

The Sandur Manganese & Iron Ores Limited

(An ISO 9001:2015; ISO 14001:2015 and 45001:2018 certified company)

CIN: L85110KA1954PLC000759; Website: www.sandurgroup.com

REGISTERED OFFICE

'SATYALAYA', No.266
Ward No.1, Palace Road
Sandur - 583 119, Ballari District
Karnataka, India
Tel: +91 8395 260301/ 283173-199
Fax: +91 8395 260473



CORPORATE OFFICE

'SANDUR HOUSE', No.9
Bellary Road, Sadashivanagar
Bengaluru - 560 080
Karnataka, India
Tel: +91 80 4152 0176 - 79 / 4547 3000
Fax: +91 80 4152 0182

Ref No: SMIORE/MINES/ENV/2024-25/2679/930

08 October 2024

To,
The Environmental Officer,
Karnataka State Pollution Control Board,
Ward No.25, 4th Main Road,
Kuvempu Nagar,
Ballari - 583104

Dear Sir,

Sub: Submission of reports pertaining to monitoring of environmental parameters for the month of September 2024 in respect of Mining Lease No. 2679.

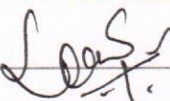
Ref: 1. Environmental Clearance No. 110015/88/2006-IA.II(M) dated 24 January 2007.
2. Consent for Operation No. AW-337273 dated 10 April 2023.

With reference to the letters cited above, we are enclosing herewith environmental monitoring reports prepared after monitoring the stipulated environmental parameters for the month of September 2024 in respect of Mining Lease No. 2679 of The Sandur Manganese & Iron Ores Limited.

Kindly acknowledge the receipt of the reports.

Thank you,

for The Sandur Manganese & Iron Ores Limited,


Manjunath Prabhu,
Chief Operating Officer



Encl: Monitoring Reports



MINES OFFICE: Deogiri - 583112, Sandur Taluk, Ballari District

Tel: +91 8395 271025 / 28 / 29 / 40; Fax: +91 8395 271066

PLANT OFFICE: Metal & Ferroalloy Plant, Vyasankere, Mariyammanahalli - 583 222, Hosapete Taluk, Ballari District

ENVIRONMENTAL MONITORING REPORT

September, 2024

**Project : Ramgad Manganese Ore Mine
ML No. 2679**

**Ramgad Village, Sandur Taluk,
Ballari Dist., Karnataka.**

Lessee

The Sandur Manganese & Iron Ores Limited

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 LABORATORY

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Gazette Notification No. legal 42(3)/2022 dated 22.07.2022 Recognition valid upto 23.05.2023

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TEST REPORT

Table No.1

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited
Name of the Project : Mining Lease No. 2679
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code : A1, Core Zone (ML Area)
Duration : 24 Hrs
Issue date : 01.10.2024
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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0069	9	12	50	28	0.23
05.09.2024	N/24/09/3-0160	9	11	43	24	0.33
13.09.2024	N/24/09/4-0134	8	9	52	29	0.24
14.09.2024	N/24/09/4-0233	9	14	51	27	0.37
16.09.2024	N/24/09/5-0004	10	16	54	28	0.28
17.09.2024	N/24/09/5-0063	13	18	50	27	0.22
25.09.2024	N/24/09/6-0106	9	12	38	18	0.24
26.09.2024	N/24/09/6-0129	10	15	53	28	0.23
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Arshiya Rousar
ARSHIYA ROUSAR
Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory

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TEST REPORT

Table No.2

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited
Name of the Project : Mining Lease No. 2679
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code : A2, Core Zone (Myadara Banda Block)
Duration : 24 Hrs
Issue date : 01.10.2024
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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0071	11	15	38	28	0.22
05.09.2024	N/24/09/3-0162	9	14	46	25	0.45
13.09.2024	N/24/09/4-0136	8	9	51	28	0.35
14.09.2024	N/24/09/4-0235	10	12	46	24	0.21
16.09.2024	N/24/09/5-0006	9	14	40	22	0.29
17.09.2024	N/24/09/5-0065	6	11	46	25	0.36
25.09.2024	N/24/09/6-0108	8	9	52	28	0.23
26.09.2024	N/24/09/6-0131	12	13	41	23	0.25
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Arshiy Kousar
ARSHIYA KOUSAR

Dy. T.M. Chemical

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TEST REPORT

Table No.3

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited
Name of the Project : Mining Lease No. 2679
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code : A3, Core Zone (Governor Point)
Duration : 24 Hrs
Issue date : 01.10.2024
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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0072	8	10	40	22	0.28
05.09.2024	N/24/09/3-0163	10	12	55	30	0.36
13.09.2024	N/24/09/4-0137	10	11	49	26	0.22
14.09.2024	N/24/09/4-0236	9	10	37	22	0.25
16.09.2024	N/24/09/5-0007	11	13	34	20	0.20
17.09.2024	N/24/09/5-0066	12	13	43	22	0.31
25.09.2024	N/24/09/6-0109	9	10	40	24	0.41
26.09.2024	N/24/09/6-0132	10	12	46	26	0.22
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Arushi Kousar
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TEST REPORT

Table No.4

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited
Name of the Project : Mining Lease No. 2679
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code : A4, Core Zone (Neerlabi)
Duration : 24 Hrs
Issue date : 01.10.2024
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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0073	9	11	39	20	0.31
05.09.2024	N/24/09/3-0164	11	15	53	28	0.22
13.09.2024	N/24/09/4-0138	6	9	53	28	0.42
14.09.2024	N/24/09/4-0237	8	10	40	27	0.38
16.09.2024	N/24/09/5-0008	8	12	54	32	0.21
17.09.2024	N/24/09/5-0067	10	11	48	26	0.26
25.09.2024	N/24/09/6-0110	9	9	50	28	0.35
26.09.2024	N/24/09/6-0133	6	13	43	23	0.32
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

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Table No.5

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited
Name of the Project : Mining Lease No. 2679
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code : A5, Ramghad village
Duration : 24 Hrs
Issue date : 01.10.2024
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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0074	10	13	53	27	0.42
05.09.2024	N/24/09/3-0165	7	9	47	25	0.25
13.09.2024	N/24/09/4-0139	8	14	38	25	0.22
14.09.2024	N/24/09/4-0238	10	12	49	26	0.26
16.09.2024	N/24/09/5-0009	9	10	50	29	0.20
17.09.2024	N/24/09/5-0068	11	13	45	27	<0.2
25.09.2024	N/24/09/6-0111	9	10	39	19	0.26
26.09.2024	N/24/09/6-0134	11	9	46	24	0.24
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

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TEST REPORT

Table No.6

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited
Name of the Project : Mining Lease No. 2679
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code : A6, Dharmapura village
Duration : 24 Hrs
Issue date : 01.10.2024
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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0075	9	10	48	23	0.35
05.09.2024	N/24/09/3-0166	9	11	50	29	0.42
13.09.2024	N/24/09/4-0140	10	13	40	22	0.31
14.09.2024	N/24/09/4-0239	9	11	53	29	0.27
16.09.2024	N/24/09/5-0010	8	10	47	25	0.22
17.09.2024	N/24/09/5-0069	9	11	43	22	0.20
25.09.2024	N/24/09/6-0112	10	9	49	27	0.27
26.09.2024	N/24/09/6-0135	7	11	54	28	0.26
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Arshiya Kousar
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Dy. T.M. Chemical

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TEST REPORT

Table No.7

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited
Name of the Project : Mining Lease No. 2679
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code : A7, Garaga village
Duration : 24 Hrs
Issue date : 01.10.2024
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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0076	11	12	35	20	0.21
05.09.2024	N/24/09/3-0167	5	9	43	24	0.32
13.09.2024	N/24/09/4-0141	10	12	43	24	<0.2
14.09.2024	N/24/09/4-0240	11	13	48	30	0.22
16.09.2024	N/24/09/5-0011	9	10	38	26	0.2
17.09.2024	N/24/09/5-0070	7	11	38	17	<0.2
25.09.2024	N/24/09/6-0113	11	10	46	29	0.21
26.09.2024	N/24/09/6-0136	9	11	43	24	<0.2
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Arshiya Kousar
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TEST REPORT

Table No.8

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited						
Name of the Project : Mining Lease No. 2679						
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)						
Station at & Code : A8, Yeswanthanagar						
Duration : 24 Hrs						
Issue date : 01.10.2024						
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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0067	11	14	54	30	0.42
05.09.2024	N/24/09/3-0153	9	11	50	26	0.22
09.09.2024	N/24/09/4-0014	5	9	42	24	0.22
10.09.2024	N/24/09/4-0056	11	13	39	20	0.26
20.09.2024	N/24/09/5-0157	7	12	53	28	0.28
21.09.2024	N/24/09/5-0204	6	11	48	27	0.33
23.09.2024	N/24/09/6-0010	10	9	54	28	0.23
24.09.2024	N/24/09/6-0063	12	14	57	30	0.25
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Arshiya Kpuser
ARSHIYA KPUSAR
Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory

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TEST REPORT

Table No.9

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited
Name of the Project : Mining Lease No. 2679
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code : A9, Subbarayanahalli
Duration : 24 Hrs
Issue date : 01.10.2024
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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0063	12	15	53	27	0.41
05.09.2024	N/24/09/3-0149	5	11	35	27	0.28
09.09.2024	N/24/09/4-0010	8	15	48	25	0.38
10.09.2024	N/24/09/4-0052	6	10	51	28	0.26
20.09.2024	N/24/09/5-0153	9	11	43	23	0.45
21.09.2024	N/24/09/5-0200	7	10	50	26	0.22
23.09.2024	N/24/09/6-0006	12	16	56	30	0.25
24.09.2024	N/24/09/6-0059	11	13	49	27	0.38
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Arshiya Housar
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TEST REPORT

Table No.10

AMBIENT AIR QUALITY

Name of the Client : The Sandur Manganese & Iron Ores Limited

Name of the Project : Mining Lease No. 2679

Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code : A10, Siddapura village

Duration : 24 Hrs

Issue date : 01.10.2024

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		Carbon Monoxide* (CO), mg/m ³
				PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	
04.09.2024	N/24/09/3-0070	10	14	53	23	0.44
05.09.2024	N/24/09/3-0161	7	10	49	25	0.28
13.09.2024	N/24/09/4-0135	9	13	50	27	0.25
14.09.2024	N/24/09/4-0234	13	18	56	31	0.31
16.09.2024	N/24/09/5-0005	11	14	46	25	0.24
17.09.2024	N/24/09/5-0064	7	9	56	30	0.33
25.09.2024	N/24/09/6-0107	9	10	49	26	0.33
26.09.2024	N/24/09/6-0130	6	9	40	22	0.21
Limits for Industrial , Residential, Rural and other Areas		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Arshiy Kousar
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TEST REPORT

Table No. 11

Fugitive Emission

Name of the Client	: The Sandur Manganese & Iron Ores Limited		
Name of the Project	: Mining Lease No. 2679		
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)		
Duration	: 08 Hrs		
Issue Date	: 01.10.2024		
Station at & Code	Date of sample	Lab Code	Particulate mater (µg/m³)
FA1, Loading point	13.09.2024	N/24/09/4-0142	254
FA2, Dumping point	13.09.2024	N/24/09/4-0143	362
FA3, Haulage Road	13.09.2024	N/24/09/4-0144	355
FA4, Stack Yard	14.09.2024	N/24/09/4-0241	265
FA5, Drilling Point	14.09.2024	N/24/09/4-0242	385
FA6, Waste Dumping Point	14.09.2024	N/24/09/4-0243	321
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)			
Permissible limits for Fugitive Emissions		Particulate mater (µg/m³) 600 µg/m³	

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TC-6172

TEST REPORT

Table No. 12

Analysis Report of Dust Fall Measurement

1	Name of the Client	The Sandur Manganese & Iron Ores Limited
2	Name of the Project	Mining Lease No. 2679
3	Month	01.09.2024 to 30.09.2024
4	Sample Type	Total Dust Fall Rate
5	Duration of Monitoring	One Month
6	Issue Date	01.10.2024

Result

Code	Location	Result	unit	Reference Method
DF1	Mine Office Area	0.010	g/m ² month	IS 5182 (Part 01) : 2006
DF2	Near Crusher Area	0.012	g/m ² month	IS 5182 (Part 01) : 2006

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TEST REPORT

Table No. 13

AMBIENT NOISE LEVEL DATA

Report No : ELMES0102409

Name of the Client	: The Sandur Manganese & Iron Ores Limited
Name of the Project	: Mining Lease No. 2679
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Date of monitoring	: 17.09.2024
Issue Date	: 01.10.2024

Code No.	Monitoring stations	Day			Night		
		L _{min}	L _{eq}	L _{max}	L _{min}	L _{eq}	L _{max}
Corezone							
N1	Core zone ML Area	38.0	47.3	54.0	33.0	42.1	45.0
N2	Myadara Banda Block	36.0	50.0	57.0	34.0	42.7	46.0
N3	Goerner Point	39.0	51.5	56.0	32.0	40.7	46.5
N4	Neerlabbi	41.0	51.7	60.0	33.0	40.8	47.0
Buffer zone							
N5	Ramgad village	37.0	49.0	54.1	33.4	42.0	46.0
N6	Dharmapura	36.0	47.1	52.4	35.0	41.7	45.0
N7	Garaga village	35.0	46.7	51.3	33.0	38.7	44.2
N8	Yeshwanthanagar	38.0	49.7	54.8	33.8	40.1	44.8
N9	Subbarayanahalli	39.0	50.1	55.0	33.3	40.6	43.8
N10	Siddapura	40.0	50.1	56.0	34.0	42.3	46.0

Permissible Limits of Ambient Noise Levels as per CPCB Guidelines

Leq. Limit dB(A)

Day Night

Industrial areas
Commercial area
Residential area

75 70
65 55
55 45

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Table No. 14

TEST REPORT

Report No : ELMES0112409

Name of the Client		: M/s. Sandur Manganese & Iron Ores Limited			
Name of the Project		: Mining Lease No. 2679			
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)			
Date of monitoring		: 16.09.2024			
Issue Date		: 01.10.2024			
Code No.	Monitoring stations	Day			Remarks
		L _{min}	L _{eq}	L _{max}	
Source					
N1	Loading Point	39.0	57.1	64.0	During operation
N2	Dumping Point	40.0	67.2	75.0	During operation
N3	Haulage Road	42.0	65.0	73.0	During operation
Heavy Earth Moving Machineries					
N4	Wheel Loader	43.0	79.1	85.0	During operation in side of the cabin
		40.0	74.8	80.0	During operation 10mts outside of the cabin
N5	Tata Hitachi 200LC	38.0	74.5	82.0	During operation in side of the cabin
		36.0	71.4	78.0	During operation 10mts outside of the cabin
Permissible limits as per ILO Code of Practice				Permissible Limits of Ambient	
For Unprotected ear - 8 hrs working shift				Noise Levels as per CPCB Guidelines	
Warning limit - 85 dB(A)				Leq. Limit dB(A)	
Danger limit - 90 dB(A)				Day	Night
Worker not to be exposed for more than 115 dB(A)				Industrial areas	75 70
With ear protection -				Commerecial area	65 55
130 dB(A) 'Impulse' or 120 dB(A) 'Fast'				Residential area	55 45
No entry when noise level exceeds 140 dB(A)					

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TEST REPORT

Table No.15

Name of the Client : The Sandur Manganese & Iron Ores Limited
 Name of the Project : Mining Lease No. 2679
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
 Particulars of sample collected : SW1 - Ragavapura kere water, SW2 - Dhananayakana kere water
 : SW3 - Narihalla Upstream water, SW4 - Narihalla Downstream water
 Date of sample collection : 13.09.2024
 Issue Date : 23.09.2024

Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)

Sl.No.	Sample Code	SW1	SW2	SW3	SW4	Limits For Stream Water Standards	Method of Testing
	Lab Code	N/24/09/4-0218	N/24/09/4-0219	N/24/09/4-0220	N/24/09/4-0221		
	Parameters	Results					
1	pH	7.20	7.60	7.50	7.43	6.5 to 8.5	IS:3025(Part-11)2022
2	Colour (Hazen Units), Max	5	5	5	5	300	IS:3025(Part-4)2021
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	-	IS:3025 (P-5) 2018
4	Total Dissolved Solids (mg/l), Max	92	385	232	238	1500	IS:3025(Part-16)2023
5	Total Suspended Solids, mg/l	40	56	88	52	-	IS 3025 (P-17) 2022
6	Dissolved Oxygen (as O ₂), mg/l, Max	5.6	5.3	5.10	5.20	Min 4	IS:3025(Part-38)1989RA 2019
7	Biochemical Oxygen Demand (as O ₂), mg/l	<3.0	<3.0	<3.0	<3.0	3	IS:3025(P-44) 2014
8	Oil & Grease, mg/l	<0.1	<0.1	<0.1	<0.1	0.1	IS:3025(Part 39)2021
9	Total Hardness (as CaCO ₃),mg/l,Max	54	155	110	100	-	IS:3025 (P-21):2009 RA 2019
10	Sulphates as SO ₄ (mg/l), Max	12	72	28	30	400	IS:3025(P-24)Sec 1 2022
11	Phosphates (as P), mg/l	<0.05	<0.05	<0.05	<0.05	-	IS 3025 (P-31) Sec 1 2022
12	Chloride (as Cl),mg/l, Max	10	115	58.0	60	600	IS:3025(Part-32) ;1988RA2019
13	Fluoride (as F),mg/l, Max	0.17	0.7	0.52	0.60	1.5	APHA 23rd Edition 4500F
14	Sulphide (as H ₂ S) , mg/l, Max	<0.01	<0.01	<0.01	<0.01	-	IS:3025 (P-29):1986 RA 2019
15	Boron (as B), mg/l, Max	<0.1	<0.1	<0.1	<0.1	-	IS:3025 (Part-57)2021
16	Iron (as Fe),mg/l, Max	<0.005	<0.005	<0.005	<0.005	50	IS:3025(P-2) 2019
17	Percent of Sodium (%)	42	30	28.00	22.00	-	IS 11624 .2009
18	Residual Sodium Carbonate (meq/l)	<0.05	<0.05	<0.05	<0.05	-	IS:2488 (P-5) 1976
19	Total Coliform, MPN/100ml	170	700	420	440	5000	IS:1622:1981

""END OF REPORT""


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TEST REPORT

Table No. 16

Name of the Client		: The Sandur Manganese & Iron Ores Limited					
Name of the Project		: Mining Lease No. 2679					
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)					
Particulars of sample collected		: GW1 - Project Site Core Zone Borewell water, GW2 - Ramghad Bore water, GW3 - Dharmapura Bore water					
Issue Date		: 23.09.2024					
Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)							
Date of sample collection		13.09.2024	13.09.2024	13.09.2024	Desirable Limits	Permissible Limits	Method of Testing
Lab Code		N/24/09/4-0222	N/24/09/4-0223	N/24/09/4-0224			
Sl. No.	Sample Code	GW1	GW2	GW3			
	Parameters	Results					
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	6.68	6.97	7.90	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
4	Turbidity,NTU, Max	0.8	1.5	2.60	1	5	IS:3025 (P-10)1984 RA 2017
5	Electrical Conductivity (µmhos/cm)	180.0	320.0	1630.0	—	—	IS 3025 (P-14)
6	Total Dissolved Solids,mg/l, Max	98.0	172.0	930.0	500	2000	IS:3025 (P-16)1984 RA2017
7	Aluminium (as Al), Max	<0.005	<0.005	<0.005	0.03	0.2	IS:3025 (P-2)2019
8	Boron (as B), mg/l, Max	<0.1	<0.1	<0.1	0.5	2.4	IS:3025 (Part-57)2021
9	Calcium (as Ca),mg/l, Max	8.81	41.00	140.30	75	200	IS:3025 (P-40)1991 RA 2019
10	Copper (as Cu),mg/l, Max	<0.005	<0.005	<0.005	0.05	1.5	IS:3025 (P-2)2019
11	Chloride as Cl (mg/l),mg/l, Max	40.00	42.00	180.00	250	1000	IS:3025 (P-32) 1988 RA 2019
12	Fluoride (as F),mg/l, Max	0.38	0.51	0.73	1	1.5	IS:3025 (P-60) 2008 RA 2019
13	Iron (as Fe),mg/l, Max	<0.005	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
14	Magnesium (as Mg)mg/l, Max	2.92	1.45	25.00	30	100	IS:3025 (P-46)1994 RA 2019
15	Manganese (as Mn),mg/l, Max	<0.001	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
16	Nitrates (as NO ₃),mg/l, Max	2.50	8.35	21.40	45	45	IS:3025 (P-34) Sec 1 2023
17	Selenium (as Se),mg/l	<0.005	<0.005	<0.005	0.01	0.01	IS:3025(P-2) 2019
18	Sulphates (as SO ₄),mg/l, Max	8.10	38.50	120.00	200	400	IS:3025 (P-24) Sec 1 2022
19	Alkalinity (as CaCO ₃) mg/l, Max	18.0	46.0	500.0	200	600	IS:3025 (P-23):1986 RA 2019
20	Total Hardness (as CaCO ₃),mg/l,Max	34.0	16.0	600.0	200	600	IS:3025 (P-21):2009 RA 2019
21	Zinc (as Zn),mg/l, Max	<0.005	<0.005	<0.005	5	15	IS:3025 (P-2) 2019
22	Sodium, (as Na), mg/l, Max	16	22	35	--	—	IS:3025 (Part-45) 1993 RA2019
23	Potassium, (as K), mg/l, Max	4	<1	8	--	--	IS:3025 (Part-45) 1993 RA2019
24	Cadmium (as Cd),mg/l, Max	<0.001	<0.001	<0.001	0.003	0.003	IS:3025 (P-2) 2019
25	Cyanide (as CN),mg/l, Max	<0.01	<0.01	<0.01	0.05	0.05	IS:3025 (P-27)Sec 1 2021
26	Lead (as Pb),mg/l, Max	<0.005	<0.005	<0.005	0.01	0.01	IS:3025 (P-2) 2019
27	Mercury (as Hg),mg/l, Max	<0.0005	<0.0005	<0.0005	0.001	0.001	USPEA 200.7 Rev 4.4
28	Arsenic (as As),mg/l, Max	<0.002	<0.002	<0.002	0.01	0.01	IS:3025 (P-2) 2019
29	Total Chromium (as Cr),mg/l, Max	<0.001	<0.001	<0.001	0.05	0.05	IS:3025 (P-52) 2014
30	Escherichia coli/100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
31	Total Coliform /100ml)	Not Detected	Not Detected	Not Detected			IS:15185:2016 RA 2021

"END OF REPORT"


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TEST REPORT

Table No. 17

Name of the Client		: The Sandur Manganese & Iron Ores Limited					
Name of the Project		: Mining Lease No. 2679					
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)					
Particulars of sample collected		: GW4 - Garaga Bore water, GW5 - Yeshwanthnagar Bore water, GW5 - Subbarayanahalli Bore water					
Issue Date		: 24.06.2024					
Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)							
Date of sample collection		13.09.2024	10.09.2024	10.09.2024	Desirable Limits	Permissible Limits	Method of Testing
Lab Code		N/24/09/4-0225	N/24/09/3-0262	N/24/09/3-0261			
Sl. No.	Sample Code	GW4	GW5	GW6			
	Parameters	Results					
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	8.15	7.12	7.97	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
4	Turbidity, NTU, Max	2.1	1.8	1.2	1	5	IS:3025 (P-10) 1984 RA 2017
5	Electrical Conductivity (µmhos/cm)	110.0	2300.0	1600.0	—	—	IS 3025 (P-14)
6	Total Dissolved Solids, mg/l, Max	616.0	1340.0	928.0	500	2000	IS:3025 (P-16) 1984 RA 2017
7	Aluminium (as Al), Max	<0.005	<0.005	<0.005	0.03	0.2	IS:3025 (P-2) 2019
8	Boron (as B), mg/l, Max	<0.1	<0.1	<0.1	0.5	2.4	IS:3025 (Part-57) 2021
9	Calcium (as Ca), mg/l, Max	36.00	92.1	88.1	75	200	IS:3025 (P-40) 1991 RA 2019
10	Copper (as Cu), mg/l, Max	<0.005	<0.005	<0.005	0.05	1.5	IS:3025 (P-2) 2019
11	Chloride as Cl (mg/l), mg/l, Max	110.00	380.00	175.00	250	1000	IS:3025 (P-32) 1988 RA 2019
12	Fluoride (as F), mg/l, Max	0.48	0.91	0.52	1	1.5	IS:3025 (P-60) 2008 RA 2019
13	Iron (as Fe), mg/l, Max	<0.005	0.062	0.077	1.0	1.0	IS:3025 (Part-2) 2019
14	Magnesium (as Mg), mg/l, Max	19.40	65.60	97.20	30	100	IS:3025 (P-46) 1994 RA 2019
15	Manganese (as Mn), mg/l, Max	<0.001	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
16	Nitrates (as NO ₃), mg/l, Max	20.50	36.50	24.00	45	45	IS:3025 (P-34) Sec 1 2023
17	Selenium (as Se), mg/l	<0.005	<0.005	<0.005	0.01	0.01	IS:3025 (P-2) 2019
18	Sulphates (as SO ₄), mg/l, Max	60.00	240.00	126.00	200	400	IS:3025 (P-24) Sec 1 2022
19	Alkalinity (as CaCO ₃), mg/l, Max	410.0	400.0	480.0	200	600	IS:3025 (P-23) 1986 RA 2019
20	Total Hardness (as CaCO ₃), mg/l, Max	170.0	500.0	620.0	200	600	IS:3025 (P-21) 2009 RA 2019
21	Zinc (as Zn), mg/l, Max	<0.005	<0.005	<0.005	5	15	IS:3025 (P-2) 2019
22	Sodium, (as Na), mg/l, Max	40	90	166	—	—	IS:3025 (Part-45) 1993 RA 2019
23	Potassium, (as K), mg/l, Max	5	<1.0	5	—	—	IS:3025 (Part-45) 1993 RA 2019
24	Cadmium (as Cd), mg/l, Max	<0.001	<0.001	<0.001	0.003	0.003	IS:3025 (P-2) 2019
25	Cyanide (as CN), mg/l, Max	<0.01	<0.01	<0.01	0.05	0.05	IS:3025 (P-27) Sec 1 2021
26	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	0.01	0.01	IS:3025 (P-2) 2019
27	Mercury (as Hg), mg/l, Max	<0.0005	<0.0005	<0.0005	0.001	0.001	USPEA 200.7 Rev 4.4
28	Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	0.01	0.01	IS:3025 (P-2) 2019
29	Total Chromium (as Cr), mg/l, Max	<0.001	<0.001	<0.001	0.05	0.05	IS:3025 (P-52) 2014
30	Escherichia coli/100ml	Not Detected	Not Detected	Not Detected	Shall not be detectable in any 100ml Sample		IS:15185:2016 RA 2021
31	Total Coliform /100ml	Not Detected	Not Detected	Not Detected			IS:15185:2016 RA 2021

"END OF REPORT"


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TEST REPORT

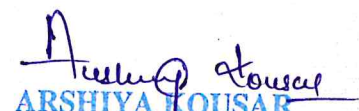
Table No. 18

Stack Monitoring Report

Report No. N/024424094

Name of the Client : The Sandur Manganese & Iron Ores Limited				
Name of the Mine : RAMGAD MANGANESE & IRON ORE MINE (ML NO. 2679)				
Location		: Mining Lease No. 2679		
Stack ID & Capacity		: DG Set 35 KVA Ramgad-KK1 Mines		
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)		
Date of Collection		: 14.09.2024		
Particulars of Sample Collected		: Emissions from stack collected through stack sample VSS1		
Date of Sample Receipt		: 16.09.2024		
Lab Code		: N/24/09/4-0244		
Issue date		: 01.10.2024		
STACK DETAILS				
1	Fuel Used	Diesel		
2	Ambient Temperature (°C)	28		
3	Stack Temperature (°C)	115		
4	Velocity (m/s)	6.09		
5	Stack diameter (M)	0.15		
6	Quantity of flue Gas Discharged into atmosphere (Nm³/hr)	280		
7	Sample Condition When Received	Satisfactory		
8	Model of the Equipment used for Monitoring	Vayubodhan Stack Sampler VSS1		
9	Serial No. of the Equipment	338 DTH 14		
10	Calibration done on and due on	Done on 19.11.2022 and Due on 18.11.2024		
11	Sampling and Analysis Method	IS 11255 & flue gas analyser		
Pollutional Parameters (Result)				
Sl.No	Parameters	Unit	Results	Standard
1	Particulate Matter	g/Kw-hr	0.089	<0.2
2	CO	g/Kw-hr	0.079	<3.5
3	Nox +HC	g/Kw-hr	0.150	<4.0

INFERENCE	as per KSPCB
	Report Status - The measured values for the above parameters for those standards have been specified were observed to be within the said standards


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(UNIT OF MINERAL ENGINEERING SERVICES)

Accredited by NABL (TC-6172) Recognised by BIS, FSSAI & CPCB:MoEFCC under E(P) A 1986 Vide Gazette Notification No. legal 42(3)/2022 dated 22.07.2022 Recognition valid upto 23.05.2023

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TEST REPORT

Table No. 19

Stack Monitoring Report

Report No. N/024524094

Name of the Client :	The Sandur Manganese & Iron Ores Limited
Name of the Mine :	RAMGAD MANGANESE & IRON ORE MINE (ML NO. 2679)
Location :	Mining Lease No. 2679
Stack ID & Capacity :	DG Set 20 KVA Ramgad Mines
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	14.09.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	16.09.2024
Lab Code :	N/24/09/4-0245
Issue date :	01.10.2024

STACK DETAILS

1	Fuel Used	Diesel
2	Ambient Temperature (°C)	28
3	Stack Temperature (°C)	117
4	Velocity (m/s)	5.02
5	Stack diameter (M)	0.15
6	Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr)	229
7	Sample Condition When Received	Satisfactory
8	Model of the Equipment used for Monitoring	Vayubodhan Stack Sampler VSS1
9	Serial No. of the Equipment	338 DTH 14
10	Calibration done on and due on	Done on 19.11.2022 and Due on 18.11.2024
11	Sampling and Analysis Method	IS 11255 & flue gas analyser

Pollutional Parameters (Result)

Sl.No	Parameters	Unit	Results	Standard
1	Particulate Matter	g/Kw-hr	0.101	<0.2
2	CO	g/Kw-hr	0.072	<3.5
3	Nox +HC	g/Kw-hr	0.244	<4.0

INFERENCE	as per KSPCB
	Report Status - The measured values for the above parameters for those standards have been specified were observed to be within the said standards

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TEST REPORT

Table No. 20

Name of the Client		: M/s. Sandur Manganese & Iron Ores Limited			
Name of the Project		: Mining Lease No. 2679			
Particulars of sample		: Soil Samples			
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)			
Date of sample collection		: 13.09.2024			
Issue Date		: 01.10.2024			
Lab Code		N/24/09/4-0226	N/24/09/4-0227	N/24/09/4-0228	
SL. No.	Sample Code	S1	S2	S3	
	PARAMETERS	Unit	Results		
PHYSICAL PROPERTIES					
1	Colour	--	Red soil	Red soil	Red Soil
2	Textural class	--	Clay Loam	Clay Loam	Sandy Loam
3	Size Distribution				
	Sand	%	34.33	32.22	45.22
	Clay	%	30.15	39.58	34.96
	Silt	%	35.52	28.2	19.82
4	Moisture Content	%	4.96	5.88	7.12
5	Bulk Density	gm/cc	1.72	1.79	1.92
6	Water holding capacity	%	31.22	28.52	48
7	pH	--	6.52	7.33	7.63
8	EC	m.mohs/cm	0.288	0.128	0.592
Chemical Properties					
9	Organic Carbon	%	0.42	0.19	0.77
10	Nitrogen as N	Kg/Ha	180	172	150
11	Phosphorous as P	Kg/Ha	52	66	44
12	Potassium as K ₂ O	Kg/Ha	140	126	142
13	Sodium as Na	mg/kg	33	50	33
14	Chloride as Cl	mg/kg	40	44	38
15	Sulphate as SO ₄	mg/kg	30	47	36
Sample Locations :					
S1 - Core Zone (ML Area)					
S2 - Ramghad agriculture land					
S3 - Dharmapura agriculture land					

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TEST REPORT

Table No. 21

Name of the Client		: M/s. Sandur Manganese & Iron Ores Limited			
Name of the Project		: Mining Lease No. 2679			
Particulars of sample		: Soil Samples			
Sample Collected by		: Environmental Laboratory (Unit of Mineral Engineering Services)			
Date of sample collection		: 13.09.2024			
Issue Date		: 01.10.2024			
Lab Code		N/24/09/4-0229	N/24/09/3-0274	N/24/09/3-0267	
SL. No.	Sample Code	S4	S5	S6	
	PARAMETERS	Unit	Results		
PHYSICAL PROPERTIES					
1	Colour	--	Red Soil	Red soil	Red Soil
2	Textural class	--	Sandy Loam	Clay Loam	Clay Loam
3	Size Distribution				
	Sand	%	41.88	40.21	32.51
	Clay	%	33.30	28.51	29.07
	Silt	%	24.82	31.28	38.42
4	Moisture Content	%	5.66	5.35	6.91
5	Bulk Density	gm/cc	1.61	1.81	1.52
6	Water holding capacity	%	38	36	21.21
7	pH	--	7.69	7.53	7.23
8	EC	m.mohs/cm	0.348	0.532	0.188
Chemical Properties					
9	Organic Carbon	%	0.34	0.42	0.17
10	Nitrogen as N	Kg/Ha	132	130	123
11	Phosphorous as P	Kg/Ha	36	44	7.21
12	Potassium as K ₂ O	Kg/Ha	140	138	122
13	Sodium as Na	mg/kg	30	38	63
14	Chloride as Cl	mg/kg	36	34	162
15	Sulphate as SO ₄	mg/kg	29	44	38
Sample Locations :					
S4 - Garaga agriculture land					
S5 - Yeshwanthnagar agriculture land					
S6 - Subbarayanahalli agriculture land					

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Table No. 22

RESULTS OF RESPIRABLE AIR-BORNE DUST SURVEY

Name of the Owner : Sandur Manganese & Iron Ores Limited

Name of the Mine : Ramgad Manganese & Iron Ore Mine (ML NO. 2679)

Sample Collected by: Mr. Srinivasulu A

Report No : ELMES0182409

Issue Date : 01.10.2024

PERSONAL SAMPLER

SL. NO	DATE OF SAMPLE COLLECTION	Filter paper code	Lab Code	LOCATION / CATEGORY	Name of the person	DURATION OF SAMPLING			Volume of air (Lts)	DUST CONCENTRATION mg/m ³	*PERMISSIBLE LIMIT mg/m ³
						FROM	TO	TOTAL HRS		RPM	
1	16.09.2024	180	N/24/09/4-0295	Mine workers	Mohammed Rafi	8:50	16:50	8:00	684.0	1.32	3
2	16.09.2024	101	N/24/09/4-0296	Tipper Operator	Maresh B	8:45	16:45	8:00	1056.0	0.95	3
3	16.09.2024	100	N/24/09/4-0297	Excavator Operator	Thippeswamy G	9:20	17:20	8:00	660.0	1.06	3
4	16.09.2024	181	N/24/09/4-0298	Jack Hammer Drilling Operator	Kariyappa	9:30	17:30	8:00	660.0	1.82	3
5	17.09.2024	182	N/24/09/4-0301	Wheel Loader Operator	Kasim Saab	8:30	16:30	8:00	684.0	1.46	3
6	17.09.2024	183	N/24/09/4-0302	Spotter Waste Dump	Ganganna	9:00	17:00	8:00	1056.0	1.23	3
7	17.09.2024	184	N/24/09/4-0303	Tipper Operator	Oblesh	9:15	17:15	8:00	660.0	1.06	3
8	17.09.2024	185	N/24/09/4-0304	Water Tankers Operator	Ravi Kumar	9:35	17:35	8:00	660.0	0.76	3

STATIC SAMPLER

SL. NO	DATE OF SAMPLE COLLECTION	Filter paper code	Lab Code	LOCATION / CATEGORY	Name of the person	DURATION OF SAMPLING			Volume of air (Lts)	DUST CONCENTRATION mg/m ³	*PERMISSIBLE LIMIT mg/m ³
						FROM	TO	TOTAL HRS		RPM	
9	16.09.2024	102	N/24/09/4-0299	Dumping Point	Static	9:00	17:00	8:00	940.8	1.91	3
10	16.09.2024	179	N/24/09/4-0300	Loading Point	Static	9:55	17:55	8:00	796.8	1.13	3
11	17.09.2024	186	N/24/09/4-0305	Weigh Bridge	Static	9:40	17:40	8:00	940.8	1.91	3
12	17.09.2024	187	N/24/09/4-0306	Haulage Road	Static	9:45	17:45	8:00	796.8	2.01	3

* Note: Free Silica Analysis report for Ragmad Manganese & Iron Ore mine show less than 5% Free silica content and hence the permissible limit for dust concentration shall be 3 mg/m³ (Ref : DGMS Reg 124(2) of MMR, 1961)

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Table No. 23



TEST REPORT Free Silica Analysis Report

Name of the Owner : Sandur Manganese & Iron Ores Limited

Name of the Mine : Ramgad Manganese & Iron Ore Mine (ML NO. 2679)

Sample Collected by: Mr. Srinivasulu A

Report No : FS0294-030624094

Issue Date : 01.10.2024

SL.NO	DATE OF SAMPLE COLLECTION	LOCATION / CATEGORY	Name of the person / Static	Free Silica Content (%)	Free Silica Limits (%)
PERSONAL SAMPLER					
1	16.09.2024	Mine workers	Mohammed Rafi	ND	5
2	16.09.2024	Tipper Operator	Mahesh B	ND	5
3	16.09.2024	Excavator Operator	Thippeswamy G	ND	5
4	16.09.2024	Jack Hammer Drilling Operator	Kariyappa	ND	5
5	17.09.2024	Wheel Loader Operator	Kasim Saab	ND	5
6	17.09.2024	Spotter Waste Dump	Ganganna	ND	5
7	17.09.2024	Tipper Operator	Oblesh	ND	5
8	17.09.2024	Water Tankers Operator	Ravi Kumar	ND	5
STATIC SAMPLER					
9	16.09.2024	Dumping Point	Static	ND	5
10	16.09.2024	Loading Point	Static	ND	5
11	17.09.2024	Weigh Bridge	Static	ND	5
12	17.09.2024	Haulage Road	Static	ND	5

Note: ND-Not Detected, Detection Level : 0.0005%

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