

ENVIRONMENTAL MONITORING REPORT

Winter Season, 2024-25
(December, 2024 to February, 2025)

PROJECT: HADDINAPADE IRON ORE MINE

ML No. 2516
**SANDUR TALUK,
BALLARI DIST.,**

Lessee

M/s. BKG MINING PVT. LTD.,
2198, BKG House, KHB Colony ,
Sandur Taluk, Ballari Dist

ENVIRONMENTAL LABORATORY
(Unit of Mineral Engineering Services)
(Accredited by NABL &, MOEF&CC Under E(P) 1986)
#948, 2nd Cross, Kammanahalli Main Road,
St Thomas Town Post, Bangalore- 560 084, Karnataka,

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**ENVIRONMENTAL MONITORING FOR HADDINAPADE IRON ORE
MINE (ML NO. 2516), KUMARASWAMY RANGE, SANDUR TALUK,
BALLARI DIST,OF M/s.. BKG MINING PVT. LTD ,
SANDUR, BALLARI DIST.**

**Winter Season, 2024-25
(December, 2024 to February, 2025)**

1.0 INTRODUCTION :

The subject mine is an ongoing mechanized mine. The iron ore produced from this mine is sold for internal consumption within India.

As per the guidelines issued by the Chief Controller of Mines, IBM, Nagpur and Ministry of Environment & Forests / Central Pollution Control Board, Govt. of India environmental monitoring is to be carried out for all the mines. Therefore, the work was entrusted to M/s. Mineral Engineering Services, Bangalore having a recognized environmental laboratory by MoEF&CC,, GOI, New Delhi to carry out environmental quality monitoring in respect of ambient & fugitive air quality surface & ground water test report, noise level data and soil test report for Winter season, 2024-25.

2.0 AIR ENVIRONMENT :

In order to assess the quality of air environment within the buffer zone of 10 kms radius nine monitoring stations were setup. Out of these four stations represent buffer zone villages and one station represent core zone i.e., ML area for Ambient Air Quality as per NAAQS. four stations represent the fugitive mining operations for Particulate Matter (PM). The air quality data is given vide **Table Nos. 1 to 18**. Statistical air quality data for SO₂, NO₂, PM₁₀ & PM_{2.5} are given vide **Table No..19**. From the analysis report it can be seen that the air quality levels at all stations are within the permissible limits.

The details of Distance & Direction are furnished below:

LOCATION OF AIR MONITORING STATIONS

Code No	Stations	From Mine	
		Distance (KM)	Direction
AI	Core zone MI Area	--	--
AII	Dharmapur	3.00	N
AIII	Yeshwanthanagar	3.50	SW
AIV	Subbarayanahalli	1.50	S
AV	Nandhihalli	1.70	E
AVI	Loading point	--	--
AVII	Dumping point	--	--
AVIII	Haulage Road	--	--
AIX	Screening Plant	--	--
AX	Crusher Plant	--	--

3.0 WATER ENVIRONMENT :

In order to assess the quality of water within the buffer zone of 10 kms radius, surface & ground water samples were collected and analyzed

The test report shows that the surface & ground water samples were well within the permissible limits. The test reports are given vide **Table No. 21 to 26**.

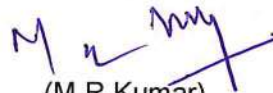
4.0 NOISE ENVIRONMENT :

Noise levels were monitored at four buffer zone villages and one core zone station located at Mines office. In addition Source noise levels were monitored covering mining operations and HEM machinery. The above monitored results were tabulated after calculating Day equivalent and Night equivalent and reported in the table enclosed vide **Table No. 20**. From the monitoring data it is found that the values were within the permissible limits as per the CPCB norms and ILO Code of Practice

5.0 SOIL ENVIRONMENT:

5 soil samples were collected to assess the quality of soil in different land uses. The tests were conducted to know mainly the fertility status of the soil within the buffer zone of 10 kms radius. The analysis results show that the soil is fertile in nature and suitable for agriculture purpose. The analysis results are given vide **Table No. 27**.

For MINERAL ENGINEERING SERVICES


(M R Kumar)
Manager

Date : 04.03.2025



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TEST REPORT

Table No.1

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,					
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A - I, Core Zone (ML Area)					
Duration : 24 Hrs					
Issue date : 02.01.2025					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
06.12.2024	N/24/12/3-0099	7	13	38	20
07.12.2024	N/24/12/3-0189	9	10	47	26
13.12.2024	N/24/12/4-0175	13	16	54	29
14.12.2024	N/24/12/4-0229	9	11	44	23
16.12.2024	N/24/12/5-0011	9	12	37	21
17.12.2024	N/24/12/5-0051	11	14	58	32
25.12.2024	N/24/12/6-0161	9	11	50	28
26.12.2024	N/24/12/6-0188	9	11	37	19
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

Arshiya Kousar
ARSHIYA KOUSAR

Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

948, 2nd Cross, St. Thomas Town Post, Kammanahalli, Bangalore - 560 084.

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TEST REPORT

Table No.2

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,					
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A - II, Dharmapura					
Duration : 24 Hrs					
Issue date : 02.01.2025					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
06.12.2024	N/24/12/3-0095	11	16	42	26
07.12.2024	N/24/12/3-0185	12	15	51	26
13.12.2024	N/24/12/4-0168	5	13	56	32
14.12.2024	N/24/12/4-0222	9	12	42	22
16.12.2024	N/24/12/5-0007	8	14	50	26
17.12.2024	N/24/12/5-0047	9	11	47	26
25.12.2024	N/24/12/6-0157	9	12	54	28
26.12.2024	N/24/12/6-0184	11	18	53	27
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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Table No.3

AMBIENT AIR QUALITY

Name of the Client	: M/s. BKG Mining Pvt. Ltd.,				
Name of the Project	: Haddinapade Iron Ore Mine (ML No. 2516)				
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)				
Station at & Code	: A - III, Yeshwanthanagar				
Duration	: 24 Hrs				
Issue date	: 02.01.2025				
Reference	IS 5182 & Lab SOP				
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
06.12.2024	N/24/12/3-0085	10	11	47	20
07.12.2024	N/24/12/3-0176	10	16	37	20
09.12.2024	N/24/12/4-0014	12	15	56	30
10.12.2024	N/24/12/4-0072	9	12	49	27
20.12.2024	N/24/12/5-0148	7	11	54	28
21.12.2024	N/24/12/5-0228	11	14	50	24
23.12.2024	N/24/12/6-0029	10	18	47	23
24.12.2024	N/24/12/6-0092	12	15	55	27
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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Table No.4

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,					
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A - IV, Subbarayanahalli					
Duration : 24 Hrs					
Issue date : 02.01.2025					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
06.12.2024	N/24/12/3-0081	7	9	45	26
07.12.2024	N/24/12/3-0172	7	11	39	20
09.12.2024	N/24/12/4-0010	8	14	50	27
10.12.2024	N/24/12/4-0068	10	12	47	25
20.12.2024	N/24/12/5-0144	9	12	37	19
21.12.2024	N/24/12/5-0224	9	17	42	23
23.12.2024	N/24/12/6-0025	11	12	50	27
24.12.2024	N/24/12/6-0088	11	11	40	22
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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Table No.5

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,					
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)					
Station at & Code : A - V, Nandhihalli					
Duration : 24 Hrs					
Issue date : 02.01.2025					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
04.12.2024	N/24/12/3-0033	9	16	44	23
05.12.2024	N/24/12/3-0058	14	16	30	19
11.12.2024	N/24/12/4-0125	8	12	51	27
12.12.2024	N/24/12/4-0149	9	11	54	30
18.12.2024	N/24/12/5-0082	11	13	35	18
19.12.2024	N/24/12/5-0095	9	11	40	22
27.12.2024	N/24/12/6-0202	12	18	36	18
28.12.2024	N/24/12/6-0239	7	15	33	18
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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Table No. 6

Fugitive Emission

Name of the Client : M/s. BKG Mining Pvt. Ltd.,		
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)		
Sample Collected by : Environmental Laboratory		
(Unit of Mineral Engineering Services)		
Station at & Code : A - VI, Loading point		
Duration : 08 Hrs		
Issue date : 02.01.2025		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
14.12.2024	N/24/12/4-0230	265
17.12.2024	N/24/12/5-0052	375

Station at & Code : A - VII, Dumping point		
Duration : 08 Hrs		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
13.12.2024	N/24/12/4-0177	455
16.12.2024	N/24/12/5-0013	420

Station at & Code : A - VIII, Haulage Road		
Duration : 08 Hrs		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
14.12.2024	N/24/12/4-0231	496
17.12.2024	N/24/12/5-0053	475

Station at & Code : A - IX, Screening plant		
Duration : 08 Hrs		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
13.12.2024	N/24/12/4-0176	465
16.12.2024	N/24/12/5-0012	387

Station at & Code : A - X, Crushing plant		
Duration : 08 Hrs		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
13.12.2024	N/24/12/4-0178	488
17.12.2024	N/24/12/5-0054	354

Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment) & Lab SOP

Particulate mater ($\mu\text{g}/\text{m}^3$)

Permissible limits for Fugitive Emissions

600 $\mu\text{g}/\text{m}^3$

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TEST REPORT

Table No. 7

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,					
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)					
Station at & Code : A - I, Core Zone (ML Area)					
Duration : 24 Hrs					
Issue date : 03.02.2025					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
10.01.2025	N/25/01/03-0159	10	14	48	26
11.01.2025	N/25/01/03-0238	10	11	55	28
17.01.2025	N/25/01/03-0611	10	12	40	25
18.01.2025	N/25/01/04-0018	9	11	58	30
20.01.2025	N/25/01/04-0080	9	12	53	27
21.01.2025	N/25/01/04-0126	11	15	57	35
29.01.2025	N/25/02/1-0015	9	11	54	26
30.01.2025	N/25/02/1-0084	7	9	47	25
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs


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TEST REPORT

Table No.8

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,					
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)					
Station at & Code : A - II, Dharmapura					
Duration : 24 Hrs					
Issue date : 03.02.2025					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
10.01.2025	N/25/01/03-0155	10	16	57	33
11.01.2025	N/25/01/03-0234	9	11	58	33
17.01.2025	N/25/01/03-0605	12	18	55	27
18.01.2025	N/25/01/04-0009	10	12	42	26
20.01.2025	N/25/01/04-0076	11	13	54	28
21.01.2025	N/25/01/04-0122	7	10	47	22
29.01.2025	N/25/02/1-0011	12	18	50	26
30.01.2025	N/25/02/1-0080	11	15	57	29
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

M. Sachin Raju
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TEST REPORT

Table No.9

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd., Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516) Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP) Station at & Code : A - III, Yeshwanthanagar Duration : 24 Hrs Issue date : 03.02.2025 Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
10.01.2025	N/25/01/03-0146	11	13	54	27
11.01.2025	N/25/01/03-0225	6	10	50	24
13.01.2025	N/25/01/03-0441	11	16	45	24
14.01.2025	N/25/01/03-0495	9	12	40	22
24.01.2025	N/25/01/05-0010	8	10	53	26
25.01.2025	N/25/01/05-0070	10	14	45	24
27.01.2025	N/25/01/5-0137	11	13	54	23
28.01.2025	N/25/01/5-0286	7	9	50	27
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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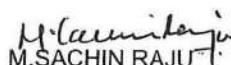
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TEST REPORT

Table No. 10

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd., Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516) Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP) Station at & Code : A - IV, Subbarayanahalli Duration : 24 Hrs Issue date : 03.02.2025 Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
10.01.2025	N/25/01/03-0142	8	11	52	19
11.01.2025	N/25/01/03-0221	9	12	36	18
13.01.2025	N/25/01/03-0437	10	11	54	28
14.01.2025	N/25/01/03-0491	8	10	47	25
24.01.2025	N/25/01/05-0006	10	13	50	27
25.01.2025	N/25/01/05-0066	8	13	46	24
27.01.2025	N/25/01/5-0133	9	10	58	30
28.01.2025	N/25/01/5-0282	5	12	56	30
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs


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TEST REPORT

Table No. 11

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,					
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)					
Station at & Code : A - V, Nandhihalli					
Duration : 24 Hrs					
Issue date : 03.02.2025					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
08.01.2025	N/25/01/03-0074	10	17	42	22
09.01.2025	N/25/01/03-0112	6	9	53	27
15.01.2025	N/25/01/03-0534	9	11	55	30
16.01.2025	N/25/01/03-0572	10	13	36	19
22.01.2025	N/25/01/04-0166	11	15	59	33
23.01.2025	N/25/01/04-0203	8	10	47	25
29.01.2025	N/25/02/1-0020	10	11	54	16
30.01.2025	N/25/02/1-0048	8	10	56	30
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs


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TEST REPORT

Table No. 12

Fugitive Emission

Name of the Client	: M/s. BKG Mining Pvt. Ltd.,	
Name of the Project	: Haddinapade Iron Ore Mine (ML No. 2516)	
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services LLP)	
Station at & Code	: A - VI, Loading point	
Duration	: 08 Hrs	
Issue date	: 03.02.2025	
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
18.01.2025	N/25/01/04-0019	396
21.01.2025	N/25/01/04-0130	421

Station at & Code	: A - VII, Dumping point	
Duration	: 08 Hrs	
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
17.01.2025	N/25/01/03-0613	536
20.01.2025	N/25/01/04-0082	522

Station at & Code	: A - VIII, Haulage Road	
Duration	: 08 Hrs	
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
18.01.2025	N/25/01/04-0020	514
21.01.2025	N/25/01/04-0131	575

Station at & Code	: A - IX, Screening plant	
Duration	: 08 Hrs	
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
17.01.2025	N/25/01/03-0612	495
20.01.2025	N/25/01/04-0081	435

Station at & Code	: A - X, Crushing plant	
Duration	: 08 Hrs	
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
17.01.2025	N/25/01/03-0614	496
21.01.2025	N/25/01/04-0132	536

Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment) & Lab SOP

Particulate mater ($\mu\text{g}/\text{m}^3$)

Permissible limits for Fugitive Emissions

600 $\mu\text{g}/\text{m}^3$

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TEST REPORT

Table No.13

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,
 Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)
 Station at & Code : A - I, Core Zone (ML Area)
 Duration : 24 Hrs
 Issue date : 03.03.2025
 Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
03.02.2025	N/25/02/1-0124	11	18	56	29
04.02.2025	N/25/02/1-0171	9	12	51	27
14.02.2025	N/25/02/5-0001	11	13	50	26
15.02.2025	N/25/02/3-0262	13	15	46	24
17.02.2025	N/25/02/5-0024	10	11	43	25
18.02.2025	N/25/02/5-0060	12	14	55	30
24.02.2025	N/25/02/5-0353	10	13	47	26
25.02.2025	N/25/02/5-0462	9	11	53	29
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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TEST REPORT

Table No.14

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,					
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)					
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)					
Station at & Code : A - II, Dharmapura					
Duration : 24 Hrs					
Issue date : 03.03.2025					
Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
03.02.2025	N/25/02/1-0120	11	14	56	30
04.02.2025	N/25/02/1-0167	9	10	50	26
14.02.2025	N/25/02/3-0207	9	11	54	28
15.02.2025	N/25/02/3-0255	8	14	46	25
17.02.2025	N/25/02/5-0022	12	13	30	22
18.02.2025	N/25/02/5-0058	11	15	44	25
26.02.2025	N/25/03/1-0007	10	14	50	29
27.02.2025	N/25/03/1-0030	11	18	55	30
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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TEST REPORT

Table No. 15

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd., Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516) Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP) Station at & Code : A - III, Yeshwanthanagar Duration : 24 Hrs Issue date : 03.03.2025 Reference IS 5182 & Lab SOP					
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
03.02.2025	N/25/02/1-0108	11	15	52	28
04.02.2025	N/25/02/1-0156	12	18	48	25
10.02.2025	N/25/02/3-0018	12	13	50	29
11.02.2025	N/25/02/3-0084	10	17	55	30
21.02.2025	N/25/02/5-0158	9	13	46	27
22.02.2025	N/25/02/5-0246	11	18	57	29
24.02.2025	N/25/02/5-0341	12	13	44	23
25.02.2025	N/25/02/5-0455	10	11	52	27
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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TEST REPORT

Table No. 16

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,
 Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)
 Station at & Code : A - IV, Subbarayanahalli
 Duration : 24 Hrs
 Issue date : 03.03.2025
 Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
03.02.2025	N/25/02/1-0104	7	9	56	32
04.02.2025	N/25/02/1-0152	10	12	43	25
10.02.2025	N/25/02/3-0014	14	18	58	32
11.02.2025	N/25/02/3-0080	10	11	40	19
21.02.2025	N/25/02/5-0154	12	15	46	22
22.02.2025	N/25/02/5-0242	10	12	53	27
24.02.2025	N/25/02/5-0337	12	16	56	29
25.02.2025	N/25/02/5-0451	10	14	45	26
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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TEST REPORT

Table No. 17

AMBIENT AIR QUALITY

Name of the Client : M/s. BKG Mining Pvt. Ltd.,
 Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)
 Station at & Code : A - V, Nandihalli
 Duration : 24 Hrs
 Issue date : 03.03.2025
 Reference IS 5182 & Lab SOP

Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	Particulate Matter	
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)
05.02.2025	N/25/02/1-0201	11	13	50	25
06.02.2025	N/25/02/1-0228	7	9	54	27
12.02.2025	N/25/02/3-0141	6	11	51	26
13.02.2025	N/25/02/3-0170	12	14	46	24
19.02.2025	N/25/02/5-0087	9	9	37	21
20.02.2025	N/25/02/5-0120	7	10	55	28
27.02.2025	N/25/03/1-0034	7	9	46	24
28.02.2025	N/25/03/1-0053	11	12	53	27
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs

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TEST REPORT

Fugitive Emission

Table No. 18

Name of the Client : M/s. BKG Mining Pvt. Ltd.,		
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)		
Sample Collected by : Environmental Laboratory		
(Unit of Mineral Engineering Services LLP)		
Station at & Code : A - VI, Loading point		
Duration : 08 Hrs		
Issue date : 03.03.2025		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
15.02.2025	N/25/02/3-0263	268
18.02.2025	N/25/02/5-0061	375

Station at & Code : A - VII, Dumping point		
Duration : 08 Hrs		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
14.02.2025	N/25/02/3-0213	452
17.02.2025	N/25/02/5-0026	387

Station at & Code : A - VIII, Haulage Road		
Duration : 08 Hrs		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
15.02.2025	N/25/02/3-0264	428
18.02.2025	N/25/02/5-0062	462

Station at & Code : A - IX, Screening plant		
Duration : 08 Hrs		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
14.02.2025	N/25/02/3-0212	396
17.02.2025	N/25/02/5-0025	451

Station at & Code : A - X, Crushing plant		
Duration : 08 Hrs		
Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
14.02.2025	N/25/02/3-0214	444
18.02.2025	N/25/02/5-0063	368
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment) & Lab SOP		
		Particulate mater ($\mu\text{g}/\text{m}^3$)
Permissible limits for Fugitive Emissions		600 $\mu\text{g}/\text{m}^3$

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TEST REPORT

Table No. 19

STATISTICAL AIR QUALITY DATA

Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)												
Name of the Client : M/s. BKG Mining Pvt. Ltd.,												
Season : Winter Season, 2024-25												
Month : December, 2024 to February, 2025												
Station Code : A-I - Core Zone					Station Code :A-II Dharmapura				Station : A III - Yeshwanthanagar			
	SO ₂	NO ₂	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	PM ₁₀	PM _{2.5}
Min.	7	9	37	19	5	10	30	22	6	9	37	20
10%	9	11	39	22	8	11	42	23	7	10	44	22
25%	9	11	46	25	9	12	47	26	9	12	47	24
50%	10	12	50	26	10	14	51	27	10	13	50	27
75%	11	14	54	29	11	15	55	29	11	15	54	27
98%	13	17	58	34	12	18	58	33	12	18	57	30
Max.	13	18	58	35	12	18	58	33	12	18	57	30
Avg.	10	13	49	27	10	14	50	27	10	14	50	26
SD	2	2	7	4	2	3	7	3	2	3	5	3
No. of obs	24				24				24			
Station Code : A IV- Subbarayanahalli					Station Code : A V - Nandihalli							
	SO ₂	NO ₂	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	PM ₁₀	PM _{2.5}				
Min.	5	9	36	18	6	9	30	16				
10%	7	10	39	19	7	9	35	18				
25%	8	11	43	22	8	10	39	21				
50%	10	12	47	26	9	12	49	25				
75%	10	13	53	27	11	14	54	27				
98%	13	18	58	32	13	18	58	32				
Max.	14	18	58	32	14	18	59	33				
Avg.	9	12	48	25	9	12	47	24				
SD	2	2	7	4	2	3	9	5				
No. of obs	24				24							

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TEST REPORT

NOISE LEVEL DATA

Table No. 20

Report No : ELMES0282501

Name of the Client		: M/s. BKG Mining Pvt. Ltd.,					
Name of the Project		: Haddinapade Iron Ore Mine (ML No. 2516)					
Particulars of sample collected		: Sound Levels					
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services LLP)					
Date of sample collection		: 17.01.2025					
Issue Date		: 03.02.2025					
Sampling & Test Method		: IS:9989					
Code No.	Monitoring stations	Day			Night		
		L _{min}	L _{eq}	L _{max}	L _{min}	L _{eq}	L _{max}
Buffer zone							
N1	Dharmapura	36.8	49.0	53.8	34.6	39.6	43.0
N2	Yeshwanthanagar	36.4	50.5	54.0	35.0	40.5	44.8
N3	Subbarayanahalli village	37.6	46.4	52.5	34.0	39.1	44.2
N4	Nandihalli	35.0	45.4	53.2	33.9	36.4	42.0
Corezone							
N5	Core zone (Mines office)	39.0	56.2	63.2	34.0	42.5	47.2
N6	Haulage Road	40.0	49.9	65.2	During operation		
N7	Mobile Screening Plant	37.0	63.1	85.3	During operation		
Heavy Earth Moving Machineries							
N8	Tata Hitachi Laxis 370 MTA	40.0	63.5	82.0	During operation inside of the cabin		
		37.0	58.7	76.0	During operation 10mts outside of the cabin		
N9	Cat 323D3 No. 5	42.0	62.3	81.2	During operation inside of the cabin		
		38.0	58.7	78.0	During operation 10mts outside of the cabin		
N10	Wheel Loader Cat - 950L	44.0	60.6	77.5	During operation inside of the cabin with AC		
		41.0	61.1	74.0	During operation 10mts outside of the cabin		
Permissible limits as per ILO Code of Practice				Permissible Limits of Ambient Noise Levels as per CPCB Guidelines			
For Unprotected ear - 8 hrs working shift				Leq. Limit dB(A)			
Warning limit - 85 dB(A)				Day Night			
Danger limit - 90 dB(A)				75 70			
Worker not to be exposed for more than 115 dB(A)				65 55			
With ear protection -				55 45			
130 dB(A) 'Impulse' or 120 dB(A) 'Fast'							
No entry when noise level exceeds 140 dB(A)							

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TEST REPORT

Table No.21

Name of the Client		: M/s. BKG Mining Pvt. Ltd.,				
Name of the Project		: Haddinapade Iron Ore Mine (ML No. 2516)				
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)				
Particulars of sample collected		: SW1- Hari Shankar Spring Water, SW2- Nari Halla Nallah water SW3- Hulikunta kere water				
Date of sample collection		: 14.12.2024				
Date of sample receipt		: 16.12.2024				
Issue Date		: 30.12.2024				
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)						
Sl.No.	Lab Code	N/24/12/4-0272	N/24/12/4-0273	N/24/12/4-0274	Limits For Stream Water Standards	Method of Testing
	Samples Code	SW1	SW2	SW3		
	Parameters	Results				
1	Colour (Hazen Units), Max	5.0	5.0	5.0	300	IS:3025(Part-4)2021
2	pH	6.70	8.34	7.75	6.5 to 8.5	IS:3025(Part-11)2022
3	Dissolved Oxygen (as O ₂), mg/l, Max	5.40	5.30	5.60	Min 4	IS:3025(Part-38)1989RA 2019
4	Oil & Grease, mg/l	<0.1	<0.1	<0.1	0.1	IS:3025(Part 39)2021
5	Total Dissolved Solids (mg/l), Max	50.0	310.0	130.0	1500	IS:3025(Part-16)2023
6	Nitrates (as NO ₃),mg/l, Max	<0.1	10.50	5.60	50	IS:3025(Part-34)1988 RA 2019
7	Anionic detergents (as MBAS),mg/l, Max	<0.1	<0.1	<0.1	1.0	IS:3025(Part-68)
8	Copper (as Cu),mg/l, Max	<0.005	<0.005	<0.005	1.5	IS:3025(Part-2) 2019
9	Chloride (as Cl),mg/l, Max	22	95	27	600	IS:3025(Part-32) ;1988RA2019
10	Fluoride (as F),mg/l, Max	0.3	0.60	0.52	1.5	APHA 23rd Edition 4500F
11	Iron (as Fe),mg/l, Max	<0.005	<0.005	<0.005	50	IS:3025(P-2) 2019
12	Phenolic compounds (as C ₆ H ₅ OH),mg/l, Max	<0.001	<0.001	<0.001	0.005	IS:3025(P-43)Sec 1 2022
13	Selenium (as Se), mg/l, Max	<0.005	<0.005	<0.005	0.05	IS:3025(P-2) 2019
14	Sulphates as SO ₄ (mg/l), Max	3.5	20.6	14.5	400	IS:3025(P-24)Sec 1 2022
15	Zinc (as Zn),mg/l, Max	<0.005	<0.005	<0.005	15	IS:3025(P-2) 2019
16	Cadmium (as Cd), mg/l, Max	<0.001	<0.001	<0.001	0.01	IS:3025(P-2) 2019
17	Cyanides (as CN), mg/l, Max	<0.01	<0.01	<0.01	0.05	IS:3025(P-27) Sec 1 2021
18	Lead (as Pb) mg/l, Max	<0.005	<0.005	<0.005	0.1	IS:3025(P-2) 2019
19	Total Arsenic as As (mg/l), Max	<0.002	<0.002	<0.002	0.2	IS:3025(P-2) 2019
20	Chromium (as Cr ⁶⁺), mg/l, Max	<0.03	<0.03	<0.03	0.05	IS:3025(P-52) 2014
21	Biochemical Oxygen Demand (as O ₂), mg/l	<3	<3	<3	3	IS:3025(P-44) 2014
22	Total Coliform, MPN/100ml	110	80	44	5000	IS:1622:1981

""END OF REPORT""

BINU MANI
T.M. - Microbiology

Govt. Analyst / Authorised Signatory

ARSHIYA KOUSAR
Dy. T.M. - Chemical

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ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES LLP)

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TEST REPORT

Table No.22

Name of the Client : M/s. BKG Mining Pvt. Ltd.,
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)
Particulars of sample collected : SW1- Hari Shankar Spring Water, SW2- Nari Halla Nallah water
SW3- Hulikunta kere water
Date of sample collection : 09.01.2025
Date of sample receipt : 10.01.2025
Issue Date : 23.01.2025
Ref : IS : 2296 Water Quality Standards

Sl.No.	Lab Code	N/25/01/03-0300	N/25/01/03-0301	N/25/01/03-0302	Limits For Stream Water Standards	Method of Testing
	Samples Code	SW1	SW2	SW3		
	Parameters	Results				
1	Colour (Hazen Units), Max	1	5	5	300	IS:3025(Part-4)2021
2	pH	5.68	7.97	7.92	6.5 to 8.5	IS:3025(Part-11)2022
3	Dissolved Oxygen (as O ₂), mg/l, Max	5.70	5.50	5.6	Min 4	IS:3025(Part-38)1989RA 2019
4	Oil & Grease, mg/l	<0.1	<0.1	<0.1	0.1	IS:3025(Part 39)2021
5	Total Dissolved Solids (mg/l), Max	62.0	385.0	156	1500	IS:3025(Part-16)2023
6	Nitrates (as NO ₃),mg/l, Max	5.50	14.50	6.20	50	IS:3025(Part-34)1988 RA 2019
7	Anionic detergents (as MBAS),mg/l, Max	<0.1	<0.1	<0.1	1.0	IS:3025(Part-68)
8	Copper (as Cu),mg/l, Max	<0.005	<0.005	<0.005	1.5	IS:3025(Part-2) 2019
9	Chloride (as Cl),mg/l, Max	20	100	28	600	IS:3025(Part-32) ;1988RA2019
10	Fluoride (as F),mg/l, Max	0.2	0.6	0.51	1.5	APHA 23rd Edition 4500F
11	Iron (as Fe),mg/l, Max	<0.005	<0.005	<0.005	50	IS:3025(P-2) 2019
12	Phenolic compounds (as C ₆ H ₅ OH),mg/l, Max	<0.001	<0.001	<0.001	0.005	IS:3025(P-43)Sec 1 2022
13	Selenium (as Se), mg/l, Max	<0.005	<0.005	<0.005	0.05	IS:3025(P-2) 2019
14	Sulphates as SO ₄ (mg/l), Max	6.0	58.0	38	400	IS:3025(P-24)Sec 1 2022
15	Zinc (as Zn),mg/l, Max	<0.005	<0.005	<0.005	15	IS:3025(P-2) 2019
16	Cadmium (as Cd), mg/l, Max	<0.001	<0.001	<0.001	0.01	IS:3025(P-2) 2019
17	Cyanides (as CN), mg/l, Max	<0.01	<0.01	<0.01	0.05	IS:3025(P-27) Sec 1 2021
18	Lead (as Pb) mg/l, Max	<0.005	<0.005	<0.005	0.1	IS:3025(P-2) 2019
19	Total Arsenic as As (mg/l), Max	<0.002	<0.002	<0.002	0.2	IS:3025(P-2) 2019
20	Chromium (as Cr ⁶⁺), mg/l, Max	<0.03	<0.03	<0.03	0.05	IS:3025(P-52) 2014
21	Biochemical Oxygen Demand (as O ₂), mg/l	<3	<3	<3	3	IS:3025(P-44) 2014
22	Total Coliform, MPN/100ml	60	78	86	5000	IS:1622:1981

""END OF REPORT""

BINU MANI

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TEST REPORT

Table No.23

Name of the Client

Name of the Project

Sample Collected by

Particulars of sample collected

Date of sample collection

Date of sample receipt

Issue Date

Ref : IS : 2296 Water Quality Standards

: M/s. BKG Mining Pvt. Ltd.,

: Haddinapade Iron Ore Mine (ML No. 2516)

: Environmental Laboratory (Unit of Mineral Engineering Services LLP)

: SW1- Hari Shankar Spring Water, SW2- Nari Halla Nallah water
SW3- Hulikunta kere water

: 12.02.2025

: 13.02.2025

: 21.02.2025

Lab Code		N/25/02/3-0396	N/25/02/3-0397	N/25/02/3-0398	Limits For Stream Water Standards	Method of Testing
Sl.No.	Parameters	Results				
		SW1	SW2	SW3		
1	Colour (Hazen Units)	1	5	10	300	IS:3025(Part-4)2021
2	pH	6.75	8.5	8.23	6.5 to 8.5	IS:3025(Part-11)2022
3	Dissolved Oxygen (as O ₂), mg/l	5.8	5.4	5.5	Min 4	IS:3025(Part-38)1989RA 2019
4	Biochemical Oxygen Demand (as O ₂), mg/l	<3	<3	<3	3	IS:3025(P-44) 2014
5	Total Coliform (MPN/100ml)	80	92	130	5000	IS:1622:1981
6	Total Dissolved Solids, (mg/l)	54	390	180	1500	IS:3025(Part-16)2023
7	Oil & Grease, mg/l	<0.1	<0.1	<0.1	0.1	IS:3025(Part 39)2021
8	Chloride (as Cl),mg/l	21	105	32	600	IS:3025(Part-32) ;1988RA2019
9	Sulphates as SO ₄ (mg/l)	5.6	74.0	55.0	400	IS:3025(P-24)Sec 1 2022
10	Nitrates (as NO ₃),mg/l	6.20	19.80	10.60	50	IS:3025(Part-34)1988 RA 2019
11	Fluoride (as F),mg/l	0.30	0.76	0.81	1.5	APHA 23rd Edition 4500F
12	Copper (as Cu),mg/l	<0.005	<0.005	<0.005	1.5	IS:3025(Part-2) 2019
13	Iron (as Fe),mg/l	<0.005	<0.005	<0.005	50	IS:3025(P-2) 2019
14	Zinc (as Zn),mg/l	<0.005	<0.005	<0.005	15	IS:3025(P-2) 2019
15	Total Arsenic (as As), (mg/l)	<0.002	<0.002	<0.002	0.2	IS:3025(Part-37)
16	Lead (as Pb), mg/l	<0.005	<0.005	<0.005	0.1	IS:3025(P-2) 2019
17	Cadmium (as Cd), mg/l	<0.001	<0.001	<0.001	0.01	IS:3025(P-2) 2019
18	Hexavalent Chromium (as Cr ⁺⁶), mg/l	<0.03	<0.03	<0.03	0.05	IS:3025(P-52) 2014
19	Selenium (as Se), mg/l	<0.005	<0.005	<0.005	0.05	IS:3025(P-2) 2019
20	Cyanide (as CN), mg/l	<0.005	<0.005	<0.005	0.05	IS:3025(P-27) Sec 1 2021
21	Phenolic compounds (as C ₆ H ₅ OH),mg/l	<0.001	<0.001	<0.001	0.005	IS:3025(P-43)Sec 1 2022
22	Anionic detergents (as MBAS),mg/l	<0.1	<0.1	<0.1	1.0	IS:3025(Part-68)

"END OF REPORT"

BINU MANI

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TEST REPORT

Table No. 24

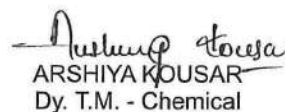
Name of the Client		: M/s. BKG Mining Pvt. Ltd.,					
Name of the Project		: Haddinapade Iron Ore Mine (ML No. 2516)					
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services LLP)					
Particulars of sample collected		: GW1 - RO Plant water - In Let Near Check post No. 3 Bore water, GW1a - RO water - Out Let water, GW2 - Dharmapura bore water					
Date of sample collection		: 17.01.2025					
Issue Date		: 23.01.2025					
Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)							
Lab Code		N/25/01/03-0424	N/25/01/03-0425	N/25/01/03-0426	Desirable Limits	Permissible Limits	Method of Testing
Sl. No.	Parameters	GW1	GW1a	GW2			
1	Colour (Hazen Units)	1	<1	1	5	15	IS:3025 (P-4) 2021
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (P-5) 2018
3	pH Value	7.51	7.80	7.90	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
4	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (P-8) 1984 RA 2017
5	Turbidity, NTU, Max	1.70	0.10	1.50	1	5	IS:3025 (P-10) 1984 RA 2017
6	Electrical Conductivity (µmhos/cm)	980.0	120.00	1700.0	--	--	IS 3025 (P-14)
7	Total Dissolved Solids, mg/l, Max	540.0	66.0	970.0	500	2000	IS:3025 (P-16) 1984 RA 2017
8	Aluminium (as Al), Max	<0.005	<0.005	<0.005	0.03	0.2	IS:3025(P-2) 2019
9	Ammonia (as total Ammonia -N), mg/l, Max	<0.1	<0.1	<0.1	0.5	0.5	IS:3025 (P-34) 1988 RA 2019
10	Anionic Detergents (as MBAS), mg/l, Max	<0.1	<0.1	<0.1	0.2	1.0	IS:3025(P-68)
11	Barium (as Ba), mg/l, Max	<0.005	<0.005	<0.005	0.7	0.7	IS:3025(P-2) 2019
12	Boron (as B), mg/l, Max	<0.1	<0.1	<0.1	0.5	2.4	IS:3025 (Part-57) 2021
13	Calcium (as Ca), mg/l, Max	80.10	6.41	100.20	75	200	IS:3025 (P-40) 1991 RA 2019
14	Copper (as Cu), mg/l, Max	<0.005	<0.005	<0.005	0.05	1.5	IS:3025 (P-2) 2019
15	Chloride as Cl (mg/l), mg/l, Max	70.00	12.00	150.00	250	1000	IS:3025 (P-32) 1988 RA 2019
16	Fluoride (as F), mg/l, Max	0.40	<0.1	0.85	1	1.5	APHA 4500F
17	Residual, Free Chlorine, mg/l, Max	<0.1	<0.1	<0.1	0.2	1	IS:3025 (P-26) 2021
18	Chloramines as C12, Max	<0.1	<0.1	<0.1	4	4	IS:3025 (P-26) 2021
19	Iron (as Fe), mg/l, Max	<0.005	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
20	Magnesium (as Mg), mg/l, Max	60.70	3.40	8.74	30	100	IS:3025 (P-46) 1994 RA 2019
21	Manganese (as Mn), mg/l, Max	<0.001	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
22	Mineral Oil, mg/l, Max	<0.5	<0.5	<0.5	1.0	1.0	IS 3025 (P-39) 2021
23	Nitrates (as NO ₃), mg/l, Max	18.00	3.50	26.50	45	45	IS:3025 (P-34) 1988 RA 2019
24	Phenolics (as C ₆ H ₅ OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.002	IS:3025 (P-43) Sec 1 2022
25	Selenium (as Se), mg/l	<0.005	<0.005	<0.005	0.01	0.01	IS:3025(P-2) 2019
26	Silver (as Ag), mg/l, Max	<0.005	<0.005	<0.005	0.1	0.1	IS:3025(P-2) 2019
27	Molybdenum (as Mo), mg/l, Max	<0.001	<0.001	<0.001	0.07	0.07	IS:3025 (P-2) 2019
28	Sulphates (as SO ₄), mg/l, Max	52.00	6.50	110.00	200	400	IS:3025 (P-24) Sec 1 2022
29	Sulphide (as H ₂ S), mg/l, Max	<0.01	<0.01	<0.01	0.05	0.05	IS:3025 (P-29):1986 RA 2019
30	Alkalinity (as CaCO ₃), mg/l, Max	360.0	32.0	420.0	200	600	IS:3025 (P-23):1986 RA 2019
31	Total Hardness (as CaCO ₃), mg/l, Max	450.0	30.0	580.0	200	600	IS:3025 (P-21):2009 RA 2019
32	Zinc (as Zn), mg/l, Max	<0.005	<0.005	<0.005	5	15	IS:3025 (P-2) 2019
33	Cadmium (as Cd), mg/l, Max	<0.001	<0.001	<0.001	0.003	0.003	IS:3025 (P-2) 2019
34	Cyanide (as CN), mg/l, Max	<0.01	<0.01	<0.01	0.05	0.05	IS:3025 (P-27) Sec 1 2021
35	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	0.01	0.01	IS:3025 (P-2) 2019
36	Mercury (as Hg), mg/l, Max	<0.0005	<0.0005	<0.0005	0.001	0.001	USPEA 200.7 Rev 4.4
37	Nickel (as Ni), mg/l, Max	<0.001	<0.001	<0.001	0.02	0.02	IS:3025 (P-2) 2019
38	Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	0.01	0.01	IS:3025 (P-2) 2019
39	Total Chromium (as Cr), mg/l, Max	<0.001	<0.001	<0.001	0.05	0.05	IS:3025 (P-2) 2019
40	Escherichia coli/100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
41	Total Coliform /100ml	Not Detected	Not Detected	Not Detected			IS:15185:2016 RA 2021

"END OF REPORT"


BINU MANI

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TEST REPORT

Table No.25

Name of the Client : M/s. BKG Mining Pvt. Ltd.,
 Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)
 Particulars of sample collected : GW3 -Yeshwanthanagar bore water, GW4 - Nandihalli bore water,
 GW5 - Subbarayanahalli bore water
 Date of sample collection : 17.01.2025
 Issue Date : 23.01.2025
 Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)


Sl. No.	Parameters	Results			Desirable Limits	Permissible Limits	Method of Testing
		GW3	GW4	GW5			
1	Colour (Hazen Units)	1	1	1	5	15	IS:3025 (P-4) 2021
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (P-5) 2018
3	pH Value	7.31	7.12	8.05	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
4	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (P-8)1984 RA 2017
5	Turbidity,NTU, Max	1.8	1.5	2.2	1	5	IS:3025 (P-10)1984 RA 2017
6	Electrical Conductivity (µmhos/cm)	2500.0	1800	410.0	--	--	IS 3025 (P-14)
7	Total Dissolved Solids,mg/l, Max	1500.0	1000	220.0	500	2000	IS:3025 (P-16)1984 RA2017
8	Aluminium (as Al), Max	<0.005	<0.005	<0.005	0.03	0.2	IS:3025 (P-2) 2019
9	Ammonia (as total Ammonia -N),mg/l, Max	<0.1	<0.1	<0.1	0.5	0.5	IS:3025 (P-34) 1988 RA 2019
10	Anionic Detergents (as MBAS),mg/l, Max	<0.1	<0.1	<0.1	0.2	1.0	IS:3025 (P-68)
11	Barium (as Ba), mg/l, Max	<0.005	<0.005	<0.005	0.7	0.7	IS:3025(P-2) 2019
12	Boron (as B), mg/l, Max	<0.1	<0.1	<0.1	0.5	2.4	IS:3025 (Part-57)2021
13	Calcium (as Ca),mg/l, Max	128.2	152.30	16.00	75	200	IS:3025 (P-40)1991 RA 2019
14	Copper (as Cu),mg/l, Max	<0.005	<0.005	<0.005	0.05	1.5	IS:3025 (P-2)2019
15	Chloride as Cl (mg/l),mg/l, Max	450.0	200.00	55.00	250	1000	IS:3025 (P-32) 1988 RA 2019
16	Fluoride (as F),mg/l, Max	0.70	0.75	0.20	1	1.5	APHA 4500F
17	Residual, Free Chlorine,mg/l, Max	<0.1	<0.1	<0.1	0.2	1	IS:3025 (P-26) 2021
18	Chloramines as C12, Max	<0.1	<0.1	<0.1	4	4	IS:3025(P-26) 2021
19	Iron (as Fe),mg/l, Max	<0.005	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
20	Magnesium (as Mg),mg/l, Max	102.0	46.10	12.10	30	100	IS:3025 (P-24)1994 RA 2019
21	Manganese (as Mn),mg/l, Max	<0.001	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
22	Mineral Oil,mg/l, Max	<0.5	<0.5	<0.5	1.0	1.0	IS 3025 (P-39) 2021
23	Nitrates (as NO ₃),mg/l, Max	32.4	31.20	11.80	45	45	IS:3025 (P-34) 1988 RA 2019
24	Phenolics (as C ₆ H ₅ OH),mg/l, Max	<0.001	<0.001	<0.001	0.001	0.002	IS:3025 (P-43)Sec 1 2022
25	Selenium (as Se),mg/l	<0.005	<0.005	<0.005	0.01	0.01	IS:3025(P-2) 2019
26	Silver (as Ag), mg/l, Max	<0.005	<0.005	<0.005	0.1	0.1	IS:3025(P-2) 2019
27	Molybdenum (as Mo), mg/l, Max	<0.001	<0.001	<0.001	0.07	0.07	IS:3025 (P-2) 2019
28	Sulphates (as SO ₄),mg/l, Max	128.0	210.00	30.00	200	400	IS:3025 (P-24) Sec 1 2022
29	Sulphide (as H ₂ S) , mg/l, Max	<0.01	<0.01	<0.01	0.05	0.05	IS:3025 (P-29):1986 RA 2019
30	Alkalinity (as CaCO ₃) mg/l, Max	500.0	400	100.0	200	600	IS:3025 (P-23):1986 RA 2019
31	Total Hardness (as CaCO ₃),mg/l,Max	584.0	570.0	90.0	200	600	IS:3025 (P-21):2009 RA 2019
32	Zinc (as Zn),mg/l, Max	<0.005	<0.005	<0.005	5	15	IS:3025 (P-2) 2019
33	Cadmium (as Cd),mg/l, Max	<0.001	<0.001	<0.001	0.003	0.003	IS:3025 (P-2) 2019
34	Cyanide (as CN),mg/l, Max	<0.01	<0.01	<0.01	0.05	0.05	IS:3025 (P-27)Sec 1 2021
35	Lead (as Pb),mg/l, Max	<0.005	<0.005	<0.005	0.01	0.01	IS:3025 (P-2) 2019
36	Mercury (as Hg),mg/l, Max	<0.0005	<0.0005	<0.0005	0.001	0.001	USPEA 200.7 Rev 4.4
37	Nickel (as Ni),mg/l, Max	<0.001	<0.001	<0.001	0.02	0.02	IS:3025 (P-2) 2019
38	Arsenic (as As),mg/l, Max	<0.002	<0.002	<0.002	0.01	0.01	IS:3025 (P-2) 2019
39	Total Chromium (as Cr),mg/l, Max	<0.001	<0.001	<0.001	0.05	0.05	IS:3025 (P-2) 2019
40	Escherichia coli/100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
41	Total Coliform /100ml)	Not Detected	Not Detected	Not Detected			IS:15185:2016 RA 2021

"END OF REPORT"


 BINU MANI

T.M. - Microbiology

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(UNIT OF MINERAL ENGINEERING SERVICES LLP)

Recognised by BIS, FSSAI, ISO:45001:2018 Certified Laboratory
Recognised by MoEFCC(CPCB) under E(P) Act 1986 recognition valid upto 23.05.2025

TEST REPORT

Table No. 26

Name of the Client : M/s. BKG Mining Pvt. Ltd.,
Name of the Project : Haddinapade Iron Ore Mine (ML No. 2516)
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services LLP)
Particulars of sample collected : GW6 - Ankamanahalu bore water
Date of sample collection : 17.01.2025
Issue Date : 23.01.2025
Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)

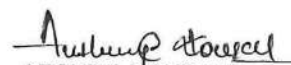
Sl. No.	Lab Code	Parameters	Results GW6	Desirable Limits	Permissible Limits	Method of Testing
1		Colour (Hazen Units)	1	5	15	IS:3025 (P-4) 2021
2		Odour	Agreeable	Agreeable	Agreeable	IS:3025 (P-5) 2018
3		pH Value	7.75	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
4		Taste	Agreeable	Agreeable	Agreeable	IS:3025 (P-8) 1984 RA 2017
5		Turbidity, NTU, Max	1.0	1	5	IS:3025 (P-10) 1984 RA 2017
6		Electrical Conductivity (µmhos/cm)	1600.0	--	--	IS 3025 (P-14)
7		Total Dissolved Solids, mg/l, Max	900.0	500	2000	IS:3025 (P-16) 1984 RA 2017
8		Aluminium (as Al), Max	<0.005	0.03	0.2	IS:3025 (P-2) 2019
9		Ammonia (as total Ammonia -N), mg/l, Max	<0.1	0.5	0.5	IS:3025 (P-34) 1988 RA 2019
10		Anionic Detergents (as MBAS), mg/l, Max	<0.1	0.2	1.0	IS:3025 (P-68)
11		Barium (as Ba), mg/l, Max	<0.005	0.7	0.7	IS:3025(P-2) 2019
12		Boron (as B), mg/l, Max	<0.1	0.5	2.4	IS:3025 (Part-57) 2021
13		Calcium (as Ca), mg/l, Max	1362.00	75	200	IS:3025 (P-40) 1991 RA 2019
14		Copper (as Cu), mg/l, Max	<0.005	0.05	1.5	IS:3025 (P-2) 2019
15		Chloride as Cl (mg/l), mg/l, Max	360.00	250	1000	IS:3025 (P-32) 1988 RA 2019
16		Fluoride (as F), mg/l, Max	0.70	1	1.5	APHA 4500F
17		Residual, Free Chlorine, mg/l, Max	<0.1	0.2	1	IS:3025 (P-26) 2021
18		Chloramines as Cl ₂ , Max	<0.1	4	4	IS:3025(P-26) 2021
19		Iron (as Fe), mg/l, Max	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
20		Magnesium (as Mg), mg/l, Max	63.20	30	100	IS:3025 (P-46) 1994 RA 2019
21		Manganese (as Mn), mg/l, Max	<0.001	0.1	0.3	IS:3025 (P-2) 2019
22		Mineral Oil, mg/l, Max	<0.5	1.0	1.0	IS 3025 (P-39) 2021
23		Nitrates (as NO ₃), mg/l, Max	24.00	45	45	IS:3025 (P-34) 1988 RA 2019
24		Phenolics (as C ₆ H ₅ OH), mg/l, Max	<0.001	0.001	0.002	IS:3025 (P-43) Sec 1 2022
25		Selenium (as Se), mg/l	<0.005	0.01	0.01	IS:3025(P-2) 2019
26		Silver (as Ag), mg/l, Max	<0.005	0.1	0.1	IS:3025(P-2) 2019
27		Molybdenum (as Mo), mg/l, Max	<0.001	0.07	0.07	IS:3025 (P-2) 2019
28		Sulphates (as SO ₄), mg/l, Max	71.60	200	400	IS:3025 (P-24) Sec 1 2022
29		Sulphide (as H ₂ S), mg/l, Max	<0.01	0.05	0.05	IS:3025 (P-29):1986 RA 2019
30		Alkalinity (as CaCO ₃), mg/l, Max	420.0	200	600	IS:3025 (P-23):1986 RA 2019
31		Total Hardness (as CaCO ₃), mg/l, Max	580.0	200	600	IS:3025 (P-21):2009 RA 2019
32		Zinc (as Zn), mg/l, Max	<0.005	5	15	IS:3025 (P-2) 2019
33		Cadmium (as Cd), mg/l, Max	<0.001	0.003	0.003	IS:3025 (P-2) 2019
34		Cyanide (as CN), mg/l, Max	<0.01	0.05	0.05	IS:3025 (P-27) Sec 1 2021
35		Lead (as Pb), mg/l, Max	<0.005	0.01	0.01	IS:3025 (P-2) 2019
36		Mercury (as Hg), mg/l, Max	<0.0005	0.001	0.001	USPEA 200.7 Rev 4.4
37		Nickel (as Ni), mg/l, Max	<0.001	0.02	0.02	IS:3025 (P-2) 2019
38		Arsenic (as As), mg/l, Max	<0.002	0.01	0.01	IS:3025 (P-2) 2019
39		Total Chromium (as Cr), mg/l, Max	<0.001	0.05	0.05	IS:3025 (P-2) 2019
40		Escherichia coli/100ml	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
41		Total Coliform /100ml	Not Detected			IS:15185:2016 RA 2021

"END OF REPORT"


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ENVIRONMENTAL LABORATORY

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TEST REPORT

Table No. 27

Name of the Client	: M/s. BKG Mining Pvt. Ltd.,
Name of the Project	: Haddinapade Iron Ore Mine (ML No. 2516)
Particulars of sample	: Soil Samples
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services LLP)
Date of sample collection	: 15.02.2025
Issue Date	: 04.03.2025

Lab Code		N/25/02/4-0025	N/25/02/4-0026	N/25/02/4-0027	N/25/02/4-0028	N/25/02/4-0029
SL. No.	Sample Code	S1	S2	S3	S4	S5
	PARAMETERS	Unit	Results			

PHYSICAL PROPERTIES

1	Colour	—	Red Soil	Red Soil	Red Soil	Red Soil	Red soil
2	Textural class	—	Slity Clay	LOAM	SANDY CLAY	SANDY CLAY	SANDY CLAY
3	Size Distribution						
	Sand	%	35.60	35.88	50.25	47.55	78.62
	Clay	%	32.08	23.63	40.63	42.56	43.56
	Silt	%	32.32	40.49	9.12	9.89	7.82
4	Moisture Content	%	11.26	10.35	10.25	11.23	10.23
5	Bulk Density	gm/cc	1.66	1.84	1.83	1.84	1.82
6	Water holding capacity	%	33.42	28.96	33.42	30.28	26.96
7	pH	—	6.59	6.66	6.78	6.88	6.72
8	EC	m.mohs/cm	0.580	0.620	0.462	0.487	0.584

Chemical Properties

9	Organic Carbon	%	0.54	0.60	0.32	0.36	0.44
10	Nitrogen as N	Kg/Ha	244	282	263	244	237
11	Phosphorous as P	Kg/Ha	10.86	11.28	12.45	17.63	16.58
12	Potassium as K ₂ O	Kg/Ha	130	126	140	138	132
13	Sodium as Na	mg/kg	38.00	34.00	36.00	28.00	40.00
14	Chloride as Cl	mg/kg	38.00	40.00	38.00	32.00	36.00
15	Sulphate as SO ₄	mg/kg	30.00	26.00	36.00	30.00	38.00

Sample Locations :

- S1 - Top soil (ML area)
- S2 - Dump Afforestation Land
- S3 - Subbarayanahalli Agricultural land
- S4 - Nandihalli Agricultural land
- S5 - Yeshwanthanagar Agricultural land

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