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/2024-25/2678/650

07 August 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 July 2024 in respect of Mining Lease No. 2678.

Ref: 1. Environmental Clearance F.No. IA-J-11015/45/2021-IA-II(M) dated 25 April 2023.

2. Consent for Operation No. AW-341719 dated 02 February 2024.

With reference to the letter cited above, we are enclosing herewith environmental monitoring reports prepared after monitoring the stipulated environmental parameters for the month of July 2024 in respect of Mining Lease No. 2678 of The Sandur Manganese & Iron Ores Limited.

Kindly acknowledge the receipt of the reports.

Thank you,

for The Sandur Manganese & Iron Ores Limited,

Md. Abdul Saleem, Whole Time Director

& Company Secretary

DEOGIRI OF SELECTION OF SELECTI

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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 Tel: +91 8394 244450 / 244335





National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

ENVIRONMENTAL LABORATORY (UNIT OF MINERAL ENGINEERING SERVICES)

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

#948, 2ND CROSS, ST.THOMAS TOWN POST, KAMMANAHALLI MAIN ROAD, BENGALURU, BENGALURU URBAN, KARNATAKA, INDIA

in the field of

TESTING

Certificate Number:

TC-6172

Issue Date:

24/05/2023

Valid Until:

23/05/2025

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL. (To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity: ENVIRONMENTAL LABORATORY (UNIT OF MINERAL ENGINEERING SERVICES)

Signed for and on behalf of NABL



N. Venkateswaran **Chief Executive Officer**







केन्द्रीय प्रदूषण नियंत्रण बोर्ड CENTRAL POLLUTION CONTROL BOARD

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार MINISTRY OF ENVIRONMENT FOREST & CLIMATE CHANGE GOVT OF INDIA

F.No. LB/99/7/2021-INST LAB-HO-CPCB-HO/Pvt./ (60)

Dated: 28th January 2023 07th June 2023

· The same of the

Recognition Certificate

To.

Head of Laboratory, M/s Environmental Laboratory (Unit of Mineral Engineering Services), #948, 2nd Cross, St. Thomas Town Post, Kammanahalli Road, Bengaluru--560084, Karnataka.

Subject: Recognition of M/s Environmental Laboratory (Unit of Mineral Engineering Services), #948, 2nd Cross, St. Thomas Town Post, Kammanahalli Road, Bengaluru--560084, Karnataka, as Environmental laboratory under the Environmental (Protection) Act- 1986.

Sir,

I am directed to refer the online application, dated 27/10/2022 for the recognition of your laboratory under Environmental (Protection) Act, 1986. Based on the recommendations of the concerned Division, approval of Competent Authority for recognition of Environmental laboratories and your acceptance of the revised terms and conditions at Annexure-III & IV of the guidelines for recognition of environmental laboratories, CPCB approves the renewal of recognition M/s Environmental Laboratory (Unit of Mineral Engineering Services), #948, 2nd Cross, St. Thomas Town Post, Kammanahalli Road, Bengaluru--560084, Karnataka and shall be notified in the Gazette of India. Considering the current requirement of mandatory accreditation/ certifications of the laboratory, this recognition shall be valid up to 23/05/2025.

- 2. As sought in the aforementioned application, M/s Environmental Laboratory (Unit of Mineral Engineering Services), #948, 2nd Cross, St. Thomas Town Post, Kammanahalli Road, Bengaluru--560084, Karnataka may undertake the following tests:
 - Physical Tests-Conductivity, Colour, pH, Fixed & Volatile Solids, Total Solids, Total Dissolved Solids, Total Suspended Solids, Turbidity, Temperature, Velocity & Discharge Measurement of Industrial Effluent Stream, Flocculation Test (Jar test), Odour, Salinity, Settleable Solids and Sludge Volume Index.
 - ii. Inorganic (General and Non-metallic): Acidity, Alkalinity, Ammonical Nitrogen, Chloride, Chlorine Residual, Dissolved Oxygen, Fluoride, Total Hardness, Total Kjeldahl Nitrogen (TKN), Nitrite Nitrogen, Nitrate Nitrogen, Phosphate, Sulphate, , Silica, Cyanide and Sulphide.
 - iii. Inorganic (Trace Metals): Boron, Cadmium, Calcium, Total Chromium, Chromium Hexavalent, Copper, Iron, Lead, Magnesium, Mercury, Nickel, Potassium, Sodium, Sodium Absorption Ratio, Zinc, Arsenic, Aluminium, Barium, Selenium, Tin, Antimony, Cobalt and Vanadium,
 - iv. Organics (General) and Trace Organics: Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease, Phenolic Compounds, Pesticides (each) (Organo-Chlorine and Organo Nitrogen-Phosphorus), Surfactant, Tanin & Lignin, Poly-Chlorinated biphenyl (PCB's) each, Poly-Nuclear Aromatic Hydrocarbon (PAH).
 - v. Microbiological Test: Total Coliform, Faecal Coliform, E. coli, Faecal Streptococci and Total Plate Count.
 - vi. Toxicological Tests: Bioassay Method for Evaluation of Toxicity using Fish and Measurement of Toxicity Using Daphnia or Other Organism.

vii. Biological Test: Macrophytic Identification, Planktonic Identification Count and Chlorophyll.

'परिवेश भवन' पर्वी अर्जुन नगर, दिल्ली-110032

Contd.

Parivesh Bhawan, East Arjun Nagar, Delhi-110032

दूरभाष/Tel: 43102030, 22305792,वेबसाईट/Website: www.cpcb.nic.in

- viii. Characterization of Hazardous Waste: Corrosivity, Ignibility (Flash point) and Measurement of Heavy Metals/Pesticides in the Waste/Leachate.
- ix. Soil/Sludge/Sediment and Solid Waste: Boron, Cation Exchange Capacity (CEC), Electrical Conductivity, Nitrogen (Available), Organic Carbon/Matter (Chemical Method), pH, Phosphorous (Available), Phosphate (Ortho), Phosphate (Total), Potassium, SAR in Soil Extract, Sodium, Soil moisture, TKN, Calorific Value, Ammonia, Bicarbonate, Calcium, Calcium Carbonate, Chloride, Colour, H.Acid, Heavy Metal, Magnesium, Nitrate, Nitrite, PAH, Pesticide, Potash (Available), Sulphate, Sulphur, Total Organic Carbon, Total Water Soluble Salt and Water Holding Capacity.

Ambient Air/ Fugitive Emissions: Nitrogen Dioxide (NO2), Sulphur Dioxide (SO2), Total Suspended Particulate Matter, Respirable Suspended Particulate Matter PM₁₀, Ammonia, Carbon Monoxide, Chlorine, Lead, Ozone, Benzene Toluene Xylene (BTX), Polycyclic

Aromatic Hydrocarbon (PAH) Benzo-a-Pyrine & others and PM2.5.

xi. Stack Gases/ Source Emission: Particulate Matter, Sulphur Dioxide, Velocity & Flow, Carbon Dioxide, Carbon Monoxide, Temperature, Oxygen, Oxides of Nitrogen, Acid Mist, Ammonia, Total Hydrocarbon, Hydrogen Sulphide and Carbon Disulphide.

xii. Noise Level: Noise Level Measurement (20-140 dBa) and Ambient Noise and Source

Specific Noise.

- xiii. Meteorological: Ambient Temperature, Wind Direction, Wind Speed, Relative Humidity, Solar Radiation and Rainfall.
- 3. Further, the following analysts have been approved as Government Analysts.
 - M. Sachin Raju i.
 - ii. Binu Mani
 - Arshiya Kousar iii.
- 4. The laboratory shall compulsorily participate in the Analytical Quality Exercise conducted by the Central Pollution Control Board (CPCB) to ascertain the capability of the laboratory and analysis carried out and shall submit quarterly progress report to CPCB.
- 5. The surprise inspection/periodic surveillance of the recognized environment laboratory will be undertaken by CPCB to assess its proper functioning systematic operation and reliability of data generated at the laboratory.
- 6. It is also mandatory for the laboratory to have requisite accreditations of the ISO: 17025 and ISO:45001 and its renewal as per accreditation rules. This recognition is subject to such accreditations and renewals as applicable. The laboratory is required to apply online for further renewal of recognition through CPCB web portal after renewal of the mandatory accreditations / certifications concerned.
- 7. The laboratory should compulsorily follow the accepted terms and conditions. In case of serious non-compliance of any of the terms and conditions, the laboratory may be black listed for a minimum period of two years and civil/criminal proceedings, as applicable, may be initiated for performing functions on behalf of the Government in an unauthorized manner.

Yours faithfully,

डॉ. के. रंगनाथन / Dr. K. Ranganathan कि 'र सकति विश्लेषक / Scientist 'E' Govt. Analyst केंद्रीय प्रदूषण नियंत्रण बोर्ड Central Pollution Control Board पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार (Mo Environment, Forest & Climate Change, Govt. of India) परिवेश मदन, पूर्वी अर्जुन नगर, दिल्ली-110032 Partivesh Bhawan Fast Ariun Nagar C.

K. P J 17/6/23 (Dr. K. Ranganathan) Scientist-E & Divisional Head Instrumentation laboratory

ENVIRONMENTAL MONITORING REPORT July, 2024

Project: Mining Lease No. 2678
Deogiri Manganese & Iron Ore Mine,
Kammathuru Iron Ore Mine,
Subrayanahalli Manganese & Iron Ore Mine,
Sandur Taluk, Ballari Dist, Karnataka.

Lessee

The Sandur Manganese & Iron Ores Limited Sandur,

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,

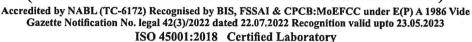
LIST OF TABLES

SL. NO.	PARTICULARS	Table No.
1	Test Report of Ambient Air Quality	1 to 10
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9	Stack Monitoring Report	24 to 32
10	Run off Water Test Report	33 to 35



ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES)





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. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A1, Mine Pit (SK) / (CBG)

Duration

: 24 Hrs

Issue date

: 01.08.2024

Reference IS 5182 & Lab SOP

		Culahua	Nituo	Particulate Matter		Carbon Monoxide* (CO), mg/m³ 0.32 0.28 0.21 0.36 <0.2
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m³)	PM _{2.5,} (μg/m ³)	Monoxide*
02.07.2024	N/24/07/1-0064	11	12	53	32	0.32
03.07.2024	N/24/07/1-0097	7	9	57	33	0.28
08.07.2024	N/24/07/03-0005	6	12	36	18	0.21
09.07.2024	N/24/07/03-0046	11	. 15	47	24	0.36
19.07.2024	N/24/07/4-0162	9	12	45	24	<0.2
20.07.2024	N/24/07/4-0220	10	11	37	19	0.42
22.07.2024	N/24/07/5-0001	11	13	56	16	0.36
23.07.2024	N/24/07/5-0050	7	11	42	24	0.28
Limits for Inc Residential, Rural		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

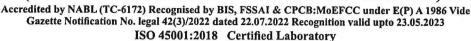
ARSHIYA KOUSAR

Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory



(UNIT OF MINERAL ENGINEERING SERVICES)





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. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A2, Kammathuru (within ML Area)

Duration

24 Hrs

Issue date

: 01.08.2024

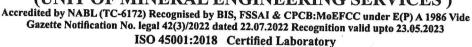
Reference IS 5182 & Lab SOP

			N	Particula	ate Matter	
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m³)	PM _{2.5,} (μg/m ³)	Carbon Monoxide* (CO), mg/m ³
02.07.2024	N/24/07/1-0065	9	12	45	24	0.38
03.07.2024	N/24/07/1-0098	11	12	49	28	0.22
08.07.2024	N/24/07/03-0006	12	15	53	30	0.20
09.07.2024	N/24/07/03-0047	7	13	56	32	0.28
19.07.2024	N/24/07/4-0163	9	11	40	26	0.31
20.07.2024	N/24/07/4-0221	10	12	51	24	0.45
22.07.2024	N/24/07/5-0002	9	10	38	19	0.41
23.07.2024	N/24/07/5-0051	7	11	35	17	0.38
Limits for In Residential, Rural		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Govt. Analyst / Authorised Signatory



(UNIT OF MINERAL ENGINEERING SERVICES)





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. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A3, Deogiri (within ML Area)

Duration

: 24 Hrs

Issue date

01.08.2024

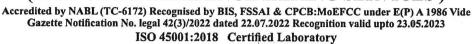
Reference IS 5182 & Lab SOP

			division in	Particula	ate Matter	
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m³)	PM _{2.5,} (μg/m³)	Carbon Monoxide* (CO), mg/m ³
02.07.2024	N/24/07/1-0066	6	9	44	23	0.32
03.07.2024	N/24/07/1-0099	9	10	51	31	0.24
08.07.2024	N/24/07/03-0007	7	9	58	33	0.26
09.07.2024	N/24/07/03-0048	11	13	30	16	0.22
19.07.2024	N/24/07/4-0164	9	11	48	26	0.31
20.07.2024	N/24/07/4-0222	9	11	46	22	0.2
22.07.2024	N/24/07/5-0003	9	11	36	19	0.25
23.07.2024	N/24/07/5-0052	10	13	44	26	0.24
Limits for Inc Residential, Rural	150	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

ARSHIYA KOUSAR
Govt. Analyst P Authorised Signatory



(UNIT OF MINERAL ENGINEERING SERVICES)





TC-6172

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. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A4, SBH Plot (Mine Boundary)

Duration

: 24 Hrs

Issue date

: 01.08.2024

Reference IS 5182 & Lab SOP

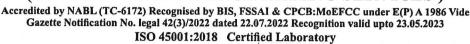
	-	~		Particulate Matter		Carbon Monoxide* (CO), mg/m³ 0.23 0.34 0.41
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m³)	PM _{2.5,} (μg/m ³)	The property of the second
02.07.2024	N/24/07/1-0067	12	14	48	25	0.23
03.07.2024	N/24/07/1-0100	7	10	38	25	0.34
08.07.2024	N/24/07/03-0008	10	11	53	28	0.41
09.07.2024	N/24/07/03-0049	<4	9	44	21	0.22
19.07.2024	N/24/07/4-0165	7	9	50	28	0.26
20.07.2024	N/24/07/4-0223	9	10	30	19	0.24
22.07.2024	N/24/07/5-0004	7	11	49	27	0.25
23.07.2024	N/24/07/5-0053	7	10	42	25	0.35
Limits for In Residential, Rural	The second secon	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

Govt. Analyst / Authorised Signatory

948, 2nd Cross, St. Thomas Town Post, Kammanahalli, Bangalore - 560 084. Phone: 080-25432969 E-mail: mesbng@gmail.com, www.envtest.in



(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No.5

AMBIENT AIR QUALITY

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A5, Subbarayanahalli (within ML Area)

Duration

: 24 Hrs

Issue date

: 01.08.2024

Reference IS 5182 & Lab SOP

£				Particula	te Matter	
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m³)	PM _{2.5,} (μg/m ³)	Carbon Monoxide* (CO), mg/m ³
02.07.2024	N/24/07/1-0068	9	12	47	26	0.22
03.07.2024	N/24/07/1-0101	9	11	50	26	0.31
08.07.2024	N/24/07/03-0009	9	11	54	27	0.24
09.07.2024	N/24/07/03-0050	7	9	45	24	0.42
19.07.2024	N/24/07/4-0166	11	11	37	19	0.33
20.07.2024	N/24/07/4-0224	6	8	54	30	0.25
22.07.2024	N/24/07/5-0005	9	11	50	28	0.24
23.07.2024	N/24/07/5-0054	4	9	36	19	0.29
Limits for In Residential, Rural		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

ARSHIYA KOUS Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory

948, 2nd Cross, St. Thomas Town Post, Kammanahalli, Bangalore - 560 084. Phone: 080-25432969 E-mail: mesbng@gmail.com, www.envtest.in



(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

ISO 45001:2018 Certified Laboratory

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. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A6, Appayyanahalli (Narayanpura)

Duration

: 24 Hrs

Issue date

: 01.08.2024

Reference IS 5182 & Lab SOP

				Particula	ite Matter	
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m ³)	PM _{2.5,} (μg/m³)	Carbon Monoxide* (CO), mg/m ³
02.07.2024	N/24/07/1-0069	6	7	42	24	0.31
03.07.2024	N/24/07/1-0102	7	9	28	16	0.35
08.07.2024	N/24/07/03-0010	6	8	46	27	<0.2
09.07.2024	N/24/07/03-0051	11	12	52	28	0.22
19.07.2024	N/24/07/4-0167	10	12	35	19	0.33
20.07.2024	N/24/07/4-0225	9	13	50	27	0.27
22.07.2024	N/24/07/5-0006	9	11	30	19	0.24
23.07.2024	N/24/07/5-0055	8	12	38	20	0.23
Limits for In Residential, Rural		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

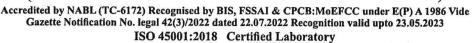
ARSHIYA KOUSAR

Dy. T.M. Chemical

Govt. Analyst Authorised Signatory



(UNIT OF MINERAL ENGINEERING SERVICES)





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. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A7, Vitalanagar (Navalatti)

Duration

: 24 Hrs

Issue date

: 01.08.2024

Reference IS 5182 & Lab SOP

				Particula	te Matter	
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m³)	PM _{2.5,} (μg/m³)	Carbon Monoxide* (CO), mg/m ³
02.07.2024	N/24/07/1-0070	12	14	58	30	0.20
03.07.2024	N/24/07/1-0103	11	13	50	28	0.24
08.07.2024	N/24/07/03-0011	6	11	37	16	0.45
09.07.2024	N/24/07/03-0052	9	13	44	25	0.38
19.07.2024	N/24/07/4-0168	7	11	45	28	0.32
20.07.2024	N/24/07/4-0226	11	14	42	23	0.28
22.07.2024	N/24/07/5-0007	12	18	46	26	0.26
23.07.2024	N/24/07/5-0056	11	13	52	29	0.22
Limits for In Residential, Rural		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

ARSHIYA KOUSAR

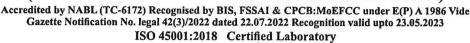
Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory



ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES)





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. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A8, Swamihalli

Duration

: 24 Hrs

Issue date

: 01.08.2024

Reference IS 5182 & Lab SOP

			: spring	Particula	ate Matter	
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m ³)	PM _{2.5,} (μg/m ³)	Carbon Monoxide* (CO), mg/m ³
02.07.2024	N/24/07/1-0071	7	11	35	18	0.31
03.07.2024	N/24/07/1-0104	11	14	53	28	0.23
08.07.2024	N/24/07/03-0012	8	11	49	25	0.25
09.07.2024	N/24/07/03-0053	7	9	42	23	0.21
19.07.2024	N/24/07/4-0169	9	10	42	23	<0.2
20.07.2024	N/24/07/4-0227	<4	9	44	20	0.23
22.07.2024	N/24/07/5-0008	5	10	39	19	0.26
23.07.2024	N/24/07/5-0057	7	11	41	22	0.33
Limits for In Residential, Rural		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

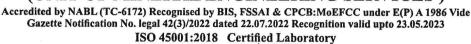
ARSHIYA TOUSAR

Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory



(UNIT OF MINERAL ENGINEERING SERVICES)





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. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A9, Yeswanthanagar

Duration

: 24 Hrs

Issue date

: 01.08.2024

Reference IS 5182 & Lab SOP

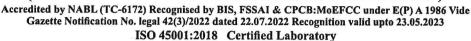
				Particula	te Matter	<u></u>
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m³)	PM _{2.5,} (μg/m³)	Carbon Monoxide* (CO), mg/m ³
02.07.2024	N/24/07/1-0072	6	12	36	18	0.28
03.07.2024	N/24/07/1-0105	9	14	48	26	0.24
08.07.2024	N/24/07/03-0013	.7	12	50	28	0.31
09.07.2024	N/24/07/03-0054	6	13	36	19	0.22
19.07.2024	N/24/07/4-0170	9	11	48	27	0.26
20.07.2024	N/24/07/4-0228	5	10	38	18	0.33
22.07.2024	N/24/07/5-0009	7	11	48	25	0.24
23.07.2024	N/24/07/5-0058	11	13	53	27	0.42
Limits for In Residential, Rural	N=6	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

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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. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Station at & Code

: A10, Tonasigeri

Duration

: 24 Hrs

Issue date

: 01.08.2024

Reference IS 5182 & Lab SOP

			. John J. Complete	Particulate Matter		Carbon Monoxide* (CO), mg/m³ 0.38 0.38 0.26 0.24
Date of Sampling	Lab Code	Sulphur Dioxide (SO ₂), μg/m ³	Nitrogen Dioxide (NO ₂), μg/m ³	PM _{10,} (μg/m ³)	PM _{2.5,} (μg/m³)	Monoxide*
03.07.2024	N/24/07/1-0106	7	10	37	18	0.38
04.07.2024	N/24/07/1-0170	11	16	44	29	0.38
08.07.2024	N/24/07/03-0014	9	12	48	22	0.26
09.07.2024	N/24/07/03-0055	10	13	40	27	0.24
15.07.2024	N/24/07/4-0005	9	12	53	29	0.32
16.07.2024	N/24/07/4-0055	10	13	49	27	0.24
22.07.2044	N/24/07/5-0044	10	11	43	26	0.22
23.07.2024	N/24/07/5-0059	6	15	51	28	0.20
Limits for In Residential, Rural		80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	2 8 Hr

ARSHIYA KOUSAR

Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory



ENVIRONMENTAL LABORATORY

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ISO 45001:2018 Certified Laboratory

TEST REPORT

Table No. 11

Fugitive Emission

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Deogiri Manganese & Iron Ore Mine (ML NO. 2678)

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Duration

: 08 Hrs

Issue Date

01.08.2024

Station at & Code	Date of sample	Lab Code	Particulate mater (μg/m³)
FA1, Mine Face / Benches	20.07.2024	N/24/07/4-0229	244
FA2, Haulage Road / Service Road	20.07.2024	N/24/07/4-0230	356
FA3, Crushing & Screening Plant	20.07.2024	N/24/07/4-0231	296
FA4, Mineral Staock Yard / Loading	20.07.2024	N/24/07/4-0232	232
FA5, Active Waste Dump	20.07.2024	N/24/07/4-0233	387

Ref

: Environmental (Protection) Rules, 2010 (Sixth Amendment)

Particulate mater (µg/m³)

Permissible limits for Fugitive Emissions

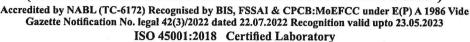
 $600 \mu g/m^3$

ARSHIYA KOUSAR
Govt. Analyst / Authorised Signatory



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TEST REPORT

Table No. 12

Fugitive Emission

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Kammathuru Iron Ore (KTIO) (ML No. 2678)

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Duration

08 Hrs

Issue Date

01.08.2024

Station at & Code	Date of sample Lab Code		Particulate mater (μg/m³)	
FA1, Mine Face / Benches	03.07.2024	N/24/07/1-0107	196	
FA2, Haulage Road / Service Road	03.07.2024	N/24/07/1-0108	256	
FA3, Crushing & Screening Plant	03.07.2024	N/24/07/1-0109	312	
FA4, Mineral Staock Yard / Loading	03.07.2024	N/24/07/1-0110	285	
FA5, Active Waste Dump	03.07.2024	N/24/07/1-0111	365	

Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)

Particulate mater (µg/m³)

Permissible limits for Fugitive Emissions

 $600 \mu g/m^3$

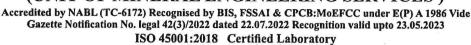
ARSHIYA HOUSAR Dy. T.M. Chemical

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<u>*******************</u>



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TEST REPORT

Table No. 13

Fugitive Emission

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Subrayanahalli Manganese & Iron Ore Mine (ML NO. 2678)

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Duration

: 08 Hrs

Issue Date

: 01.08.2024

Station at & Code	Date of sample Lab Code		Particulate mater (μg/m³)	
FA1, Mine Face / Benches	19.07.2024	N/24/07/4-0171	264	
FA2, Haulage Road / Service Road	19.07.2024	N/24/07/4-0172	298	
FA3, Crushing & Screening Plant	19.07.2024	N/24/07/4-0173	194	
FA4, Mineral Staock Yard / Loading	19.07.2024	N/24/07/4-0174	165	
FA5, Active Waste Dump	19.07.2024	N/24/07/4-0175	244	

: Environmental (Protection) Rules, 2010 (Sixth Amendment)

Particulate mater (µg/m³)

Permissible limits for Fugitive Emissions

 $600 \mu g/m^3$

Dy. T.M. Chemical

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TEST REPORT

Table No. 14

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. 2678
3	Month	01.07.2024 to 30.07.2024
4	Sample Type	Total Dust Fall Rate
5	Duration of Monitoring	One Month
6	Issue Date	01.08.2024

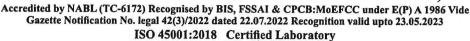
Result

Code	Location	Result	unit	Reference Method
DF1	Deogiri mines office	0.035	g/m ² month	IS 5182 (Part 01) : 2006
DF2	Kammathuru (Near School)	0.010	g/m ² month	IS 5182 (Part 01) : 2006
DF3	Appayyanahalli	0.009	g/m ² month	IS 5182 (Part 01) : 2006
DF4	Subbarayanahalli (Near Hospital)	0.013	g/m ² month	IS 5182 (Part 01) : 2006
DF5	Yeswanthanagar (Near Railway Track)	0.018	g/m ² month	IS 5182 (Part 01) : 2006

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TC-6172

TEST REPORT

Table No. 15

AMBIENT NOISE LEVEL DATA

Report No: ELMES0092407

Client : The Sandur Manganese & Iron Ores Limited

Project : Mining Lease No. 2678

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

Date of monitoring 19.07.2024 Issue Date 01 08 2024

Code			Day		Night			
No.	Monitoring stations	L _{min}	L _{eq}	L max	L _{min}	L _{eq}	L _{max}	
	Corezone				Was .	e real of		
N1	Mine Pit (SK/CBG)	37.0	49.5	55.0	34.0	43.2	45.3	
N2	Kammathuru ML Area	37.3	51.5	58.0	35.0	42.4	46.0	
N3	Deogiri ML Area	36.0	47.3	52.0	34.0	41.7	44.0	
N4	SBS Plot (Mine Boundary)	36.0	48.7	54.0	34.0	40.5	45.3	
N5	SB Halli ML Area	40.0	52.9	57.0	33.9	41.6	44.6	
N6	Mine area	43.0	54.3	60.0	34.0	41.9	49.3	
	Bufferzone							
N7	Appayanahalli (Narayanapura)	36.0	47.8	54.0	34.0	37.8	43.0	
N8	Vitthalanagar (Navalatti)	38.0	50.6	55.3	33.8	42.0	45.0	
N9	Swamihalli	36.0	45.4	50.1	34.0	41.8	43.6	
N10	Yeshwanthnagar	38.0	48.1	53.5	34.0	40.3	44.8	
N11	Tonasingeri	36.0	49.3	- 52.3	33.6	41.1	43.0	
N12	Kumaraswamy Temple	37.3	48.6	56.3	34.6	42.9	47.0	

Permissible Limits of Ambient

Noise Levels as per CPCB Guidelines

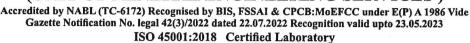
Leq. Limit dB(A) Day Night 75 Industrial areas 70 Commercial area 65 55 Residential area 55 45

> ARSHIYA MOUSAN Dy. T.M. Chemical Govt. Analyst / Authorised Signatory

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TC-6172

TEST REPORT

Table No. 16

Report No: N007224072

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Particulars of sample collected

: STP1, Inlet Water sample from 100 KLD STP, Deogiri

Date of sample collection

: 09.07.2024

Lab Code

: N/24/07/2-0072

Issue Date

: 17.07.2024

Ref: G S R 1265 (e) and Schedule VI (Rule 3A of EP rule 1986)

SI.	Sample Code	STP1	Method of Testing
No.	Parameters	Results	- wethod of Testing
1	рН	6.75	IS 3025 (P-11)2017
2	Biochemical Oxygen Demand BOD ₃ 27 ⁰ C, mg/l	64	IS 3025 (P-44) 1993 RA 2019
3	Total Suspended Solids, at 105°C, mg/l	156	IS 3025 (P-16)1984 RA 2017
4	Fecal coliform, MPN/100ml	14	APHA-23 rd Edition

Dy. T.M. Chemical

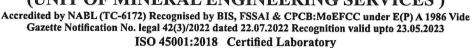
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TEST REPORT

Table No. 17

Report No: N007324072

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Particulars of sample collected

: STP2, Outlet Water sample from 100 KLD STP, Deogiri

Date of sample collection

: 09.07.2024

Lab Code

: N/24/07/2-0073

Issue Date

: 17.07.2024

Ref: G S R 1265 (e) and Schedule VI (Rule 3A of EP rule 1986)

SI.	Sample Code	STP2	Sewage Effluent Discharge	Method of Testing	
No.	Parameters	Results	Standards	metrod of resuring	
1	рН	6.62	5.5to 9.0	IS 3025 (P-11)2017	
2	Biochemical Oxygen Demand BOD ₃ 27 ⁰ C, mg/l	28	<30	IS 3025 (P-44) 1993 RA 2019	
3	Total Suspended Solids, at 105°C, mg/l	54	<50	IS 3025 (P-16)1984 RA 2017	
4	Fecal coliform, MPN/100ml	4	<1000	APHA-23 rd Edition	

Dy. T.M. Chemical
Govt. Analyst Authorised Signatory





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TEST REPORT

Table No. 18

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Sample Collected by

Particulars of sample collected

: Environmental Laboratory (Unit of Mineral Engineering Services) : SW1 - Durgammakolla spring water, SW2 - JLK spring water

SW3 - Katrasinghkolla spring water

Date of sample collection Date of sample receipt

: 09.07.2024 : 10.07.2024

Issue Date

: 17.07.2024

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

Lab Code		N/24/07/02-0062	Results	N/24/07/02-0064	Limits For Stream		
SI.No.	Parameters	CIAM		014/0	Water	Method of Testing	
		SW1	SW2	SW3	Standards		
1	pH	7.54	6.81	6.58	6.5 to 8.5	IS:3025(Part-11)2022	
2	Colour (Hazen Units), Max	<1.0	<1.0	<1.0	300	IS:3025(Part-4)2021	
3	Odour	Agreeable	Agreeable	Agreeable	-	IS:3025 (P-5) 2018	
4	Total Dissolved Solids (mg/l), Max	260	120	150	1500	IS:3025(Part-16)2023	
5	Total Suspended Solids, mg/l	24	12	28		IS 3025 (P-17) 2022	
6	Dissolved Oxygen (as O ₂), mg/l, Max	5.2	5.4	5.1	Min 4	IS:3025(Part-38)1989RA 2019	
7	Biochemical Oxygen Demand (as O_2), mg/l	<3.0	<3.0	<3.0	3	IS:3025(P-44) 2014	
8	Oil & Greease, mg/l	<0.1	<0.1	<0.1	0.1	IS:3025(Part 39)2021	
9	Total Hardness (as CaCO ₃),mg/l,Max	180	83.64	93.84		IS:3025 (P-21):2009 RA 2019	
10	Sulphates as SO ₄ (mg/l), Max	28	2.4	4.2	400	IS:3025(P-24)Sec 1 2022	
11	Phosphates (as P), mg/l	<0.05	<0.05	<0.05	-	IS 3025 (P-31) Sec 1 2022	
12	Chloride (as CI),mg/l, Max	46.3	31.7	12.5	600	IS:3025(Part-32);1988RA2019	
13	Fluoride (as F),mg/l, Max	0.2	<0.1	<0.1	1.5	APHA 23rd Edition 4500F	
14	Sulphide (as H ₂ S) , mg/l, Max	<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		IS:3025 (Part-57)2021	
16	Iron (as Fe),mg/l, Max	0.01	<0.005	<0.005	50	IS:3025(P-2) 2019	
17	Percent of Sodium (%)	30	28	24	" <u>-</u>	IS 11624 .2009	
18	Residual Sodium Carbonate (meq/l)	3.2	<0.5	<0.5	æ	IS:2488 (P-5) 1976	
19	Total Coliform, MPN/100ml	63	58	76	5000	IS:1622:1981	

"END OF REPORT"

T.M. - Microbiology

Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory

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TEST REPORT

Table No. 19

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Particulars of sample collected Date of sample collection : SW4 - Hari Shankar Spring Water, SW5 - Narihalla Dam water

Date of sample collection

: 09.07.2024 : 10.07.2024

Issue Date

: 10.07.2024 : 17.07.2024

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

Lab Code		N/24/07/02-0065	N/24/07/02-0066	Limits For		
01.11		Res	ults	Stream Water	Method of Testing	
SI.No.	Parameters	SW4	SW5	Standards		
1	рН	6.64	7.76	6.5 to 8.5	IS:3025(Part-11)2022	
2	Colour (Hazen Units), Max	<1	<1	300	IS:3025(Part-4)2021	
3	Odour	Agreeable	Agreeable	FW Fin	IS:3025 (P-5) 2018	
4	Total Dissolved Solids (mg/l), Max	110.0	410.0	1500	IS:3025(Part-16)2023	
5	Total Suspended Solids, mg/l	<5	25		IS 3025 (P-17) 2022	
6	Dissolved Oxygen (as O ₂), mg/l, Max	5.40	5.20	Min 4	IS:3025(Part-38)1989RA 2019	
7	Biochemical Oxygen Demand (as O ₂), mg/l	<3	<3	3	IS:3025(P-44) 2014	
8	Oil & Greease, mg/l	<0.1	<0.1	0.1	IS:3025(Part 39)2021	
9	Total Hardness (as CaCO ₃),mg/l,Max	16	142		IS:3025 (P-21):2009 RA 2019	
10	Sulphates as SO ₄ (mg/l), Max	1.85	38.6	400	IS:3025(P-24)Sec 1 2022	
11	Phosphates (as P), mg/l	<0.05	<0.05		IS 3025 (P-31) Sec 1 2022	
12	Chloride (as CI),mg/l, Max	13.59	82.05	600	IS:3025(Part-32) ;1988RA2019	
13	Fluoride (as F),mg/l, Max	<0.1	0.4	1.5	APHA 23rd Edition 4500F	
14	Sulphide (as H ₂ S) , mg/l, Max	<0.01	<0.01	.=	IS:3025 (P-29):1986 RA 2019	
15	Boron (as B), mg/l, Max	<0.1	<0.1	·	IS:3025 (Part-57)2021	
16	Iron (as Fe),mg/l, Max	<0.005	<0.005	50	IS:3025(P-2) 2019	
17	Percent of Sodium (%)	12.00	18.00	7	IS 11624 .2009	
18	Residual Sodium Carbonate (meq/l)	<0.5	<0.5	-	IS:2488 (P-5) 1976	
19	Total Coliform, MPN/100ml	23	94	5000	IS:1622:1981	

"END OF REPORT"

BINUMANI T.M. - Microbiology

ARSHIYA KOUSAR

Govt. Analyst / Authorised Signatory

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TEST REPORT

Table No. 20

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

Name of the Project : Mining Lease No. 2678

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

Particulars of sample collected : GW1 - Deogiri Mine Office Bore water, GW2 - Kammaturu Bore water,

GW3 - Appayyanahalli (Narayanpura) Bore water

Date of sample collection : 09.07.2024 Issue Date : 17.07.2024

Ref: IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)

Kei	: IS:10500-2012 Norms Amendment Lab Code		N/24/07/02-0068	N/24/07/02-0069	Danimble	Da maia aibla	
SI.	Sample Code	GW1	GW2	GW3	Desirable Limts	Permissible Limts	Method of Testing
No.	Parameters		Results			2000	
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	6.54	6.75	7.12	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
4	Turbidity,NTU, Max	<0.1	<0.1	<0.1	1	5	IS:3025 (P-10)1984 RA 2017
5	Electrical Conductvity (µmhos/cm)	120.0	290.0	1050.0			IS 3025 (P-14)
6	Total Dissolved Solids,mg/l, Max	80.0	180.0	658.0	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	12.00	24.00	121.82	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 CI (mg/l),mg/l, Max	16.72	42.00	133.32	250	1000	IS:3025 (P-32) 1988 RA 2019
12	Fluoride (as F),mg/l, Max	<0.1	<0.1	<0.1	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	4.86	14.58	39.66	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	2.30	1.53	18.00	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	12.50	5.80	78.90	200	400	IS:3025 (P-24) Sec 1 2022
19	Alkalinity (as CaCO ₃) mg/l, Max	10.00	75.0	325.0	200	600	IS:3025 (P-23):1986 RA 2019
20	Total Hardness (as CaCO ₃),mg/l,Max	50.0	120.0	467.0	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	5	12	64	100	-	IS:3025 (Part-45) 1993 RA2019
23	Potassium, (as K), mg/l, Max	<1	4	15	11-	-	IS:3025 (Part-45)
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		e detectable	IS:15185:2016 RA 2021
31	Total Coliform /100ml)	Not Detected	Not Detected	Not Detected	in any 100	ml Sample	IS:15185:2016 RA 2021

"END OF REPORT"

BINUMANI T.M. - Microbiology

ARSHIYA KOUSAR

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(UNIT OF MINERAL ENGINEERING SERVICES)

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

TEST REPORT

Table No. 21

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Sample Collected by

Environmental Laboratory (Unit of Mineral Engineering Services)

Particulars of sample collected

GW4 - SB Halli Bore water (near hospital), GW5 - Yeshwanthnagar Bore water (near railway track)

Date of sample collection

: 09.07.2024

Issue Date

: 17.07.2024

Ref: IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)

Ref	Lab Code	_ `	N/24/07/02-0071		Permissible	
SI.	Sample Code	GW4	GW5	Desirable Limts	Limts	Method of Testing
No.	Parameters	1	sults			
1	Colour (Hazen Units)	<1	<1	5	15	IS:3025 (P-4) 2021
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (P-5) 2018
3	pH Value	7.21	6.86	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
4	Turbidity,NTU, Max	<0.1	<0.1	1	5	IS:3025 (P-10)1984 RA 2017
5	Electrical Conductvity (µmhos/cm)	1590.0	1180.0	-	-	IS 3025 (P-14)
6	Total Dissolved Solids,mg/l, Max	1050.0	860.0	500	2000	IS:3025 (P-16)1984 RA2017
7	Aluminium (as Al), Max	<0.005	<0.005	0.03	0.2	IS:3025 (P-2)2019
8	Boron (as B), mg/l, Max	<0.1	<0.1	0.5	2.4	IS:3025 (Part-57)2021
9	Calcium (as Ca),mg/l, Max	121.84	97.29	75	200	IS:3025 (P-40)1991 RA 2019
10	Copper (as Cu),mg/l, Max	<0.005	<0.005	0.05	1.5	IS:3025 (P-2)2019
11	Chloride as CI (mg/l),mg/l, Max	254.98	47.14	250	1000	IS:3025 (P-32) 1988 RA 2019
12	Fluoride (as F),mg/l, Max	<0.1	<0.1	1	1.5	IS:3025 (P-60) 2008 RA 2019
13	Iron (as Fe),mg/l, Max	<0.005	<0.005	1.0	1.0	IS:3025 (Part-2) 2019
14	Magnesium (as Mg)mg/l, Max	23.33	52.06	30	100	IS:3025 (P-46)1994 RA 2019
15	Manganese (as Mn),mg/l, Max	<0.001	<0.001	0.1	0.3	IS:3025 (P-2) 2019
16	Nitrates (as NO ₃),mg/l, Max	44.00	1.80	45	45	IS:3025 (P-34)Sec 1 2023
17	Selenium (as Se),mg/l	<0.005	<0.005	0.01	0.01	IS:3025(P-2) 2019
18	Sulphates (as SO ₄),mg/l, Max	58.50	74.00	200	400	IS:3025 (P-24) Sec 1 2022
19	Alkalinity (as CaCO ₃) mg/l, Max	405.0	570.0	200	600	IS:3025 (P-23):1986 RA 2019
20	Total Hardness (as CaCO ₃),mg/l,Max	400.0	460.0	200	600	IS:3025 (P-21):2009 RA 2019
21	Zinc (as Zn),mg/l, Max	<0.005	<0.005	5	15	IS:3025 (P-2) 2019
22	Sodium, (as Na), mg/l, Max	164	135		-	IS:3025 (Part-45) 1993 RA2019
23	Potassium, (as K), mg/l, Max	25	21		-	IS:3025 (Part-45)
24	Cadmium (as Cd),mg/l, Max	<0.001	<0.001	0.003	0.003	IS:3025 (P-2) 2019
25	Cyanide (as CN),mg/l, Max	<0.01	<0.01	0.05	0.05	IS:3025 (P-27)Sec 1 2021
26	Lead (as Pb),mg/l, Max	<0.005	<0.005	0.01	0.01	IS:3025 (P-2) 2019
27	Mercury (as Hg),mg/l, Max	<0.0005	<0.0005	0.001	0.001	USPEA 200.7 Rev 4.4
28	Arsenic (as As),mg/l, Max	<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	0.05	0.05	IS:3025 (P-52) 2014
30	Escherichia coli/100ml	Not Detected	Not Detected	Shall not be de	tectable in	IS:15185:2016 RA 2021
31	Total Coliform /100ml)	Not Detected	Not Detected	any 100ml		IS:15185:2016 RA 2021

"END OF REPORT"

BINUMANI T.M. - Microbiology

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(UNIT OF MINERAL ENGINEERING SERVICES)





TC-6172

TEST REPORT

Table No. 22

Name of the Client

The Sandur Manganese & Iron Ores Limited

Name of the Project

Mining Lease No. 2678

Particulars of sample

Soil Samples

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

: 08.07.2024

: 01.08.2024

	Lab Code		N/24/07/02-0076	N/24/07/02-0077	N/24/07/02-0078	N/24/07/02-0079	N/24/07/02-0080
SL.	Sample Code		S1	S2	S3	S4	S5
No.	PARAMETERS	Unit			Results		
PHYS	SICAL PROPERTIES		-				
1	Colour	-	Red Soil	Red Soil	Red Soil	Red Soil	Red Soil
2	Textural class		Clay Loam	Sandy Loam	Clay Loam	Clay Loam	Clay Loam
	Size Distribution						
3	Sand	%	31.24	36.02	32.99	32.14	36.11
3	Clay	%	40.63	33.87	27.77	39.86	37.77
	Silt	%	28.13	30.11	39.24	28.00	26.12
4	Moisture Content	%	7.11	6.54	7.13	5.8	7.12
5	Bulk Density	gm/cc	1.58	1.72	1.55	1.88	1.45
6	Water holding capacity	%	33.24	29.22	22	26.88	24.13
7	рН		6.66	6.58	7.21	7.44	6.44
8	EC	m.mohs/c m	0.192	0.271	0.2	0.251	0.162
Chen	ncial Properties			1 - 1 A A B 1 - 1	7		19.1
9	Organic Carbon	%	0.61	0.35	0.21	1.85	2.62
10	Nitrogen as N	Kg/Ha	126	242	123	132	190
11	Phosphorous as P	Kg/Ha	8.22	9.36	7.21	7.6	7.31
12	Potassium as K ₂ O	Kg/Ha	1.75	133	119	130	132
13	Sodium as Na	mg/kg	30	20	62	30	44
14	Chloride as Cl	mg/kg	122	106	130	146	318
15	Sulphate as SO ₄	mg/kg	38	40	42	38	44

Sample Locations:

S1 - Top soil (Kammathuru)

S2 - Top soil (Deogiri)

S3 - Top soil (SB Halli)

S4 - Active Dump 1

S5 - Active Dump 2

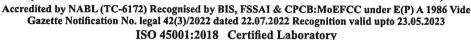
Dy. T.M. Chemical

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948, 2nd Cross, St. Thomas Town Post, Kammanahalli, Bangalore - 560 084. Phone: 080-25432969 E-mail: mesbng@gmail.com, www.envtest.in



(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 23

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Particulars of sample

Soil Samples

Sample Collected by

: Environmental Laboratory (Unit of Mineral Engineering Services)

Date of sample collection

: 08.07.2024

Issue Date

: 01.08.2024

	Lab Code		N/24/07/02-0081	N/24/07/02-0082	N/24/07/02-0083	N/24/07/02-0084	N/24/07/02-0085
SL.	Sample Code)	S6	S 7	S8	S9	S10
No.	PARAMETERS	Unit	1		Results		1
PHYS	SICAL PROPERTIES					1 - V 0-2	
1	Colour		Red Soil				
2	Textural class	-	Clay Loam	Clay Loam	Slity Clay	Slity Clay	Clay Loam
	Size Distribution						
3	Sand	%	34.96	31.25	40.26	38.45	41.88
3	Clay	%	34.22	39.07	26.18	25.44	24.21
	Silt	%	30.82	29.68	33.56	36.11	33.91
4	Moisture Content	%	7.28	6.85	7.42	5.18	4.63
5	Bulk Density	gm/cc	11.93	2.3	1.85	1.62	1.82
6	Water holding capacity	%	39	34	35	37	40
7	pH		7.63	6.92	7.85	6.93	7.66
8	EC	m.mohs/c m	0.448	0.466	0.442	0.351	0.538
Chen	ncial Properties						
9	Organic Carbon	%	0.51	0.71	0.51	0.52	0.46
10	Nitrogen as N	Kg/Ha	128	130	135	1.54	127
11	Phosphorous as P	Kg/Ha	32	46	50	52	41
12	Potassium as K ₂ O	Kg/Ha	136	150	148	144	133
13	Sodium as Na	mg/kg	49	47	42	58	40
14	Chloride as CI	mg/kg	31	30	. 34	42	32
15	Sulphate as SO₄	mg/kg	33	29	32	38	42

Sample Locations:

- S6 Appayyanahalli agriculture lan
- S7 Vitthalanagar agriculture land
- S8 Swamihalli agriculture land
- S9 -Tonasigere agriculture land
- S10 Yeshwanthnagar agriculture land

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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

ISO 45001:2018 Certified Laboratory



TEST REPORT

Table No. 24

Stack Monitoring Report

Report No.N017624074

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

Name of the Mine: Subrayanahalli Manganese & Iron Ore Mine (ML NO. 2678)

Location

: KVH Iron Ore Mines

Stack ID & Capcity

: DG 1010 KVA (808 KW)

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Date of Collection

: 19.07.2024

Particulars of Sample

: Emissions from stack collected through stack

Collected

sample VSS1

Date of Sample Receipt

: 20.07.2024

mg/Nm3

mg/Nm3

(mg/Nm3

Issue d	late	: 01.08.2024		* * * * * * * * * * * * * * * * * * * *
	The second of	STACE	(DETAILS	
1	Fuel Used	Diesel		
2	AmbientTemperature (°C	C)	A STATE	29
3	Stack Temperature (°C)			166
4	Velocity (m/s)			14.78
5	Stack diameter (M)			0.30
6	Quanitity of flue Gas Dis (Nm³/hr)	3371		
7	Sample Condition When	Received		Satisfactory
8	Model of the Equipment used for Monitoring			Vayubodhan Stack Sampler VSS1
9	Serial No. of the Equipm	ent		338 DTH 14
10	Calibration done on and	Done on 19.11.2022 and Due on 18.11.2024		
11	Sampling and Analysis	Method		IS 11255 & flue gas analyser
		Pollutional Pa	rameters (Resul	t)
SI.No	Parameters	Unit	Results	Standard
1	NOx (as NO ₂) (as 15% O ₂), dry basis	ppmv	32.34	360
7 %				

ARSHIYA KOUSAR

Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory

100

75

150

36.11

26.00

57.00

NMHC (as C) (at 15 %

PM (as C) (at 15 % O₂)

CO (at 15 % O2)

2

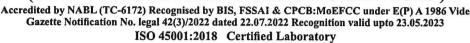
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(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 25

Stack Monitoring Report

Report No.N017724074

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

Name of the Mine : Deogiri Manganese & Iron Ore Mine (ML NO. 2678)

Location

: Katasinkolla

Stack ID & Capcity

: DG Set 62.5 KVA

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Date of Collection

: 19.07.2024

Particulars of Sample

: Emissions from stack collected through stack

Collected

sample VSS1

Date of Sample Receipt

: 20.07.2024

Issue d	late	: 01.08.2024		
1	The second of th	STACK	DETAILS	L comment of the comm
. 1	Fuel Used			Diesel
2	AmbientTemperature (°	C)	212 F	29
3	Stack Temperature (°C)			138
4	Velocity (m/s)			6.71
5	Stack diameter (M)			0.15
6	Quanitity of flue Gas Di (Nm³/hr)	299		
7	Sample Condition When	n Received		Satisfactory
8	Model of the Equipmen	Vayubodhan Stack Sampler VSS1		
9	Serial No. of the Equipm	nent		338 DTH 14
10	Calibration done on and	d due on		Done on 19.11.2022 and Due on 18.11.2024
11	Sampling and Analysis	Method		IS 11255 & flue gas analyser
		Pollutional Pa	rameters (Resul	t)
SI.No	Parameters	Unit	Results	Standard
1	Particulate Matter	g/Kw-hr	0.10	<0.2
2	СО	g/Kw-hr	0.06	<3.5
3	Nox +HC	g/Kw-hr	0.51	<4.0

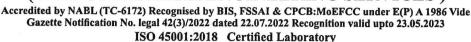
INFERENCE

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

Dy. T.M. Chemical
Govt. Analyst / Authorised Signatory



(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 26

Stack Monitoring Report

Report No.N017824074

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

Name of the Mine: Subrayanahallul Manganese & Iron Ore Mine (ML NO. 2678)

Location

: KVH Iron Ore Mine

Stack ID & Capcity

: DG Set 6.0 KVA Doosan Light Source

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Date of Collection

: 19.07.2024

Particulars of Sample

: Emissions from stack collected through stack

Collected

sample VSS1

Date of Sample Receipt

: 20.07.2024 : 01.08.2024

Issue c	late	: 01.08.2024		A STATE OF THE STA
5 m		STACK	DETAILS	
1	Fuel Used		Paring A	Diesel
2	AmbientTemperature	(°C)		29
3	Stack Temperature (°C	;)	in a found	136
4	Velocity (m/s)			5.39
5	Stack diameter (M)			0.15
6	Quanitity of flue Gas I (Nm³/hr)	241		
7	Sample Condition Who	en Received		Satisfactory
8	Model of the Equipment used for Monitoring			Vayubodhan Stack Sampler VSS1
9	Serial No. of the Equip	ment		338 DTH 14
10	Calibration done on a	nd due on		Done on 19.11.2022 and Due on 18.11.2024
11	Sampling and Analysis	s Method		IS 11255 & flue gas analyser
		Pollutional Par	rameters (Resul	t)
SI.No	Parameters	Unit	Results	Standard
1	Particulate Matter	g/Kw-hr	0.120	<0.2
2	со	g/Kw-hr	0.08	<3.5
3	Nox +HC	g/Kw-hr	0.44	<4.0

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

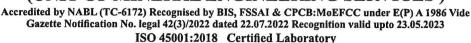
Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory



ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 27

Stack Monitoring Report

Report No.N017924074

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

Name of the Mine : Deogiri Manganese & Iron Ore Mine (ML NO. 2678)

Location

: KTION Work Shop

Stack ID & Capcity

: DG Set 6.0 KVA Doosan Light Source

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Date of Collection

: 19.07.2024

Particulars of Sample

: Emissions from stack collected through stack

sample VSS1

Date of Sample Receipt

: 20.07.2024

Issue date

Collected

: 01.08.2024

100		STACK	DETAILS	
1	Fuel Used			Diesel
2	AmbientTemperature	(°C)		29
3	Stack Temperature (°C	;)		124
4	Velocity (m/s)			2.47
5	Stack diameter (M)			0.15
6	Quanitity of flue Gas I (Nm³/hr)	114		
7	Sample Condition Wh	en Received		Satisfactory
8	Model of the Equipme	Vayubodhan Stack Sampler VSS1		
9	Serial No. of the Equip	ment		338 DTH 14
10	Calibration done on a	nd due on		Done on 19.11.2022 and Due on 18.11.2024
11	Sampling and Analysis	Method		IS 11255 & flue gas analyser
		Pollutional Par	rameters (Resul	t)
SI.No	Parameters	Unit	Results	Standard
1	Particulate Matter	g/Kw-hr	0.057	<0.2
2	СО	g/Kw-hr	0.06	<3.5
3	Nox +HC	g/Kw-hr	0.25	<4.0

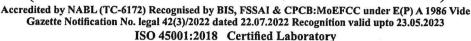
0	as per KSPCB
I INFERENCE	Report Status - The measured values for the above parameters for those standards have been specified were observed to be within the said standards
*	

Dy. T.M. Chemical
Govt. Analyst / Authorised Signatory

HIYA HOUSAR



(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 28

Stack Monitoring Report

Report No.N023424074

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

Name of the Mine: Kammathuru Iron Ore (KTIO) (ML No. 2678)

Location

: KTIO Sub Station

Stack ID & Capcity

: DG Set 125 KVA

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Date of Collection

: 20.07.2024

Particulars of Sample

: Emissions from stack collected through stack

Collected

sample VSS1

Date of Sample Receipt

: 22.07.2024

Issue date

: 01.08.2024

	THE RESERVE OF THE PERSON OF T	STACK	DETAILS	Waget May
1	Fuel Used	Diesel		
2	AmbientTemperature (°C)		28
3	Stack Temperature (°C)		130
4	Velocity (m/s)			13.11
5	Stack diameter (M)			0.15
6	Quanitity of flue Gas D (Nm ³ /hr)	596		
7	Sample Condition Who	en Received		Satisfactory
8	Model of the Equipme	Vayubodhan Stack Sampler VSS1		
9	Serial No. of the Equip	ment		338 DTH 14
10	Calibration done on ar	nd due on		Done on 19.11.2022 and Due on 18.11.2024
11	Sampling and Analysis	Method		IS 11255 & flue gas analyser
		Pollutional Par	rameters (Resul	t)
SI.No	Parameters Unit Results			Standard
11	Particulate Matter	g/Kw-hr	0.033	<0.2
2	СО	g/Kw-hr	0.01	<3.5
3	Nox +HC	g/Kw-hr	0.11	<4.0

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

Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory



(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 ISO 45001:2018 Certified Laboratory



TEST REPORT

Stack Monitoring Report

Table No.29

Report No.N023524074

Name of the Client: The Sandur Manganese & Iron Ores Limited Name of the Mine: Kammathuru Iron Ore (KTIO) (ML No. 2678)

Location

: KTIO Sub Station

Stack ID & Capcity

: DG Set 82.5 KVA

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Date of Collection

: 20.07.2024

Particulars of Sample

: Emissions from stack collected through stack

Collected

sample VSS1

Date of Sample Receipt

: 22.07.2024

Issue date

: 01.08.2024

	Marie Land Marie 19	STACK	DETAILS	
1	Fuel Used	Diesel		
2	AmbientTemperature (°	C)	42 .33	28
3	Stack Temperature (°C)			100
4	Velocity (m/s)			7.91
5	Stack diameter (M)			0.15
6	Quanitity of flue Gas Di (Nm³/hr)	389		
7	Sample Condition Whe	n Received		Satisfactory
8	Model of the Equipmen	Vayubodhan Stack Sampler VSS1		
9	Serial No. of the Equipr	nent		338 DTH 14
10	Calibration done on and	d due on		Done on 19.11.2022 and Due on 18.11.2024
11	Sampling and Analysis	Method		IS 11255 & flue gas analyser
		Pollutional Pa	rameters (Resul	t)
SI.No	Parameters	Unit	Results	Standard
1	Particulate Matter	g/Kw-hr	0.093	<0.2
2	СО	g/Kw-hr	0.31	<3.5
3	Nox +HC	g/Kw-hr	0.62	<4.0

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

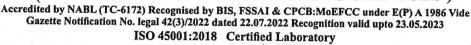
> Dy. T.M. Chemical Govt. Analyst / Authorised Signatory

ARSHIYA KOUSAR

948, 2nd Cross, St. Thomas Town Post, Kammanahalli, Bangalore - 560 084. Phone: 080-25432969 E-mail: mesbng@gmail.com, www.envtest.in



(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 30

Stack Monitoring Report

Report No.N023624074

Name of the Client: The Sandur Manganese & Iron Ores Limited Name of the Mine: Kammathuru Iron Ore (KTIO) (ML No. 2678)

Location

: KTIO - D-09 Dump

Stack ID & Capcity

: DG Set 7.5 KVA

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Date of Collection

: 20.07.2024

Particulars of Sample

Date of Sample Receipt

: Emissions from stack collected through stack

sample VSS1

Collected

: 22.07.2024

Issue date

: 01.08.2024

		STACK	DETAILS	New York Control of the Control of t
1	Fuel Used	Diesel		
2	AmbientTemperature (°C)		28
3	Stack Temperature (°C)		136
4	Velocity (m/s)			5.69
5	Stack diameter (M)			0.15
- 6	Quanitity of flue Gas Discharged into atmosphere (Nm³/hr)			121
7	Sample Condition Who	en Received		Satisfactory
8	Model of the Equipmen	Vayubodhan Stack Sampler VSS1		
9	Serial No. of the Equip	ment		338 DTH 14
10	Calibration done on ar	nd due on		Done on 19.11.2022 and Due on 18.11.2024
11	Sampling and Analysis	Method		IS 11255 & flue gas analyser
		Pollutional Par	rameters (Resul	t)
SI.No	Parameters	Unit	Results	Standard
1	Particulate Matter	g/Kw-hr	0.064	<0.2
2	СО	g/Kw-hr	0.03	<3.5
3	Nox +HC	g/Kw-hr	0.18	<4.0

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

Govt. Analyst / Authorised Signatory



ENVIRONMENTAL LABORATORY

(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

ISO 45001:2018 Certified Laboratory



TEST REPORT

Table No. 31

Stack Monitoring Report

Report No.N023724074

Name of the Client: The Sandur Manganese & Iron Ores Limited Name of the Mine: Kammathuru Iron Ore (KTIO) (ML No. 2678)

Location

: KTIO - Work Shop

Stack ID & Capcity

: DG 6 KVA Doosan Light Source

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Date of Collection

: 20.07.2024

Particulars of Sample

: Emissions from stack collected through stack

Collected

sample VSS1

Date of Sample Receipt Issue date

: 22.07.2024 : 01.08.2024

g/Kw-hr

suc date		. 01.00.2024
	Mary Services	STACK DETAILS
1 Fuel Used		

		SIACK	DETAILS	
1	Fuel Used	Diesel		
2	AmbientTemperature (28		
3	Stack Temperature (°C	;)		120
4	Velocity (m/s)		the parties of the same	2.81
5	Stack diameter (M)			0.15
6	Quanitity of flue Gas D (Nm³/hr)	131		
7	Sample Condition Who	en Received		Satisfactory
8	Model of the Equipment used for Monitoring			Vayubodhan Stack Sampler VSS1
9	Serial No. of the Equip	ment		338 DTH 14
10	Calibration done on ar	nd due on		Done on 19.11.2022 and Due or 18.11.2024
11	Sampling and Analysis	s Method		IS 11255 & flue gas analyser
-4847		Pollutional Par	rameters (Resul	t)
SI.No	Parameters	Unit	Results	Standard
1	Particulate Matter	g/Kw-hr	0.043	<0.2
2	со	g/Kw-hr	0.07	<3.5
Toll Sheet Locate				A RESIDENCE OF THE PROPERTY OF

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

0.55

Dy. T.M. Chemical
Govt. Analyst / Authorised Signatory

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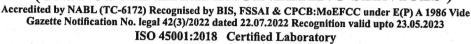
<4.0

Nox +HC



ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 32

Stack Monitoring Report

Report No.N023824074

Name of the Client: The Sandur Manganese & Iron Ores Limited Name of the Mine: Kammathuru Iron Ore (KTIO) (ML No. 2678)

Location

: KTIO - Work Shop

Stack ID & Capcity

: DG 6 KVA Doosan Light Source

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Date of Collection

: 20.07.2024

Particulars of Sample

: Emissions from stack collected through stack

Collected

Issue date

sample VSS1

Date of Sample Receipt

: 22.07.2024 : 01.08.2024

CT	AC	W	DE	TA	11 0

Fuel Used			Diesel		
AmbientTemperature (°C)			28		
Stack Temperature (°C)		212		
Velocity (m/s)			2.27		
Stack diameter (M)			0.15		
Quanitity of flue Gas Discharged into atmosphere (Nm³/hr)			105		
Sample Condition When Received			Satisfactory		
Model of the Equipment used for Monitoring			Vayubodhan Stack Sample VSS1		
Serial No. of the Equipment			338 DTH 14		
10 Calibration done on and due on 11 Sampling and Analysis Method			Done on 19.11.2022 and Due on 18.11.2024 IS 11255 & flue gas analyser		
Parameters	Unit	Results	Standard		
Particulate Matter	g/Kw-hr	0.053	<0.2		
СО	g/Kw-hr	0.04	<3.5		
Nox +HC	g/Kw-hr	0.46	<4.0		
	AmbientTemperature (Stack Temperature (Velocity (m/s) Stack diameter (M) Quanitity of flue Gas D (Nm³/hr) Sample Condition Whe Model of the Equipmer Serial No. of the Equip Calibration done on an Sampling and Analysis Parameters Particulate Matter CO	AmbientTemperature (°C) Stack Temperature (°C) Velocity (m/s) Stack diameter (M) Quanitity of flue Gas Discharged into at (Nm³/hr) Sample Condition When Received Model of the Equipment used for Monite Serial No. of the Equipment Calibration done on and due on Sampling and Analysis Method Pollutional Parameters Unit Particulate Matter G/Kw-hr CO g/Kw-hr	AmbientTemperature (°C) Stack Temperature (°C) Velocity (m/s) Stack diameter (M) Quanitity of flue Gas Discharged into atmosphere (Nm³/hr) Sample Condition When Received Model of the Equipment used for Monitoring Serial No. of the Equipment Calibration done on and due on Sampling and Analysis Method Pollutional Parameters (Results) Parameters Unit Results Particulate Matter g/Kw-hr 0.053 CO g/Kw-hr 0.04		

INFERENCE

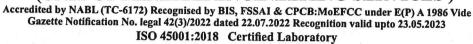
as per KSPCB

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

Govt. Analyst / Authorised Signatory



(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 33

Report No: N027024074

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Particulars of sample collected

: Kammathuru Mines Run off Water

Date of sample collection

: 19.07.2024

Lab Code

: N/24/07/4-0270

Issue Date

: 31.07.2024

Ref: G S R 1265 (e) and Schedule VI (Rule 3A of EP rule 1986)

SI. No.	Parameters	Results	General Standards For Effluent Discharge of Environmental Pollutants	Method of Testing
1	рН	6.87	5.5 to 9.0	IS 3025 (P-11) 2022
2	COD (mg/l), Max	36	250	IS 3025 (P-58) 2006 RA2022
3	Total Suspended Solids (mg/l), Max	39	Non Rainy Day 50, Rainy Day 100	IS 3025 (P-17) 2022
4	Total Dissolved Solids (TDS) mg/l	130		IS 3025(P- 16)02022
5	Dissolved Oxygen (as O ₂), mg/l	5.8		IS:3025(P-38) 1981 RA 2019
6	Iron (as Fe), mg/l	0.132	3	IS 3025 (P-2) 2019
7	Manganese (as Mn), mg/l	0.056	, 2	IS 3025 (P-2) 2019

ARSHIYA KOUSAR

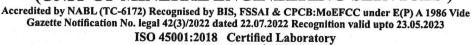
Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory



ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 34

Report No: N027124074

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Particulars of sample collected

: Deogiri Mines Run off Water

Date of sample collection

: 19.07.2024

Lab Code

: N/24/07/4-0271

Issue Date

: 31.07.2024

Ref: G S R 1265 (e) and Schedule VI (Rule 3A of EP rule 1986)

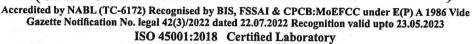
SI. No.	Parameters	Results	General Standards For Effluent Discharge of Environmental Pollutants	Method of Testing
1	рН	6.82	5.5 to 9.0	IS 3025 (P-11) 2022
2	COD (mg/l), Max	40	250	IS 3025 (P-58) 2006 RA2022
3	Total Suspended Solids (mg/l), Max	42	Non Rainy Day 50, Rainy Day 100	IS 3025 (P-17) 2022
4	Total Dissolved Solids (TDS) mg/l	142		IS 3025(P- 16)02022
5	Dissolved Oxygen (as O ₂), mg/l	5.9		IS:3025(P-38) 1981 RA 2019
6	Iron (as Fe), mg/l	0.186	3	IS 3025 (P-2) 2019
7	Manganese (as Mn), mg/l	0.063	2	IS 3025 (P-2) 2019

ARSHIYA HOUSAR
Dy. T.M. Chemical

Govt. Analyst / Authorised Signatory



(UNIT OF MINERAL ENGINEERING SERVICES)





TEST REPORT

Table No. 35

Report No: N027224074

Name of the Client

: The Sandur Manganese & Iron Ores Limited

Name of the Project

: Mining Lease No. 2678

Sample Collected by

: Environmental Laboratory

(Unit of Mineral Engineering Services)

Particulars of sample collected

: SB Halli Mines Run off Water

Date of sample collection

: 19.07.2024

Lab Code

: N/24/07/4-0272

Issue Date

: 31.07.2024

Ref: G S R 1265 (e) and Schedule VI (Rule 3A of EP rule 1986)

SI. No.	Parameters	Results	General Standards For Effluent Discharge of Environmental Pollutants	Method of Testing
1	рН	6.95	5.5 to 9.0	IS 3025 (P-11) 2022
2	COD (mg/l), Max	42	250	IS 3025 (P-58) 2006 RA2022
3	Total Suspended Solids (mg/l), Max	69	Non Rainy Day 50, Rainy Day 100	IS 3025 (P-17) 2022
4	Total Dissolved Solids (TDS) mg/l	146		IS 3025(P- 16)02022
5	Dissolved Oxygen (as O ₂), mg/l	5.5		IS:3025(P-38) 1981 RA 2019
6	Iron (as Fe), mg/l	0.152	3	IS 3025 (P-2) 2019
7	Manganese (as Mn), mg/l	0.032	2	IS 3025 (P-2) 2019

ARSHIYA KOUSAR

Govt. Analyst / Authorised Signatory







केन्द्रीय प्रदूषण नियंत्रण बोर्ड

CENTRAL POLLUTION CONTROL BOARD पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार MINISTRY OF ENVIRONMENT FOREST & CLIMATE CHANGE GOVT OF INDIA

F.No. LB/99/7/2021-INST LAB-HO-CPCB-HO/Pvt./ (GO)

Dated: <u>28th January 2023</u> 07th June 2023

Recognition Certificate

To,

Head of Laboratory, M/s Environmental Laboratory (Unit of Mineral Engineering Services), #948, 2nd Cross, St. Thomas Town Post, Kammanahalli Road, Bengaluru--560084, Karnataka.

Subject: Recognition of M/s Environmental Laboratory (Unit of Mineral Engineering Services), #948, 2nd Cross, St. Thomas Town Post, Kammanahalli Road, Bengaluru--560084, Karnataka, as Environmental laboratory under the Environmental (Protection) Act- 1986.

Sir,

I am directed to refer the online application, dated 27/10/2022 for the recognition of your laboratory under Environmental (Protection) Act, 1986. Based on the recommendations of the concerned Division, approval of Competent Authority for recognition of Environmental laboratories and your acceptance of the revised terms and conditions at Annexure-III & IV of the guidelines for recognition of environmental laboratories, CPCB approves the renewal of recognition M/s Environmental Laboratory (Unit of Mineral Engineering Services), #948, 2nd Cross, St. Thomas Town Post, Kammanahalli Road, Bengaluru--560084, Karnataka and shall be notified in the Gazette of India. Considering the current requirement of mandatory accreditation/ certifications of the laboratory, this recognition shall be valid up to 23/05/2025.

- 2. As sought in the aforementioned application, M/s Environmental Laboratory (Unit of Mineral Engineering Services), #948, 2nd Cross, St. Thomas Town Post, Kammanahalli Road, Bengaluru--560084, Karnataka may undertake the following tests:
 - Physical Tests-Conductivity, Colour, pH, Fixed & Volatile Solids, Total Solids, Total Dissolved Solids, Total Suspended Solids, Turbidity, Temperature, Velocity & Discharge Measurement of Industrial Effluent Stream, Flocculation Test (Jar test), Odour, Salinity, Settleable Solids and Sludge Volume Index.
 - ii. Inorganic (General and Non-metallic): Acidity, Alkalinity, Ammonical Nitrogen, Chloride, Chlorine Residual, Dissolved Oxygen, Fluoride, Total Hardness, Total Kjeldahl Nitrogen (TKN), Nitrite Nitrogen, Nitrate Nitrogen, Phosphate, Sulphate, , Silica, Cyanide and Sulphide.
 - iii. Inorganic (Trace Metals): Boron, Cadmium, Calcium, Total Chromium, Chromium Hexavalent, Copper, Iron, Lead, Magnesium, Mercury, Nickel, Potassium, Sodium, Sodium Absorption Ratio, Zinc, Arsenic, Aluminium, Barium, Selenium, Tin, Antimony, Cobalt and Vanadium,
 - iv. Organics (General) and Trace Organics: Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease, Phenolic Compounds, Pesticides (each) (Organo-Chlorine and Organo Nitrogen-Phosphorus), Surfactant, Tanin & Lignin, Poly-Chlorinated biphenyl (PCB's) each, Poly-Nuclear Aromatic Hydrocarbon (PAH).
 - v. Microbiological Test: Total Coliform, Faecal Coliform, E. coli, Faecal Streptococci and Total Plate Count.
 - vi. Toxicological Tests: Bioassay Method for Evaluation of Toxicity using Fish and Measurement of Toxicity Using Daphnia or Other Organism.
 - vii. Biological Test: Macrophytic Identification, Planktonic Identification Count and Chlorophyll.

'परिवेश भवन' पर्वी अर्जुन नगर, दिल्ली-110032

Contd.

Parivesh Bhawan, East Arjun Nagar, Delhi-110032

दूरभाष/Tel: 43102030, 22305792,वेबसाईट/Website: www.cpcb.nic.in

- viii. Characterization of Hazardous Waste: Corrosivity, Ignibility (Flash point) and Measurement of Heavy Metals/Pesticides in the Waste/Leachate.
- ix. Soil/Sludge/Sediment and Solid Waste: Boron, Cation Exchange Capacity (CEC), Electrical Conductivity, Nitrogen (Available), Organic Carbon/Matter (Chemical Method), pH, Phosphorous (Available), Phosphate (Ortho), Phosphate (Total), Potassium, SAR in Soil Extract, Sodium, Soil moisture, TKN, Calorific Value, Ammonia, Bicarbonate, Calcium, Calcium Carbonate, Chloride, Colour, H.Acid, Heavy Metal, Magnesium, Nitrate, Nitrite, PAH, Pesticide, Potash (Available), Sulphate, Sulphur, Total Organic Carbon, Total Water Soluble Salt and Water Holding Capacity.
- x. Ambient Air/ Fugitive Emissions: Nitrogen Dioxide (NO2), Sulphur Dioxide (SO2), Total Suspended Particulate Matter, Respirable Suspended Particulate Matter PM10, Ammonia, Carbon Monoxide, Chlorine, Lead, Ozone, Benzene Toluene Xylene (BTX), Polycyclic Aromatic Hydrocarbon (PAH) Benzo-a-Pyrine & others and PM_{2.5}.
- xi. Stack Gases/ Source Emission: Particulate Matter, Sulphur Dioxide, Velocity & Flow, Carbon Dioxide, Carbon Monoxide, Temperature, Oxygen, Oxides of Nitrogen, Acid Mist, Ammonia, Total Hydrocarbon, Hydrogen Sulphide and Carbon Disulphide.
- xii. Noise Level: Noise Level Measurement (20-140 dBa) and Ambient Noise and Source Specific Noise.
- xiii. Meteorological: Ambient Temperature, Wind Direction, Wind Speed, Relative Humidity, Solar Radiation and Rainfall.
- 3. Further, the following analysts have been approved as Government Analysts.
 - i. M. Sachin Raju
 - Binu Mani ii.
 - Arshiya Kousar iii.
- 4. The laboratory shall compulsorily participate in the Analytical Quality Exercise conducted by the Central Pollution Control Board (CPCB) to ascertain the capability of the laboratory and analysis carried out and shall submit quarterly progress report to CPCB.
- 5. The surprise inspection/periodic surveillance of the recognized environment laboratory will be undertaken by CPCB to assess its proper functioning systematic operation and reliability of data generated at the laboratory.
- 6. It is also mandatory for the laboratory to have requisite accreditations of the ISO: 17025 and ISO:45001 and its renewal as per accreditation rules. This recognition is subject to such accreditations and renewals as applicable. The laboratory is required to apply online for further renewal of recognition through CPCB web portal after renewal of the mandatory accreditations / certifications concerned.
- 7. The laboratory should compulsorily follow the accepted terms and conditions. In case of serious non-compliance of any of the terms and conditions, the laboratory may be black listed for a minimum period of two years and civil/criminal proceedings, as applicable, may be initiated for performing functions on behalf of the Government in an unauthorized manner.

Yours faithfully,

डॉ. के. रंगनाथन / Dr. K. Ranganathan भावित में सरकारी विश्लेषक / Scientist E Govt. Analyst केंद्रीय प्रदूषण नियंत्रण बोर्ड Central Pollution Control Board पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार (Mo Environment, Forest & Climate Change, Govt. of India) परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032 Partivesh Rhawan Fast Ariun Nariar Postulini

K. P J 176/23 (Dr. K. Ranganathan) Scientist-E & Divisional Head Instrumentation laboratory





National Accreditation Board for Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

ENVIRONMENTAL LABORATORY (UNIT OF MINERAL ENGINEERING SERVICES LLP)

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

#948, 2ND CROSS, ST.THOMAS TOWN POST, KAMMANAHALLI MAIN ROAD, BENGALURU, BENGALURU URBAN, KARNATAKA, INDIA

in the field of

TESTING

Certificate Number:

TC-6172

Issue Date:

18/01/2024

Valid Until:

23/05/2025

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL. (To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: MINERAL ENGINEERING SERVICES LLP

Signed for and on behalf of NABL



N. Venkateswaran Chief Executive Officer