ଶତପଥୀ କହିଛନ୍ତି ଢେଙ୍କାନାଳ ସଦର ତହସିଲ କତକମଡା ଖମାର ମୌଜାରେ ୮୨ଏକର ଜାଗାକୁ କିଣିବାକୁ କୃଷ୍ଣଚନ୍ଦ୍ର ପାତ୍ର ୨୦୨୧ରେ ଡିଲ କରିଥିଲେ। ତାଙ୍କ ମାଧ୍ୟମରେ ଅଗ୍ରିମ ଭାବେ ଜମି ମାଲିକଙ୍କୁ ୧୦ ଲକ୍ଷ ଟଙ୍କା ଦେଇଥିଲେ। ଉକ୍ତ ଜାଗାର ଉନ୍ନତିକରଣ ସଫା ଆଦି ଖର୍ଚ୍ଚ ପାଇଁ ପ୍ରଥମେ ୫ଲକ୍ଷ ଓ ପରେ ୨ ଲକ୍ଷ ଏହିପରି ମୋଟ ୭ ଲକ୍ଷ ଟଙ୍କା ତାଙ୍କୁ ପ୍ରଦାନ କରିଥିଲେ। ସମସ୍ତ ୧୭ ଲକ୍ଷ ଟଙ୍କା ନଗଦ ଆକାରରେ କୃଷ୍ଣ ପାତ୍ର ଦେଇଥିଲେ। ଏ ବାବଦରେ ମଧ୍ୟ ଏକ ଲିଖିତ ଚୁକ୍ତିନାମା ରହିଛି। ଜାଗାଟି ଜବରଦଖଲ ଯୋଗୁଁ ଆଉ ରେଜିଷ୍ଟ୍ରେସନ ହୋଇପାରି ନଥିଲା। ଜାଗର ଉନ୍ନତିକରଣରେ ମୋତେ ଦେଇଥିବା ଟଙ୍କା ଖର୍ଚ୍ଚ ହୋଇଯାଇଥିଲା। ଫଳରେ ସେ ଦେଇଥିବା ୧୭ ଲକ୍ଷ ଟଙ୍କା ଫେରାଇବାକୁ କହିବାରୁ ମୋ ଠାରୁ ଦୁଇଟି ବ୍ଲାଙ୍କ ଚେକ ନେଇଥିଲେ। ସେଥିରେ ସେ ୨୫ ଲକ୍ଷ ଟଙ୍କା ଲେଖିଦେଇ ଫେରାଇବାକୁ ବାଧ କରୁଥିଲେ। ସେ ଟଙ୍କା ଫେରାଇଦେବେ ବୋଲି ମଧ୍ୟ ସ୍ୱୀକାର କରିଛନ୍ତି। ଏପରିକି କୃଷ୍ଣ ପାତ୍ରଙ୍କ ପକ୍ଷରୁ କୋର୍ଟରେ ଏକ ଚେକ ବାଉନ୍ସ ମାମଲା ରୁଜୁ ମୁତାବକ ନିରଞ୍ଜନ ଜାମିନରେ ଥିବା ପ୍ରକାଶ କରିଛନ୍ତି।

ଏହିପରି ଭାବେ ମନ୍ତ୍ରୀ କୃଷ୍ଣ ପାତ୍ର ୮୨ ଏକର ଜାଗା କିଣିବାକୁ ଡିଲ୍ କରିଥିବା କୁହାଯାଉଛି। ଆଉ ଜାଗା କିଣାକୁ ନେଇ ୨୫ ଲକ୍ଷ ଟଙ୍କା ଠକେଇର ଶିକାର ହୋଇଥିବା ଥାନାରେ ମଧ୍ୟ ଅଭିଯୋଗରୁ ସ୍ପଷ୍ଟ ହୋଇଛି। ଗଣମାଧ୍ୟମକୁ ମନ୍ତ୍ରୀ ଦେଇଥିବା ମନ୍ତବ୍ୟ ଭିନ୍ନ ରହୁଥିବା ଏବଂ ସେ କାହିଁକି ୪ ବର୍ଷ ଧରି ନିରବ ଥିଲେ ତାହା ସାଧାରଣରେ ସନ୍ଦେହ ସୃଷ୍ଟି କରିଛି। ୨୦୨୪ ନିର୍ବାଚନରେ ପ୍ରାର୍ଥିପତ୍ର ଦାଖଲ ସମୟରେ ଏହି ତଥ୍ୟ ଦେଇ ନଥିଲେ କାହିଁକି ବୋଲି ଆଲୋଚନା ଜୋର ଧରିଛି। ଗତ ୩ଦିନ ତଳେ ଏତଲା ଦାଖଲ ହେଇଥିଲେ ହେଁ ୮ ମାସ ଧରି ଅଭିଯୁକ୍ତ ନିରଞ୍ଜନଙ୍କୁ କାହିଁକି ବାରମ୍ବାର ଥାନାକୁ ଡାକି ହଇରାଣ କରାଯାଉଥିଲା ? କ୍ଷମତା ବଳରେ ନିରଞ୍ଜନଙ୍କୁ ବିଳମ୍ବରେ ଅଭିଯୁକ୍ତ ଦର୍ଶାଇ ଅର୍ଥ ଆଦାୟ ପାଇଁ ଚାପ ସୃଷ୍ଟି କରାଯାଉ ନାହିଁ କି ବୋଲି ସାଧାରଣରେ ପ୍ରଶ୍ନ ଉଙ୍କି ମାରୁଛି। ପ୍ରକୃତରେ ଏହି ଘଟଣା ପଛରେ ସତ୍ୟ ଯାହା ଥାଉନା କାହିଁକି ଯୋଗାଣମନ୍ତ୍ରୀ କେତେବେଳେ ନିଜ ନାମରେ ତ ଆଉ କେତେବେଳେ ସମ୍ପର୍କୀୟଙ୍କ ନାମରେ ଏକର ଏକର ଜାଗା କିଣି ଚର୍ଚ୍ଚାର କେନ୍ଦ୍ରବିନ୍ଦୁ ପାଲଟିଛନ୍ତି। ଏହି ଘଟଣାରେ ନିଜେ କରିଥିବା ଅଭିଯୋଗରେ ନିଜେ ଛନ୍ଦି ହୋଇଯାଇଛନ୍ତି ରାଜ୍ୟ ଯୋଗାଣମନ୍ତ୍ରୀ।

ଶ୍ରୀମନ୍ଦିର ଭିତର ଫଟୋ ପ୍ରଘଟ କରି ବିବାଦରେ ଏଏସ୍‌ଆଇ

ପୁରୀ, ୨୯।୭ (କାର୍ଯ୍ୟାଳୟ): ଶ୍ରୀମନ୍ଦିର ଭିତର ବେଢ଼ା ଫଟୋ ପୁଣି ସାମାଜିକ ଗଣମାଧ୍ୟମରେ ପ୍ରଘଟ ହୋଇଛି। ଭାରତୀୟ ପ୍ରତ୍ନତତ୍ତ୍ୱ ସର୍ବେକ୍ଷଣ ସଂସ୍ଥା (ଏଏସ୍‌ଆଇ) ଶ୍ରୀମନ୍ଦିର ଭିତର ବେଢ଼ା ଫଟୋ ସୋମବାର ନିଜ ଏକ୍ସ ଆକାଉଣ୍ଟରେ ଅପ୍‌ଲୋଡ଼ କରି ବିବାଦୀୟ ହୋଇଛି। ସେଥିରେ ଭୋଗମଣ୍ଡପ ଦ୍ୱାର, ସାତପାହାଚ ଏବଂ ଘଣ୍ଟି ଦ୍ୱାର ଇତ୍ୟାଦିର ଫଟୋ ସ୍ପଷ୍ଟ ଜଣାପଡ଼ିଛି। ଏଏସ୍‌ଆଇର ରତ୍ନ ଭଣ୍ଡାର ମରାମତି କାର୍ଯ୍ୟ ଶେଷ ହୋଇଥିବାବେଳେ କ'ଣ କ'ଣ କାର୍ଯ୍ୟ କେବେଠାରୁ ଆରମ୍ଭ ହୋଇଛି ସେନେଇ ଏଏସ୍‌ଆଇ ନିଜ ଏକ୍ସ ଆକାଉଣ୍ଟରେ ସୂଚନା ଦେଇଥିଲା। ତେବେ ଏଏସ୍‌ଆଇ ଶ୍ରୀମନ୍ଦିର ଭିତର ବେଢ଼ା ଫଟୋ କିଭଳି ସାମାଜିକ ଗଣମାଧ୍ୟମରେ ଅପ୍‌ଲୋଡ଼ କଲା ସେନେଇ ପ୍ରଶ୍ନବାଚୀ ସୃଷ୍ଟି ହୋଇଛି। ଏନେଇ ଶ୍ରୀମନ୍ଦିର ମୁଖ୍ୟ ପ୍ରଶାସକ ମଙ୍ଗଳବାର ଏଏସ୍‌ଆଇକୁ ଚିଠି ଲେଖିଛନ୍ତି।

ଶ୍ରୀମନ୍ଦିରକୁ ଶ୍ରଦ୍ଧାଳୁ ମୋବାଇଲ ଫୋନ୍ ନେବା ସହ ଫଟୋ ଉଠାଇବା ସମ୍ପୂର୍ଣ୍ଣ ବାରଣ କରାଯାଇଛି। ନିୟମ ଉଲ୍ଲଙ୍ଘନ କରୁଥିବା ବ୍ୟକ୍ତିଙ୍କୁ ଆର୍ଥିକ ଜରିମାନା ସହ ମୋବାଇଲ୍ ଫୋନ୍ ଜବତ କରାଯିବା ନିୟମ ରହିଛି। ତେବେ ଖୋଦ୍ ଏଏସ୍‌ଆଇ ଏହି ନିୟମ ନମାନିବାକୁ ନେଇ ଜଗନ୍ନାଥପ୍ରେମୀ ଅସନ୍ତୋଷ ବ୍ୟକ୍ତ କରିଛନ୍ତି। ଜଗନ୍ନାଥପ୍ରେମୀ ଏ ନେଇ କମେଣ୍ଟ ବକ୍ସରେ ମତାମତ ଦେଇ ଏଏସ୍‌ଆଇର ଶ୍ରୀମନ୍ଦିର ନିୟମ ଉଲ୍ଲଙ୍ଘନକୁ ନିନ୍ଦା କରିଛନ୍ତି। ଏହି ଘଟଣା ଜଣାପଡ଼ିବା ପରେ ଏଏସ୍‌ଆଇ ସୋମବାର ରାତି ପ୍ରାୟ ୧୧ଟାରେ ଫଟୋଗୁଡ଼ିକୁ ନିଜ ଏକ୍ସ ଆକାଉଣ୍ଟରୁ ଡିଲିଟ୍ କରି ଦେଇଥିବା ସୂଚନା ମିଳିଛି।

ଏଏସ୍‌ଆଇ ଅଧିକାରୀ ଡ. ଡି.ବି ଗଡ଼ନାୟକ କହିଛନ୍ତି, ଏହି ଫଟୋଗୁଡ଼ିକ ସମ୍ପର୍କିତ ଚିତ୍ର ପ୍ରକାଶନ ସମୟରେ ଅଧିକ ସତର୍କ ହେବାକୁ ମୁଖ୍ୟ ପ୍ରଶାସକ ଏଏସ୍‌ଆଇକୁ ପରାମର୍ଶ ଦେଇଛନ୍ତି।

ସୋମବାର ଶ୍ରୀମନ୍ଦିର ଭିତର ବେଢ଼ାର ଚିତ୍ର ଏଏସ୍‌ଆଇ ପକ୍ଷରୁ ସାମାଜିକ ଗଣମାଧ୍ୟମରେ ଅପ୍‌ଲୋଡ କରାଯାଇଥିବା ନଜରକୁ ଆସିଥିଲା। ସଙ୍ଗେ ସଙ୍ଗେ ଶ୍ରୀମନ୍ଦିର ମୁଖ୍ୟ ପ୍ରଶାସକ ଏନେଇ ଏଏସ୍‌ଆଇ ମହାନିର୍ଦେଶକଙ୍କ

କାର୍ଯ୍ୟାନୁଷ୍ଠାନ ନିର୍ଦେଶ ଦିଆଯାଇଛି: ଆଇନ ମନ୍ତ୍ରୀ

ଏଏସ୍‌ଆଇକୁ ଚିଠି ଲେଖିଲେ ଶ୍ରୀମନ୍ଦିର ମୁଖ୍ୟ ପ୍ରଶାସକ

ଶ୍ରୀମନ୍ଦିର ମରାମତି ପୂର୍ବର ଫଟୋ। ମରାମତି ପରର କୌଣସି ଫଟୋ ଛଡ଼ାଯାଇ ନାହିଁ। ପର ମୁହୂର୍ତ୍ତରେ ଏହାକୁ ଏକ୍ସ ଆକାଉଣ୍ଟରୁ ଡିଲିଟ୍ କରାଯାଇଛି। ଆଇନ ମନ୍ତ୍ରୀ ପୃଥ୍ୱୀରାଜ ହରିଚନ୍ଦନ କହିଛନ୍ତି, ଏହି ଘଟଣା ଜଣାପଡ଼ିବା ପରେ ଶ୍ରୀମନ୍ଦିର ମୁଖ୍ୟ ପ୍ରଶାସକଙ୍କୁ କାର୍ଯ୍ୟାନୁଷ୍ଠାନ ପାଇଁ ନିର୍ଦେଶ ଦିଆଯାଇଛି। ସେମାନେ ପ୍ରଘଟ କରିଥିବା ସଂସ୍ଥା ବିରୋଧରେ ପଦକ୍ଷେପ ନେଇ ପାରିବେ ବୋଲି ସେ ସୂଚନା ଦେଇଛନ୍ତି। ଅନ୍ୟପକ୍ଷରେ ଶ୍ରୀମନ୍ଦିର ଭିତର ଚକଡ଼ା ଚିତ୍ର ସାମାଜିକ ଗଣମାଧ୍ୟମରେ ପ୍ରଘଟ ଘଟଣାରେ ଶୃଙ୍ଖଳାଗତ କାର୍ଯ୍ୟାନୁଷ୍ଠାନ ପାଇଁ ଏଏସ୍‌ଆଇ କର୍ତ୍ତୃପକ୍ଷଙ୍କୁ ପତ୍ର ଲେଖିଛନ୍ତି ଶ୍ରୀମନ୍ଦିର ମୁଖ୍ୟ ପ୍ରଶାସକ। ଶ୍ରୀମନ୍ଦିର ଦୃଷ୍ଟିକୁ ଆଣିଥିଲେ ଏବଂ ଏଏସ୍‌ଆଇ ପକ୍ଷରୁ ସମ୍ପୃକ୍ତ ଚିତ୍ର ଡିଲିଟ୍ କରାଯାଇଥିଲା। ଏହା ଭିତରେ କିନ୍ତୁ ଚିତ୍ରଗୁଡ଼ିକ ସୋୟାର୍ ହେବା ସହ ଶ୍ରୀଜଗନ୍ନାଥପ୍ରେମୀଙ୍କ ମଧ୍ୟରେ ପ୍ରତିକ୍ରିୟା ପ୍ରକାଶ ପାଇଥିବା ନିଜ ଚିଠିରେ ଶ୍ରୀମନ୍ଦିର ମୁଖ୍ୟ ପ୍ରଶାସକ ଜଣାଇଛନ୍ତି। ଏଏସ୍‌ଆଇ ମହାନିର୍ଦେଶକଙ୍କୁ ଲେଖିଥିବା ପତ୍ରରେ ମୁଖ୍ୟ ପ୍ରଶାସକ ଦର୍ଶାଇଛନ୍ତି, ଶ୍ରୀମନ୍ଦିର ରତ୍ନଭଣ୍ଡାର ମରାମତି କ୍ଷେତ୍ରରେ ଏଏସ୍‌ଆଇ ଉଲ୍ଲେଖନୀୟ କାର୍ଯ୍ୟ କରିଛି। ଏନେଇ ସୂଚନା ଦେବାକୁ ଯାଇ ଶ୍ରୀମନ୍ଦିର ଭିତର ବେଢ଼ା ସହ ଶ୍ରୀମନ୍ଦିର ଚିତ୍ର ସାମାଜିକ ଗଣମାଧ୍ୟମରେ ପ୍ରକାଶ କରିବା ଭକ୍ତଙ୍କ ଧର୍ମୀୟ ଭାବନାକୁ ପ୍ରଭାବିତ କରିଛି। ତେଣୁ ଏ ବିଷୟରେ ଯଥେଷ୍ଟ ସତର୍କ ହେବା ସହ ଆବଶ୍ୟକ ପଦକ୍ଷେପ ନେବା ଜରୁରୀ।

ନାବାଳିକାର ସନ୍ତାନ ପ୍ରସବ ଘଟଣା

ଅଭିଯୁକ୍ତ ଅଦାଲତ ଚାଲାଣ

କୁଜଙ୍ଗ, ୨୯।୭(ନି.ପ୍ର): କୁଜଙ୍ଗ ଥାନା ଅଞ୍ଚଳର ଜନୈକା ନାବାଳିକା ଗର୍ଭବତୀ ଘଟଣାରେ ଅଟକ ଥିବା ଅଭିଯୁକ୍ତକୁ କୁଜଙ୍ଗ ପୁଲିସ ମଙ୍ଗଳବାର ଗିରଫ କରିବା ସହ ଜଗତସିଂହପୁର ପକ୍ସୋ ଅଦାଲତ ଚାଲାଣ କରିଛି। ଅଭିଯୁକ୍ତ କୁଜଙ୍ଗ ଦୁଆଡ଼ିଆ ବାଲିସାହି ଗ୍ରାମର ପିଣ୍ଟୁ ବେହେରା। ସୂଚନାଥାଉକି, କୁଜଙ୍ଗ ଥାନା ଅଞ୍ଚଳର ଜଣେ ଦଶମ ଶ୍ରେଣୀ ଛାତ୍ରୀ ରବିବାର ଅସୁସ୍ଥ ହେବାରୁ ପରିବାର ଲୋକେ ତାଙ୍କୁ କୁଜଙ୍ଗ ଗୋଷ୍ଠୀ ସ୍ୱାସ୍ଥ୍ୟକେନ୍ଦ୍ର ନେଇଥିଲେ। ପରୀକ୍ଷା ପରେ ଛାତ୍ରୀ ଜଣକ ଗର୍ଭବତୀ ଥିବା ଜଣାପଡ଼ିବା ପରେ ଡାକ୍ତର ତାକୁ ଜଗତସିଂହପୁର ଜିଲା ମୁଖ୍ୟ ଚିକିତ୍ସାଳୟକୁ ପଠାଇଥିଲେ। ରବିବାର ରାତିରେ ଜିଲା ମୁଖ୍ୟ ଚିକିତ୍ସାଳୟରେ ଛାତ୍ରୀ ପହଞ୍ଚିବା ପରେ ମେଡିକାଲ କର୍ତ୍ତୃପକ୍ଷ ଏ ସଂକ୍ରାନ୍ତରେ ଥାନାକୁ ସୂଚନା ଦେଇଥିଲେ। ପରେ ନାବାଳିକା ଜଣକ ମେଡ଼ିକାଲରେ ମୃତ ଶିଶୁ ପୁତ୍ର ଜନ୍ମ ଦେଇଥିଲେ। ଏହି ଛାତ୍ରୀଙ୍କ ସହ ପ୍ରାୟ ଦେଢ଼ ବର୍ଷତଳେ ଜଣେ ନାବାଳକ ଅନୈତିକ ସମ୍ପର୍କ ରଖିବା ଅଭିଯୋଗରେ ଜୁଭେନାଇଲ ଆଇନ ଅନୁସାରେ ମାମଲା ହୋଇଥିଲା। ରବିବାର ରାତିରେ ପୂର୍ବ ଅଭିଯୁକ୍ତ ପଞ୍ଚପଲ୍ଲୀ ଗ୍ରାମେଶ୍ୱରଙ୍କ ପାଠକୁ ପାଣିନେଇ ଯାଉଥିବାବେଳେ ବାଟରୁ ତାକୁ ପୁଲିସ ଉଠାଇ ଆଣିଥିଲା। ପଚରାଉଚରା ପରେ ତାକୁ ଛାଡ଼ି ଦେଇଥିଲା। ପରେ ପୁଲିସ ସନ୍ଦେହରେ କୁଜଙ୍ଗ ଦୁଆଡ଼ିଆ ବାଲିସାହି ଗ୍ରାମର ପିଣ୍ଟୁକୁ ଥାନାକୁ ଆଣି ପଚରାଉଚରା କରିଥିଲା। ଆଜି ପିଣ୍ଟୁକୁ ଗିରଫ କରାଯାଇଥିବା ପୁଲିସ ସୂତ୍ରରୁ ପ୍ରକାଶ।

୧୧ ଶିକ୍ଷା ଅଧିକାରୀଙ୍କ ଦରମା ବନ୍ଦ

ବଲାଙ୍ଗିର, ୨୯।୭ (ନି.ପ୍ର) : ବଲାଙ୍ଗିର ଜିଲାର ୧୧ ଗୋଷ୍ଠୀ ଶିକ୍ଷା ଅଧିକାରୀଙ୍କ ଜୁଲାଇ ମାସର ଦରମା ବନ୍ଦ କରିବାକୁ ଜିଲା ଶିକ୍ଷା ଅଧିକାରୀ ନିର୍ଦେଶ ଦେଇଛନ୍ତି। ଜିଲାରେ 'ଏକ୍ ପେଡ୍ ମା' କେ ନାମ୍' କାର୍ଯ୍ୟକ୍ରମ ତ୍ୱରାନ୍ୱିତ ହେଉନାହିଁ। ବାରମ୍ବାର ନିର୍ଦେଶ ସତ୍ତ୍ୱେ ଗୋଷ୍ଠୀ ଶିକ୍ଷା ଅଧିକାରୀମାନେ କାର୍ଯ୍ୟକ୍ରମ ତଦାରଖ କରୁ ନଥିବାରୁ ଜିଲା ଶିକ୍ଷା ବିଭାଗ ପକ୍ଷରୁ ଆଗଲପୁର ବିଇଓ(ଲୋଇଂହା ଅତିରିକ୍ତ ଦାୟିତ୍ୱ) ଶ୍ୟାମ ମେହେର, ସଇଁନ୍ତଲା ବିଇଓ(ବଲାଙ୍ଗିର ଅତିରିକ୍ତ ଦାୟିତ୍ୱ) ଦିଲୀପ ଯୋଶୀ, ଟିଟିଲାଗଡ଼ ବିଇଓ ଆର୍ଦ୍ରାଣ ରଥ, ଦେଓଗାଁ ବିଇଓ ମମତା ମାହାଡ଼ିକ, ଗୁଡ଼ଭେଲା ବିଇଓ ନମିତାରାଣୀ ଭୋଇ, ବଙ୍ଗୋମୁଣ୍ଡା ବିଇଓ ବୈକୁଣ୍ଠ ଶବର, ମୁରିବାହାଲ ବିଇଓ ଶାନ୍ତନୁ ପଢ଼ିହାରୀ, ତୁରେକେଲା ବିଇଓ ଗୌତମ ପଟେଲ, ବେଲପଡ଼ା ବିଇଓ (ଖପ୍ରାଖୋଲ ଅତିରିକ୍ତ ଦାୟିତ୍ୱ) ଅଭିନବ ମିଶ୍ର, ପାଟଣାଗଡ଼ ବିଇଓ ଶଙ୍କର ପ୍ରସାଦ ମାଝୀ ଓ ପୁଇଁତଲା ବିଇଓ ରତ୍ନମୟ ପୁରୋହିତଙ୍କ ଦରମା ବନ୍ଦ ପାଇଁ ଜିଲା ଶିକ୍ଷା ଅଧିକାରୀ ପ୍ରଦୀପ ନାଗ ନିର୍ଦେଶ ଦେଇଛନ୍ତି। ଏହି ଅଧିକାରୀଙ୍କ ଜୁଲାଇ ମାସର ଦରମା ବନ୍ଦ କରାଯାଇଥିବା ବେଳେ ପରବର୍ତ୍ତି ନିର୍ଦେଶ କିମ୍ବା କାର୍ଯ୍ୟକ୍ରମରେ ଶତ ପ୍ରତିଶତ ସଫଳତା ହାସଲ ପରେ ଦରମା ପ୍ରଦାନ କରାଯିବାକୁ ନିର୍ଦେଶରେ ଉଲ୍ଲେଖ ରହିଛି। ଏ ନେଇ ଜିଲା ଶିକ୍ଷା ଅଧିକାରୀ ସମ୍ପୃକ୍ତ ଗୋଷ୍ଠୀ ଶିକ୍ଷା ଅଧିକାରୀ ଦରମା ପାଉଥିବା ଜିଲା କୋଷାଗାର ଓ ଉପକୋଷାଗାର ଅଧିକାରୀଙ୍କୁ ପତ୍ର ମାଧ୍ୟମରେ ସୂଚନା ଦେଇଛନ୍ତି। କର୍ତ୍ତୃପକ୍ଷଙ୍କ ଅନୁମତି ନ ମିଳିବା ପର୍ଯ୍ୟନ୍ତ ସମ୍ପୃକ୍ତ ଗୋଷ୍ଠୀ ଶିକ୍ଷା ଅଧିକାରୀଙ୍କ ଦରମା ବିଲ୍‌କୁ ଗୁରୁତ୍ୱ ନଦେବାକୁ ଜିଲା ଶିକ୍ଷା ଅଧିକାରୀଙ୍କ କାର୍ଯ୍ୟାଳୟ ପକ୍ଷରୁ ସୂଚନା ଦିଆଯାଇଛି।

ଏନ୍‌ଏଚ୍‌ଏମ୍ ଅତିରିକ୍ତ ନିର୍ଦେଶକ 'ଇଆରଏସ୍‌ଏସ୍' ପାଇଁ ନୋଡାଲ ଅଧିକାରୀ

ଭୁବନେଶ୍ୱର, ୨୯।୭ (ନି.ପ୍ର): ଜରୁରିକାଳୀନ ପ୍ରଶମନ ସହାୟତା ବ୍ୟବସ୍ଥା (ଇଆରଏସ୍‌ଏସ୍) ଅନ୍ତର୍ଗତ ଡାଏଲ-୧୨୨ ପାଇଁ ସ୍ୱାସ୍ଥ୍ୟ ବିଭାଗର ନୋଡାଲ ଅଧିକାରୀ ଭାବେ ଜାତୀୟ ସ୍ୱାସ୍ଥ୍ୟ ମିଶନ(ଏନ୍‌ଏଚ୍‌ଏମ୍) ଅତିରିକ୍ତ ନିର୍ଦେଶକଙ୍କୁ ଦାୟିତ୍ୱ ଦିଆଯାଇଛି। ଏନେଇ ବିଭାଗ ପକ୍ଷରୁ ବିଜ୍ଞପ୍ତି ପ୍ରକାଶ ପାଇଛି। ୧୨୨ ବ୍ୟବସ୍ଥା ବିଷୟରେ ଏନ୍‌ଏଚ୍‌ଏମ୍ ଅତିରିକ୍ତ ନିର୍ଦେଶକ ସଂଯୋଜନା କରିବେ।

ରାଇରଙ୍ଗପୁରରେ ଉଚ୍ଛେଦ ଘଟଣା

୨୬ ପରିବାରକୁ ୨୦ ହଜାର ଟଙ୍କା ଲେଖାଏଁ ଦେବାକୁ ନିର୍ଦେଶ

ଭୁବନେଶ୍ୱର, ୨୯।୭ (ଆ.ପ୍ର): ମୟୂରଭଞ୍ଜ ଜିଲା ରାଇରଙ୍ଗପୁର ବ୍ଲକ ପୁରୁଣାପାଣି ପଞ୍ଚାୟତର ପୋଖରିଆ ଏବଂ ମୁର୍ଗାଘୁଟୁ ଗ୍ରାମର ୪୩ ଆଦିବାସୀଙ୍କ ଘରକୁ ସ୍ଥାନୀୟ ପ୍ରଶାସନ ପକ୍ଷରୁ ଉଚ୍ଛେଦ କ ର । ଯ । ଇ ଥି ଲ । । ବୁଲ୍‌ଡୋଜର ଲଗାଇ ସେମାନଙ୍କ ଘର ଭାଙ୍ଗି ଦିଆଯାଇଥିବା ଘଟଣା ବିରୋଧରେ ହୋଇଥିବା ଆବେଦନର ବିଚାର କରି ଓଡ଼ିଶା ମାନବିକ ଅଧିକାର ଆୟୋଗ ଅଧ୍ୟକ୍ଷ ଜଷ୍ଟିସ୍ ଶତ୍ରୁଘ୍ନ ପୂଜାହାରୀ ମଙ୍ଗଳବାର ମଧ୍ୟବର୍ତ୍ତୀକାଳୀନ ରାୟ ଦେଇଛନ୍ତି। ଇନ୍ଦିରା ଆବାସ ନଥିବା ୨୬ ପରିବାରକୁ ଅସ୍ଥାୟୀ ଆବାସ ନିର୍ମାଣ ପାଇଁ ଗତ ଏପ୍ରିଲଠାରୁ ଆଗାମୀ ସେପ୍ଟେମ୍ବର ମାସ ପର୍ଯ୍ୟନ୍ତ ଏକକାଳୀନ ୨୦ ହଜାର

ANNEXURE-XIV

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

Ref: CGM/B-967

Date: 24/07/2024

To

The Regional Officer,
Orissa State Pollution Control Board,
Keonjhar, Odisha.

Sub: Consultation regarding locations for taking up environmental monitoring in respect of Bolani 5.10 Sq Mile ML & Bolani 6.90 Sq Mile ML of Bolani Ores Mines, RSP-SAIL.

Ref.:
1. EC grant order No.J-11015/418/2008-IA. II(M),Dt. 21/12/2012 read with Amendment Orders dated.17/02/2014,30/07/2020, 05/08/2021,19/09/2022,13/09/2023 for 5.1 Sq. mile ML
2. EC grant order No.J-11015/396/2008-IA. II(M), Dt. 21/12/2012 for 6.9 Sq. mile ML
3. CTE 5.10 grant order Letters No. 23405/IND-II-NOC-5373, Dt.21.12.2013
4. CTE 6.90 grant order Letters No. 23403/IND-II-NOC-5374, Dt.21.12.2013
5. CTO 5.10 grant order Letter No. 3963/IND-I-CON-242, Dt. 20.03.2024
6. CTO-6.90 grant order Letter No. 4059/IND-I-CON-6442, Dt. 21.03.2024
7. CTO-Railway siding grant order Letter No. 3961/IND-I-CON-6570, Dt. 20.03.2024
8. Letter from OSPCB stipulating to Implement Recommendations of NEERI vide no 14257/Ind.I-Con-(Misc) 1533, Dt.01-12-2018

Sir,

In inviting kind reference to the captioned subject it is to submit that, Bolani Ores Mines is having two (2) nos of adjoining Mining Leases viz. 5.10 sq. miles ML (1321.45 Ha) & 6.90 sq. miles ML (1586.36 Ha) at Bolani under Barbil Tahasil of Keonjhar District. As both the 5.10 sq. miles ML and 6.90 sq. miles ML of Bolani Ores Mines, RSP-SAIL are contiguous to each other, the Core Zone of 5.10 sq. miles ML is Buffer Zone of 6.90 sq. miles ML and vice versa. In order to comply different conditions stipulated vide EC/FC/CTE/CTO/NEERI Recommendations, monitoring of different environmental parameters are being taken up through NABL accredited agencies. As stipulated vide the said statutory grant orders the locations for carrying out monitoring of the stipulated parameters are to be finalized in consultation with Regional Officer, Orissa State Pollution Control Board . In compliance to the above, the details regarding monitoring locations, parameter wise as well as frequency wise, along with a map , is attached herewith for favour of your kind information .

Regards,

Yours faithfully,

24/07/24

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

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

LOCATIONS IDENTIFIED FOR TAKING UP PERIODIC MONITORING OF DIFFERENT ENVIRONMENTAL PARAMETERS IN AND AROUND ML AREAS OF BOLANI ORES MINES, M/s SAIL

AMBIENT AIR QUALITY MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**
1	CISF Colony(CAAQMS)	PM10, PM2.5	DAILY(24 X 7)
2	Campus Office(CAAQMS)	PM10, PM2.5,SO2, NOx	DAILY(24 X 7)
3	JNRC(CAAQMS)	PM10, PM2.5	DAILY(24 X 7)
4	Near Karo Bridge(CAAQMS)	PM10, PM2.5	DAILY(24 X 7)
5	Bolani Village Community Centre (AAQMS)	PM10, PM2.5, SO2, NOx & CO	DAILY(08 Hrs)
6	DAV Public School(AAQMS)	PM10, PM2.5, SO2, NOx & CO	DAILY(08 Hrs)
7	Main Gate(AAQMS)	PM10, PM2.5, SO2, NOx & CO	DAILY(08 Hrs)
8	Bolani Mines-Office Complex (AAQMS)	PM10, PM2.5, SO2, NOx & CO	DAILY(08 Hrs)
9	Limtur Village (AAQMS)	PM10, PM2.5	DAILY(08 Hrs)
10	Karo Guest House(AAQMS)	PM10, PM2.5	DAILY(08 Hrs)

FUGITIVE AIR QUALITY MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**
1	Panposh	SPM,RSPM	DAILY(08 Hrs)
2	D-Area	SPM,RSPM	DAILY(08 Hrs)
3	F-Area	SPM,RSPM	DAILY(08 Hrs)
4	G-Area	SPM,RSPM	DAILY(08 Hrs)
5	Lump Loading Point(Near 600 TPH)	SPM,RSPM	DAILY(08 Hrs)
6	Fines Loading Point (20 area)	SPM,RSPM	DAILY(08 Hrs)
7	Fines Handling Route	SPM,RSPM	DAILY(08 Hrs)
8	SSP	SPM,RSPM	DAILY(08 Hrs)
9	Fines handling site	SPM,RSPM	DAILY(08 Hrs)
10	Mn Quarry	SPM,RSPM	DAILY(08 Hrs)

WATER QUALITY MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**
1	Karo Near Lease Boundary(Surface Water)	pH TSS Oil & Grease Total Residual Chlorine Biochemical Oxygen Demand (5 days at 20°C) Chemical Oxygen Demand Arsenic (As) Mercury (Hg) Lead (Pb) Cadmium (Cd) Hexavalent Chromium (Cr+6) Copper (Cu)	MONTHLY
2	Jhikaria nallah before joining Karo(Surface Water)		MONTHLY
3	Panposh Nallah(Surface Water)		MONTHLY
4	Karo River Intake(Surface Water)		MONTHLY
5	Mount Club Tap Water(Drinking Water)		MONTHLY
6	Karo Guest House Tap Water(Drinking Water)		MONTHLY
7	Oil Catch Pit Water Bottom Garage(Effluent Water)		MONTHLY
8	Oil Catch Pit Water G-area(Effluent Water)		MONTHLY

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

LOCATIONS IDENTIFIED FOR TAKING UP PERIODIC MONITORING OF DIFFERENT ENVIRONMENTAL PARAMETERS IN AND AROUND ML AREAS OF BOLANI ORES MINES, M/s SAIL

9	Balagoda Village(Ground Water)	Zinc (Zn)	QUARTERLY
10	Bolani Village(Ground Water)	Nickel (Ni)	QUARTERLY
11	Bolani Basti Village(Ground Water)	Cyanide (Cn-) Fluoride (F-) Sulfide (S2-) Phenolic Compounds (C6H5OH) Manganese (Mn) Total Iron (Fe) Nitrate Nitrogen/ Fecal Coliform	QUARTERLY

WEATHER MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	
1	DAV Public School	Wind Speed Wind Direction Temperature Humidity Rainfall Solar Radiation Barometric Pressure Soil Temperature	DAILY

SOIL QUALITY MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**
1	Monitoring locations in and around lease area.	Nitrogen (N) Phosphorus (P) Potassium (K) Sulphur (S) Zinc (Zn) Boron (B) pH Electrical Conductivity (EC) Organic Carbon (OC)	YEARLY

GROUND WATER LEVEL MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**
1	Balagoda Village	Water Level	QUARTERLY
2	Bolani Gauda Basti		QUARTERLY
3	Bolani Basti		QUARTERLY

SURFACE FLOW RATE LEVEL MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**

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

LOCATIONS IDENTIFIED FOR TAKING UP PERIODIC MONITORING OF DIFFERENT ENVIRONMENTAL PARAMETERS IN AND AROUND ML AREAS OF BOLANI ORES MINES, M/s SAIL

1	Karo River Limtur Village	Flow Rate	MONTHLY
2	Jhikaria nallah		MONTHLY
3	Panposh nallah		MONTHLY

CONTINUOUS ONLINE NOISE LEVEL MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**
1	CISF Colony	Noise in dB	DAILY
2	SAIL Main Gate		DAILY
3	DAV School		DAILY
4	G-Area		DAILY

ILLUMINATION SURVEY MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**
1	E-Area	Illumination	QUARTERLY
2	B&C -Area		QUARTERLY
3	G-Area		QUARTERLY
4	F-Area		QUARTERLY
5	Jhikaria nallah site		QUARTERLY
6	Limtur Village		QUARTERLY
7	Tatiba Village(Near Panposh & D-area)		QUARTERLY
8	Tailing Pond		QUARTERLY

BIO-ASSAY MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**
1	Karo River	Microbial Test	HALF-YEARLY
2	Jhinkaria Nallah		HALF-YEARLY

VEHICULAR EXHAUST MONITORING			
SL. NO.	**LOCATION**	**PARAMETERS MONITORED**	**FREQUENCY**
1	39 NOS HEMM including all LMVs	Vehicular exhaust	YEARLY

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

ANNEXURE-XV

PHOTOGRAPHS SHOWING STP WITHIN ML AREA

ANNEXURE-XVI

Cleenviron Private Limited

Consultant and Engineers in Environmental Pollution Control & Monitoring with Laboratory Facility.

TEST REPORT FOR ILLUMINATION LEVEL MONITORING

FORMAT NO: CPL/FM/62

REPORT NO: CPL/R/IL/AUG-24/1

REPORT ISSUE DATE: 29.08.2024

MONITORING DONE BY CLEENVIRON PRIVATE LIMITED

Name of the Customer : **M/s SAIL – RSP – BOLANI ORES MINES**
Address of the Customer : At/Po: Bolani – 758037, Dist: Keonjhar, Odisha
Instrument Used : LUX Meter (LUTRON: LX – 101A)

Station No	:	L1	L2	L3
Date of Monitoring	:	26.08.2024	26.08.2024	26.08.2024
Time of Monitoring	:	20:16 Hrs	19:50 Hrs	19:20 Hrs
Location of Monitoring	:	**E – AREA** (22°7'27.93"N - 85°19'51.78"E)	**B & C AREA** (22°6'22.11"N - 85°19'13.96"E)	**G – AREA** (22°6'8.75"N - 85°18'16.76"E)

Station No	:	L4	L5	L6
Date of Monitoring	:	26.08.2024	17.08.2024	06.08.2024
Time of Monitoring	:	19:05 Hrs	19:55 Hrs	19:50 Hrs
Location of Monitoring	:	**F – AREA** (22°5'47"N - 85°18'16"E)	**JHIKARIA NALLAH SITE** (22°6'22.11"N - 85°18'57.71"E)	**LIMTUR** (22°7'40.56"N - 85°21'43.12"E)

Station No	:	L7	L8
Date of Monitoring	:	06.08.2024	13.08.2024
Time of Monitoring	:	19:10 Hrs	19:20 Hrs
Location of Monitoring	:	**TATIBA(Near Panposh & D – Area)** (22°7'38.85"N - 85°20'22.79"E)	**TAILING POND** (22°6'16.94"N - 85°20'20.26"E)

SL NO	STATION NO	AVERAGE ILLUMINATION LEVEL IN LUX	MAXIMUM ILLUMINATION IN LUX	MINIMUM ILLUMINATION IN LUX
1.	L1	1.5	02	01
2.	L2	1.9	02	01
3.	L3	2.0	03	01
4.	L4	2.1	03	01
5.	L5	1.0	01	01
6.	L6	1.0	01	01
7.	L7	1.0	01	01
8.	L8	1.0	01	01

Test Done By

CLEENVIRON PRIVATE LIMITED ROURKELA

***** End of Test Report *****

Authorized Signatory
Subhanga Praharaj
Managing Director

This report refers to the values obtained at the time of testing and results related to the item tested. This report may not be reproduced in part or full without written permission of the Company.

Registered Office:
D/318, KOELNAGAR, ROURKELA – 769014, Dist: SUNDARGARH, ODISHA

Branch Office & Laboratory:
Plot No: 689/17, INDUSTRIAL EASTE, KALUNGA – 770031, Dist: SUNDARGARH, ODISHA
Tele: 0661 – 2475746, email: cleenviron@gmail.com

ANNEXURE-XVII

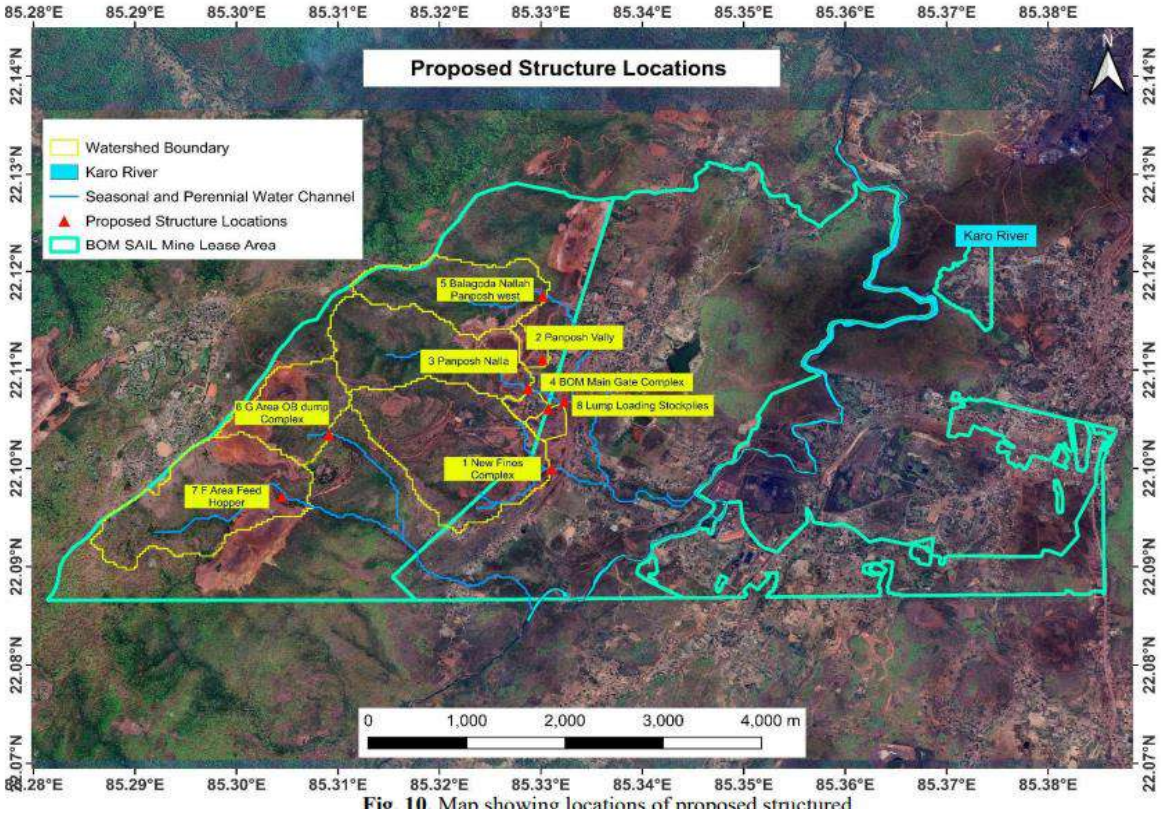


Fig. 10. Map showing locations of proposed structured

Sl.	Locations ID of Sub Watershed	RWMS Details	Status Videos attached
1.	Watershed no -4 : BOM main gate Complex for Lease area exit	**Runoff Water Management System -1** (RWMS-1) : Series mega settling Ponds (4 nos) with spillways : 20,000 cum	**Completed**
2	Watershed no -5 : Balagoda Nallah Panposh West Complex	**Runoff Water Management System -2** (RWMS-2) : Series mega settling Ponds (2nos) with spillways : 15,000 cum	**completed**
3	Watershed no -2 : Panposh Valley	**Runoff Water Management System -3** (RWMS-3) : Series mega settling Ponds (1 nos) with checkdam : 15,000 cum	**completed**
4	Watershed no -3 : Panposh Nallah	**Runoff Water Management System -4 &5** (RWMS-4 & 5) : Series mega settling Ponds (2 nos) with RCC spillways and checkdam : 20,000 cum	**completed**
5	Watershed no -1 : New Fines complex	**Runoff Water Management System - 6** (RWMS- 6) : Series mega settling Ponds (2 nos) with RCC spillways and checkdam : 20,000 cum	**completed**
6	Watershed no - 8 : Lump Loading stock Piles	**Runoff Water Management System – 7 & 8** (RWMS- 7 & 8, North and south) : 2 Series of PCC mega settling Pond system with RCC spillways and checkdam : 4,000 cum	**completed**
7	Watershed no - 6 : G area OB dump complex	**Runoff Water Management System – 9** (RWMS- 9) : Series of checkdam 3 nos	**completed**
8	**Watershed no - 7 : F area complex**	**Runoff Water Management System – 10 (RWMS- 10) : Series of check dam 3 nos**	**completed**