

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/2024-25/2678/1153

09 December 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 November 2024 in respect of Mining Lease No. 2678.

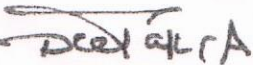
Ref: 1. Environmental Clearance F.No. IA-J-11015/45/2021-IA-II(M) dated 25 April 2023.
2. Consent for Operation No. AW-345054 dated 18 September 2024.

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 November 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,



Krishna Reddy

Vice President - Mines Operations



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

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



सन् २०२३ ई०
गोप्य सूचना
Speed Post

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./ (601

Dated: 28th January 2023
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.
- 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.
- 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,
- 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).
- Microbiological Test:** Total Coliform, Faecal Coliform, *E. coli*, *Faecal Streptococci* and Total Plate Count.
- Toxicological Tests:** Bioassay Method for Evaluation of Toxicity using Fish and Measurement of Toxicity Using *Daphnia* or Other Organism.
- 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, वेबसाइट/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-Pyrene & 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
- ii. Binu Mani
- iii. Arshiya Kousar

- 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
 वैज्ञानिक 'E' 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)
 परियेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032
 Pariyesh Bhawan, East Arjun Nagar, Delhi-110032

K. Ranganathan 7/6/23
 (Dr. K. Ranganathan)
 Scientist-E & Divisional Head
 Instrumentation laboratory

ENVIRONMENTAL MONITORING REPORT

November, 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,

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ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES LLP)

Recognised by BIS, FSSAI, ISO:45001:2018 Certified Laboratory

Recognised by MoEFCC(CPCB) under E(P) Act 1986 recognition valid upto 23.05.2025

TEST REPORT

Table No.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 : 02.12.2024
 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)	
08.11.2024	N/24/11/3-0113	8	14	58	32	0.25
09.11.2024	N/24/11/3-0189	9	19	46	25	0.36
11.11.2024	N/24/11/4-0006	10	16	54	30	0.22
12.11.2024	N/24/11/4-0049	9	11	50	28	0.29
22.11.2024	N/24/11/5-0116	14	15	43	24	0.31
23.11.2024	N/24/11/5-0176	11	17	55	34	0.42
25.11.2024	N/24/11/5-0004	9	16	47	20	0.45
26.11.2024	N/24/11/5-0069	8	13	35	22	0.33
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
 ARSHIYA KOUSAR
 Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

948, 2nd Cross, St. Thomas Town Post, Kammanahalli, Bangalore - 560 084.
 Phone : 080-25432969 Tel/fax : 25432968. E-mail : mesbng@gmail.com, www.envtest.in



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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. 2678
Sample Collected by	: Environmental Laboratory (Unit of Mineral Engineering Services)
Station at & Code	: A2, Kammathuru (within ML Area)
Duration	: 24 Hrs
Issue date	: 02.12.2024
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)	
08.11.2024	N/24/11/3-0114	12	10	52	27	0.29
09.11.2024	N/24/11/3-0190	9	11	57	33	0.31
11.11.2024	N/24/11/4-0007	9	13	42	19	0.28
12.11.2024	N/24/11/4-0050	10	15	50	29	0.33
22.11.2024	N/24/11/5-0117	8	12	55	28	0.26
23.11.2024	N/24/11/5-0177	12	22	45	25	0.24
25.11.2024	N/24/11/5-0005	8	12	48	28	0.22
26.11.2024	N/24/11/5-0070	13	18	58	35	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

Arshiya Kousar
ARSHIYA KOUSAR
Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

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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. 2678
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
 Station at & Code : A3, Deogiri (within ML Area)
 Duration : 24 Hrs
 Issue date : 02.12.2024
 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)	
08.11.2024	N/24/11/3-0115	7	9	38	19	0.35
09.11.2024	N/24/11/3-0191	10	11	46	22	0.26
11.11.2024	N/24/11/4-0008	10	16	54	30	0.24
12.11.2024	N/24/11/4-0051	9	13	56	25	0.22
22.11.2024	N/24/11/5-0118	12	14	49	23	0.20
23.11.2024	N/24/11/5-0178	9	18	53	29	0.31
25.11.2024	N/24/11/5-0006	11	13	44	23	0.25
26.11.2024	N/24/11/5-0071	7	9	39	20	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
 ARSHIYA KOUSAR
 Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

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Recognised by MoEFCC(CPCB) under E(P) Act 1986 recognition valid upto 23.05.2025

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 : 02.12.2024
 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)	
08.11.2024	N/24/11/3-0116	10	12	55	26	0.20
09.11.2024	N/24/11/3-0192	11	14	57	32	0.33
11.11.2024	N/24/11/4-0009	9	11	45	26	0.27
12.11.2024	N/24/11/4-0052	8	19	48	25	0.24
22.11.2024	N/24/11/5-0119	9	11	51	31	0.22
23.11.2024	N/24/11/5-0179	13	15	48	22	0.21
25.11.2024	N/24/11/5-0007	11	13	52	25	0.42
26.11.2024	N/24/11/5-0072	10	18	38	18	0.35
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.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 : 02.12.2024
 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)	
08.11.2024	N/24/11/3-0117	12	15	58	32	0.39
09.11.2024	N/24/11/3-0193	9	11	54	29	0.33
11.11.2024	N/24/11/4-0010	14	18	45	24	0.24
12.11.2024	N/24/11/4-0053	9	14	50	29	0.21
22.11.2024	N/24/11/5-0120	7	13	47	22	0.2
23.11.2024	N/24/11/5-0180	9	12	57	32	0.28
25.11.2024	N/24/11/5-0008	12	13	51	25	0.23
26.11.2024	N/24/11/5-0073	7	12	35	18	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

Arshiya Kousar
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 Dy. T.M. - Chemical

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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. 2678
 Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)
 Station at & Code : A6, Appayyanahalli (Narayanpura)
 Duration : 24 Hrs
 Issue date : 02.12.2024
 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)	
08.11.2024	N/24/11/3-0118	9	13	45	25	0.35
09.11.2024	N/24/11/3-0194	10	15	51	28	0.22
11.11.2024	N/24/11/4-0011	8	14	39	22	0.20
12.11.2024	N/24/11/4-0054	7	13	40	20	0.26
22.11.2024	N/24/11/5-0121	10	11	56	32	0.28
23.11.2024	N/24/11/5-0181	9	12	33	18	0.31
25.11.2024	N/24/11/5-0009	9	10	40	24	0.2
26.11.2024	N/24/11/5-0074	9	12	46	26	<0.20
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
 ARSHIYA KOUSAR
 Dy. T.M. - Chemical

Govt. Analyst / Authorised Signatory

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Recognised by MoEFCC(CPCB) under E(P) Act 1986 recognition valid upto 23.05.2025

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	: 02.12.2024					
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)	
08.11.2024	N/24/11/3-0119	7	11	37	21	0.24
09.11.2024	N/24/11/3-0195	9	12	53	26	0.33
11.11.2024	N/24/11/4-0012	11	14	58	32	0.36
12.11.2024	N/24/11/4-0055	8	15	43	22	0.41
22.11.2024	N/24/11/5-0122	8	11	56	28	0.25
23.11.2024	N/24/11/5-0182	9	12	50	28	0.31
25.11.2024	N/24/11/5-0010	12	16	53	27	0.28
26.11.2024	N/24/11/5-0075	9	11	48	24	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

Arshiya Kpusar
ARSHIYA KPUSAR
Dy. T.M. - Chemical

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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. 2678						
Sample Collected by : Environmental Laboratory (Unit of Mineral Engineering Services)						
Station at & Code : A8, Swamihalli						
Duration : 24 Hrs						
Issue date : 02.12.2024						
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)	
08.11.2024	N/24/11/3-0120	8	18	38	19	0.26
09.11.2024	N/24/11/3-0196	8	14	50	23	0.20
11.11.2024	N/24/11/4-0013	11	17	40	27	0.31
12.11.2024	N/24/11/4-0056	6	14	53	28	0.25
22.11.2024	N/24/11/5-0123	9	12	45	25	0.22
23.11.2024	N/24/11/5-0183	11	14	38	20	0.20
25.11.2024	N/24/11/5-0011	9	13	48	28	0.31
26.11.2024	N/24/11/5-0076	10	14	56	29	0.28
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.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 : 02.12.2024
 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)	
08.11.2024	N/24/11/3-0121	8	12	49	32	0.33
09.11.2024	N/24/11/3-0197	8	17	52	29	0.42
11.11.2024	N/24/11/4-0014	7	9	40	21	0.36
12.11.2024	N/24/11/4-0057	13	16	56	30	0.28
22.11.2024	N/24/11/5-0124	11	12	49	26	0.22
23.11.2024	N/24/11/5-0184	12	18	53	27	0.31
25.11.2024	N/24/11/5-0012	11	15	59	29	0.20
26.11.2024	N/24/11/5-0077	9	11	45	25	0.28
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.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 : 02.12.2024
 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)	
08.11.2024	N/24/11/3-0112	10	22	51	28	0.25
09.11.2024	N/24/11/3-0188	7	11	43	26	0.34
11.11.2024	N/24/11/4-0005	8	13	56	28	0.41
12.11.2024	N/24/11/4-0048	9	13	54	27	0.28
22.11.2024	N/24/11/5-0115	10	15	50	24	0.33
23.11.2024	N/24/11/5-0175	9	17	43	24	0.26
25.11.2024	N/24/11/5-0003	10	10	41	22	0.28
26.11.2024	N/24/11/5-0068	12	15	55	35	0.33
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. 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	: 02.12.2024		

Station at & Code	Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
FA1, Mine Face / Benches	25.11.2024	N/24/11/5-0013	365
FA2, Haulage Road / Service Road	25.11.2024	N/24/11/5-0014	425
FA3, Crushing & Screening Plant	25.11.2024	N/24/11/5-0015	411
FA4, Mineral Stock Yard / Loading	23.11.2024	N/24/11/5-0185	322
FA5, Active Waste Dump	26.11.2024	N/24/11/5-0078	356

Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)	
	Particulate mater ($\mu\text{g}/\text{m}^3$)
Permissible limits for Fugitive Emissions	600 $\mu\text{g}/\text{m}^3$

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TEST REPORT

Table No. 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	: 02.12.2024		
Station at & Code	Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
FA1, Mine Face / Benches	08.11.2024	N/24/11/3-0122	356
FA2, Haulage Road / Service Road	08.11.2024	N/24/11/3-0123	388
FA3, Crushing & Screening Plant	08.11.2024	N/24/11/3-0124	265
FA4, Mineral Stock Yard / Loading	09.11.2024	N/24/11/3-0198	241
FA5, Active Waste Dump	09.11.2024	N/24/11/3-0199	398
Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment)			
			Particulate mater ($\mu\text{g}/\text{m}^3$)
Permissible limits for Fugitive Emissions			600 $\mu\text{g}/\text{m}^3$

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TEST REPORT

Table No. 13

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 : 02.12.2024

Station at & Code	Date of sample	Lab Code	Particulate mater ($\mu\text{g}/\text{m}^3$)
FA1, Mine Face / Benches	22.11.2024	N/24/11/5-0125	268
FA2, Haulage Road / Service Road	22.11.2024	N/24/11/5-0126	358
FA3, Crushing & Screening Plant	22.11.2024	N/24/11/5-0127	423
FA4, Mineral Stock Yard / Loading	23.11.2024	N/24/11/5-0186	358
FA5, Active Waste Dump	23.11.2024	N/24/11/5-0187	396

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

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

Permissible limits for Fugitive Emissions

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


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TEST REPORT

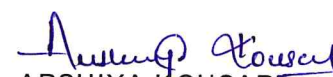
Table No. 14

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	01.11.2024 to 30.11.2024
4	Sample Type	Total Dust Fall Rate
5	Duration of Monitoring	One Month
6	Issue Date	02.12.2024

Result

Code	Location	Result	unit	Reference Method
DF1	Deogiri mines office	0.026	g/m ² month	IS 5182 (Part 01) : 2006
DF2	Kammathuru (Near School)	0.023	g/m ² month	IS 5182 (Part 01) : 2006
DF3	Appayyanahalli	0.011	g/m ² month	IS 5182 (Part 01) : 2006
DF4	Subbarayanahalli (Near Hospital)	0.018	g/m ² month	IS 5182 (Part 01) : 2006
DF5	Yeswanthanagar (Near Railway Track)	0.021	g/m ² month	IS 5182 (Part 01) : 2006


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TEST REPORT

Table No. 15

AMBIENT NOISE LEVEL DATA

Report No : ELMES132411

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	: 22.11.2024						
Issue Date	: 02.12.2024						
Code No.	Monitoring stations	Day			Night		
		L _{min}	L _{eq}	L _{max}	L _{min}	L _{eq}	L _{max}
Corezone							
N1	Mine Pit (SK/CBG)	39.6	50.0	57.2	34.0	44.0	50.0
N2	Kammathuru ML Area	38.2	52.0	59.2	35.0	43.8	47.5
N3	Deogiri ML Area	36.2	50.3	56.8	34.8	43.2	48.2
N4	SBS Plot (Mine Boundary)	37.6	51.7	56.8	34.2	42.8	47.5
N5	SB Halli ML Area	36.0	48.0	55.1	34.0	42.3	46.2
N6	Mine area	37.0	52.1	57.5	34.0	42.2	46.0
Bufferzone							
N7	Appayanahalli (Narayanapura)	36.5	48.1	53.2	34.0	39.3	44.2
N8	Vitthalanagar (Navalatti)	37.0	53.0	59.2	35.0	41.8	46.8
N9	Swamihalli	35.6	47.1	53.8	33.6	42.2	46.0
N10	Yeshwanthnagar	35.0	48.5	54.7	34.0	40.9	48.2
N11	Tonasingeri	35.0	50.2	53.8	34.6	41.5	44.0
N12	Kumaraswamy Temple	37.0	46.9	54.2	35.0	41.0	45.3
Permissible Limits of Ambient Noise Levels as per CPCB Guidelines							
Leq. Limit dB(A)							
		Day	Night				
Industrial areas		75	70				
Commercial area		65	55				
Residential area		55	45				

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TEST REPORT

Table No. 16

Report No : ED007124113

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	: 09.11.2024
Date of sample collection	: 09.11.2024
Lab Code	: ED/24/11/3-0071
Issue Date	: 25.11.2024
Ref : Discharge Standards for Treated Sewage Utilized for Landscape/Irrigation/Secondary Purposes	

Sl.No.	Parameters	units	Results	Method of Testing
1	pH	-	6.79	IS 3025 (P-11)2017
2	Biochemical Oxygen Demand BOD ₅ 27 ^o C	mg/l	64	IS 3025 (P-44) 1993 RA 2019
3	Chemical Oxygen Demand (COD)	mg/l	180	IS 3025 (P-58) 2006 RA 2017
4	Total Suspended Solids, at 105 ^o C	mg/l	120	IS 3025 (P-17)1984 RA 2017
5	Ammonium (H4-N)	mg/l	0.3	IS:3025 (P-34) 2023
6	Total Nitrogen (N-Total)	mg/l	8	IS 3025 (Part-34)
7	Fecal coliform	MPN/100ml	48	APHA 23rd Edition 9221

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TEST REPORT

Table No. 17

Report No : ED007224113

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	: 09.11.2024
Lab Code	: ED/24/11/3-0072
Issue Date	: 25.11.2024
Ref : Discharge Standards for Treated Sewage Utilized for Landscape/Irrigation/Secondary Purposes	

Sl.No.	Parameters	units	Results	Tolerance Limit	Method of Testing
1	pH	-	7.01	6.5 - 9.0	IS 3025 (P-11)2017
2	Biochemical Oxygen Demand BOD ₅ 27° C	mg/l	8	<10	IS 3025 (P-44) 1993 RA 2019
3	Chemical Oxygen Demand (COD)	mg/l	46	<50	IS 3025 (P-58) 2006 RA 2017
4	Total Suspended Solids, at 105°C	mg/l	18	<20	IS 3025 (P-17)1984 RA 2017
5	Ammonium (H4-N)	mg/l	0.2	<5	IS:3025 (P-34) 2023
6	Total Nitrogen (N-Total)	mg/l	3	<10	IS 3025 (Part-34)
7	Fecal coliform	MPN/100ml	<1.8	<100	APHA 23rd Edition 9221

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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 : Environmental Laboratory (Unit of Mineral Engineering Services)
Particulars of sample collected : SW1 - Durgammakolla spring water, SW2 - JLK spring water
SW3 - Katrasinghkolla spring water
Date of sample collection : 09.11.2024
Date of sample receipt : 12.11.2024
Issue Date : 25.11.2024
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)

Lab Code		ED/24/11/3-0061	ED/24/11/3-0062	ED/24/11/3-0063	Limits For Stream Water Standards	Method of Testing
Sl.No.	Parameters	Results				
		SW1	SW2	SW3		
1	pH	7.09	6.67	7.55	6.5 to 8.5	IS:3025(Part-11)2022
2	Colour (Hazen Units), Max	<1.0	<1.0	30	300	IS:3025(Part-4)2021
3	Odour	Agreeable	Agreeable	Agreeable	-	IS:3025 (P-5) 2018
4	Total Dissolved Solids (mg/l), Max	274	218	380	1500	IS:3025(Part-16)2023
5	Total Suspended Solids, mg/l	48	18	64	-	IS 3025 (P-17) 2022
6	Dissolved Oxygen (as O ₂), mg/l, Max	5.3	5.6	5.2	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 & Grease, mg/l	<1.0	<1.0	<1.0	0.1	IS:3025(Part 39)2021
9	Total Hardness (as CaCO ₃),mg/l,Max	240	80	80	-	IS:3025 (P-21):2009 RA 2019
10	Sulphates as SO ₄ (mg/l), Max	3.45	2.38	143.18	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 Cl),mg/l, Max	21.03	79.74	53.8	600	IS:3025(Part-32) ;1988RA2019
13	Fluoride (as F),mg/l, Max	0.38	0.24	0.14	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	0.018	0.034	0.383	50	IS:3025(P-2) 2019
17	Percent of Sodium (%)	18	25	32	-	IS 11624 .2009
18	Residual Sodium Carbonate (meq/l)	<0.5	<0.5	<0.5	-	IS 11624 .2009
19	Total Coliform, MPN/100ml	109	148	94	5000	IS:1622:1981

""END OF REPORT""

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Note : This report is subject to the terms and conditions mentioned overleaf.



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TEST REPORT

Table No.19

Table No. 1

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	: SW4 - Hari Shankar Spring Water, SW5 - Narihalla Dam water				
Date of sample collection	: 09.11.2024				
Date of sample receipt	: 12.11.2024				
Issue Date	: 25.11.2024				
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)					
Lab Code		ED/24/11/3-0064	ED/24/11/3-0065	Limits For Stream Water Standards	Method of Testing
Sl.No.	Parameters	Results			
		SW4	SW5		
1	pH	6.52	8.11	6.5 to 8.5	IS:3025(Part-11)2022
2	Colour (Hazen Units), Max	1.0	10.0	300	IS:3025(Part-4)2021
3	Odour	Agreeable	Agreeable	-	IS:3025 (P-5) 2018
4	Total Dissolved Solids (mg/l), Max	130.0	580.0	1500	IS:3025(Part-16)2023
5	Total Suspended Solids, mg/l	7.6	75	-	IS 3025 (P-17) 2022
6	Dissolved Oxygen (as O ₂), mg/l, Max	5.70	5.30	Min 4	IS:3025(Part-38)1989RA 2019
7	Biochemical Oxygen Demand (as O ₂), mg/l	<3.0	<3.0	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	50	150	-	IS:3025 (P-21):2009 RA 2019
10	Sulphates as SO ₄ (mg/l), Max	1.54	25.15	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 Cl),mg/l, Max	53.8	78.2	600	IS:3025(Part-32) ;1988RA2019
13	Fluoride (as F),mg/l, Max	0.3	0.5	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	0.153	0.209	50	IS:3025(P-2) 2019
17	Percent of Sodium (%)	28.00	32.00	-	IS 11624 .2009
18	Residual Sodium Carbonate (meq/l)	<0.5	<0.5	-	IS 11624 .2009
19	Total Coliform, MPN/100ml	40	63	5000	IS:1622:1981

""END OF REPORT""



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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 - Borewell near Kumarswamy temple, GW3 - Appayyanahalli (Narayanpura) Bore water					
Date of sample collection		: 09.11.2024					
Issue Date		: 25.11.2024					
Ref		: IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)					
Sl. No.	Lab Code	ED/24/11/3-0066 ED/24/11/3-0067 ED/24/11/3-0068			Desirable Limits	Permissible Limits	Method of Testing
	Sample Code	GW1	GW2	GW3			
	Parameters	Results					
1	Colour (Hazen Units)	<1.0	1	<1.0	5	15	IS:3025 (P-4) 2021
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (P-5) 2018
3	pH Value	7.33	6.89	7.38	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
4	Turbidity, NTU, Max	<0.1	3.6	<0.1	1	5	IS:3025 (P-10) 1984 RA 2017
5	Electrical Conductivity (µmhos/cm)	374.0	517.0	3034	—	—	IS 3025 (P-14)
6	Total Dissolved Solids, mg/l, Max	264.0	360.0	1890.0	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	20.04	40.08	160.00	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	30.82	35.7	202.0	250	1000	IS:3025 (P-32) 1988 RA 2019
12	Fluoride (as F), mg/l, Max	0.27	0.24	0.64	1	1.5	APHA 23rd Edition 4500F
13	Iron (as Fe), mg/l, Max	0.662	0.119	0.059	1.0	1.0	IS:3025 (Part-2) 2019
14	Magnesium (as Mg), mg/l, Max	7.29	14.58	104.51	30	100	IS:3025 (P-46) 1994 RA 2019
15	Manganese (as Mn), mg/l, Max	0.013	0.004	0.012	0.1	0.3	IS:3025 (P-2) 2019
16	Nitrates (as NO ₃), mg/l, Max	2.40	5.20	38.40	45	45	APHA 23rd Edition 4500B
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	1.07	12.27	5	200	400	IS:3025 (P-24) Sec 1 2022
19	Alkalinity (as CaCO ₃), mg/l, Max	51.72	93.15	450.22	200	600	IS:3025 (P-23): 1986 RA 2019
20	Total Hardness (as CaCO ₃), mg/l, Max	80.0	160.0	590.0	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	18.4	12.9	130	-	-	IS:3025 (Part-45) 1993 RA 2019
23	Potassium, (as K), mg/l, Max	<1.0	4.2	1.5	-	-	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	<0.005	<0.005	<0.005	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-2) 2019
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


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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		: 09.11.2024				
Issue Date		: 25.11.2024				
Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards)						
Lab Code		ED/24/11/3-0069	ED/24/11/3-0070	Desirable Limits	Permissible Limits	Method of Testing
Sl. No.	Sample Code Parameters	GW4	GW5			
1	Colour (Hazen Units)	1	<1.0	5	15	IS:3025 (P-4) 2021
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (P-5) 2018
3	pH Value	7.59	7.21	6.5 to 8.5	6.5 - 8.5	IS:3025 (P-11) 2022
4	Turbidity,NTU, Max	4.3	<0.1	1	5	IS:3025 (P-10)1984 RA 2017
5	Electrical Conductivity (µmhos/cm)	691.0	3851.0	—	—	IS 3025 (P-14)
6	Total Dissolved Solids,mg/l, Max	510.0	2660.0	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	44.08	192.38	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 Cl (mg/l),mg/l, Max	30.82	383.05	250	1000	IS:3025 (P-32) 1988 RA 2019
12	Fluoride (as F),mg/l, Max	0.32	0.78	1	1.5	APHA 23rd Edition 4500F
13	Iron (as Fe),mg/l, Max	0.061	0.054	1.0	1.0	IS:3025 (Part-2) 2019
14	Magnesium (as Mg)mg/l, Max	21.87	87.49	30	100	IS:3025 (P-46)1994 RA 2019
15	Manganese (as Mn),mg/l, Max	0.005	0.004	0.1	0.3	IS:3025 (P-2) 2019
16	Nitrates (as NO ₃),mg/l, Max	96.40	118.00	45	45	APHA 23rd Edition 4500B
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	54.60	125.77	200	400	IS:3025 (P-24) Sec 1 2022
19	Alkalinity (as CaCO ₃) mg/l, Max	119.0	496.8	200	600	IS:3025 (P-23):1986 RA 2019
20	Total Hardness (as CaCO ₃),mg/l,Max	200.0	840.0	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	13.8	241	—	—	IS:3025 (Part-45) 1993 RA2019
23	Potassium, (as K), mg/l, Max	6.3	1.7	—	—	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-2) 2019
30	Escherichia coli/100ml	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			IS:15185:2016 RA 2021

"END OF REPORT"



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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		: Environmental Laboratory (Unit of Mineral Engineering Services)					
Date of sample collection		: 09.11.2024					
Issue Date		: 02.12.2024					
Lab Code			N/24/11/3-0271	N/24/11/3-0272	N/24/11/3-0273	N/24/11/3-0274	N/24/11/3-0275
SL. No.	Sample Code		S1	S2	S3	S4	S5
	PARAMETERS	Unit	Results				
PHYSICAL PROPERTIES							
1	Colour	--	Red Soil	Red Soil	Red Soil	Red Soil	Red Soil
2	Textural class	--	Clay Loam	Sandy Loam	Clay Loam	Clay Loam	Clay Loam
3	Size Distribution						
	Sand	%	31.72	34.55	33.21	31.36	34.25
	Clay	%	45.03	37.82	37.58	42.42	39.17
	Silt	%	23.25	27.63	29.21	26.22	26.58
4	Moisture Content	%	7.23	6.96	7.12	6.77	6.94
5	Bulk Density	gm/cc	1.85	1.79	1.88	1.52	1.62
6	Water holding capacity	%	31.22	29.32	23.54	26.33	22.12
7	pH	--	6.82	6.88	7.26	7.35	6.54
8	EC	m.mohs/cm	0.194	0.272	0.21	0.28	0.179
Chemical Properties							
9	Organic Carbon	%	0.68	0.33	0.19	1.91	1.99
10	Nitrogen as N	Kg/Ha	133	241	122	133	186
11	Phosphorous as P	Kg/Ha	6.72	8.81	7.42	7.63	7.42
12	Potassium as K ₂ O	Kg/Ha	188	131	126	132	155
13	Sodium as Na	mg/kg	34	30	66	33	34
14	Chloride as Cl	mg/kg	132	116	163	141	226
15	Sulphate as SO ₄	mg/kg	30	28	33	30	35
Sample Locations :							
S1 - Top soil (Kammathuru)							
S2 - Top soil (Deogiri)							
S3 - Top soil (SB Halli)							
S4 - Active Dump 1							
S5 - Active Dump 2							

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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		: 09.11.2024					
Issue Date		: 02.12.2024					
Lab Code			N/24/11/3-0276	N/24/11/3-0277	N/24/11/3-0278	N/24/11/3-0279	N/24/11/3-0280
SL. No.	Sample Code		S6	S7	S8	S9	S10
	PARAMETERS	Unit	Results				
PHYSICAL PROPERTIES							
1	Colour	--	Red Soil	Red Soil	Red Soil	Red Soil	Red soil
2	Textural class	--	Clay Loam	Clay Loam	Slity Clay	Slity Clay	Clay Loam
3	Size Distribution						
	Sand	%	32.88	31.26	38.16	36.54	37.65
	Clay	%	37.01	39.69	32.19	33.34	32.81
	Silt	%	30.11	29.05	29.65	30.12	29.54
4	Moisture Content	%	7.46	6.83	7.63	6.89	6.77
5	Bulk Density	gm/cc	1.26	2.45	1.78	1.82	7.93
6	Water holding capacity	%	33.85	30.29	31.33	33.86	42.32
7	pH	--	7.52	6.93	7.26	7.32	7.69
8	EC	m.mohs/cm	0.432	0.488	0.48	0.386	0.526
Chemical Properties							
9	Organic Carbon	%	0.69	0.59	0.53	0.63	0.46
10	Nitrogen as N	Kg/Ha	134	130	142	169	132
11	Phosphorous as P	Kg/Ha	30	40	51	50	43
12	Potassium as K ₂ O	Kg/Ha	142	155	153	140	138
13	Sodium as Na	mg/kg	58	43	49	46	32
14	Chloride as Cl	mg/kg	36	33	28	42	36
15	Sulphate as SO ₄	mg/kg	30	36	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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TEST REPORT

Table No. 24

Stack Monitoring Report

Report No. N012524113

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 & Capacity :	DG 1010 KVA (808 KW)
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	08.11.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	09.11.2024
Lab Code :	N/24/11/3-0125
Issue date :	02.12.2024

STACK DETAILS

1	Fuel Used	Diesel
2	Ambient Temperature (°C)	30
3	Stack Temperature (°C)	174
4	Velocity (m/s)	15.2
5	Stack diameter (M)	0.30
6	Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr)	3460
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	NOx (as NO ₂) (as 15% O ₂), dry basis	ppmv	27.03	360
2	NMHC (as C) (at 15 % O ₂)	mg/Nm ³	34.12	100
3	PM (as C) (at 15 % O ₂)	mg/Nm ³	33.00	75
4	CO (at 15 % O ₂)	(mg/Nm ³	48.00	150

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TEST REPORT

Table No. 25

Stack Monitoring Report

Report No. N012624113

Name of the Client :	The Sandur Manganese & Iron Ores Limited
Name of the Mine :	Deogiri Manganese & Iron Ore Mine (ML NO. 2678)
Location :	Deogiri - Work Shop
Stack ID & Capacity :	DG Set 160 KVA Doosan Light Source
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	08.11.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	09.11.2024
Lab Code :	N/24/11/3-0126
Issue date :	02.12.2024

STACK DETAILS

1	Fuel Used	Diesel
2	Ambient Temperature (°C)	30
3	Stack Temperature (°C)	138
4	Velocity (m/s)	7.32
5	Stack diameter (M)	0.15
6	Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr)	326
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	0.040	<0.2
2	CO	g/Kw-hr	0.036	<3.5
3	Nox +HC	g/Kw-hr	0.043	<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. 26

Stack Monitoring Report

Report No. N012724113

Name of the Client :	The Sandur Manganese & Iron Ores Limited
Name of the Mine :	Deogiri Manganese & Iron Ore Mine (ML NO. 2678)
Location :	RMK Pump House
Stack ID & Capacity :	DG Set 50 KVA water Pumping
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	08.11.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	09.11.2024
Lab Code :	N/24/11/3-0127
Issue date :	02.12.2024

STACK DETAILS

1	Fuel Used	Diesel
2	Ambient Temperature (°C)	30
3	Stack Temperature (°C)	149
4	Velocity (m/s)	6.60
5	Stack diameter (M)	0.15
6	Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr)	287
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	0.057	<0.2
2	CO	g/Kw-hr	0.103	<3.5
3	Nox +HC	g/Kw-hr	0.555	<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. 27

Stack Monitoring Report

Report No. N020024113

Name of the Client :	The Sandur Manganese & Iron Ores Limited
Name of the Mine :	Deogiri Manganese & Iron Ore Mine (ML NO. 2678)
Location :	CBG Weigh Bridge
Stack ID & Capacity :	DG Set 20 KVA Doosan Light Source
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	09.11.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	11.11.2024
Lab Code :	N/24/11/3-0200
Issue date :	02.12.2024

STACK DETAILS

1	Fuel Used	Diesel
2	Ambient Temperature (°C)	30
3	Stack Temperature (°C)	110
4	Velocity (m/s)	6.76
5	Stack diameter (M)	0.15
6	Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr)	323
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	0.097	<0.2
2	CO	g/Kw-hr	0.210	<3.5
3	Nox +HC	g/Kw-hr	0.857	<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. 28

Stack Monitoring Report

Report No. N020124113

Name of the Client :	The Sandur Manganese & Iron Ores Limited
Name of the Mine :	Deogiri Manganese & Iron Ore Mine (ML NO. 2678)
Location :	BMM Plot
Stack ID & Capacity :	DG Set 100 KVA Doosan Light Source
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	09.11.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	11.11.2024
Lab Code :	N/24/11/3-0201
Issue date :	02.12.2024

1	Fuel Used	Diesel
2	Ambient Temperature ($^{\circ}\text{C}$)	30
3	Stack Temperature ($^{\circ}\text{C}$)	125
4	Velocity (m/s)	12.94
5	Stack diameter (M)	0.15
6	Quantity of flue Gas Discharged into atmosphere (Nm^3/hr)	596
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	0.066	<0.2
2	CO	g/Kw-hr	0.024	<3.5
3	Nox +HC	g/Kw-hr	0.113	<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. 29

Stack Monitoring Report

Report No. N020224113

Name of the Client :	The Sandur Manganese & Iron Ores Limited
Name of the Mine :	Subrayanahalli Manganese & Iron Ore Mine (ML NO. 2678)
Location :	SBS -PLOT-SB HALLI
Stack ID & Capacity :	DG Set 160 KVA Mineral Processing
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	09.11.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	11.11.2024
Lab Code :	N/24/11/3-0202
Issue date :	02.12.2024

STACK DETAILS

1	Fuel Used	Diesel
2	Ambient Temperature ($^{\circ}\text{C}$)	30
3	Stack Temperature ($^{\circ}\text{C}$)	142
4	Velocity (m/s)	8.18
5	Stack diameter (M)	0.15
6	Quantity of flue Gas Discharged into atmosphere (Nm^3/hr)	361
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	0.051	<0.2
2	CO	g/Kw-hr	0.038	<3.5
3	Nox +HC	g/Kw-hr	0.207	<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. 30

Stack Monitoring Report

Report No. N028424113

Name of the Client :	The Sandur Manganese & Iron Ores Limited
Name of the Mine :	Subrayanahalli Manganese & Iron Ore Mine (ML NO. 2678)
Location :	KVH IO MINES - SB HALLI
Stack ID & Capacity :	DG Set 35 KVA Doosan Light Source
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	11.11.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	12.11.2024
Lab Code :	N/24/11/3-0284
Issue date :	02.12.2024

STACK DETAILS

1	Fuel Used	Diesel
2	Ambient Temperature (°C)	28
3	Stack Temperature (°C)	116
4	Velocity (m/s)	6.73
5	Stack diameter (M)	0.15
6	Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr)	317
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	0.081	<0.2
2	CO	g/Kw-hr	0.109	<3.5
3	Nox +HC	g/Kw-hr	0.136	<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. 31

Stack Monitoring Report

Report No. N028524113

Name of the Client :	The Sandur Manganese & Iron Ores Limited
Name of the Mine :	Subrayanahalli Manganese & Iron Ore Mine (ML NO. 2678)
Location :	KVH IO MINES - SB HALLI
Stack ID & Capacity :	DG Set 125 KVA Doosan Light Source
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	11.11.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	12.11.2024
Lab Code :	N/24/11/3-0285
Issue date :	02.12.2024

STACK DETAILS

1	Fuel Used	Diesel
2	Ambient Temperature ($^{\circ}\text{C}$)	28
3	Stack Temperature ($^{\circ}\text{C}$)	132
4	Velocity (m/s)	7.80
5	Stack diameter (M)	0.15
6	Quantity of flue Gas Discharged into atmosphere (Nm^3/hr)	323
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	0.045	<0.2
2	CO	g/Kw-hr	0.037	<3.5
3	Nox +HC	g/Kw-hr	0.088	<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. 32

Stack Monitoring Report

Report No. N028324113

Name of the Client :	The Sandur Manganese & Iron Ores Limited
Name of the Mine :	Kammathuru Iron Ore (KTIO) (ML No. 2678)
Location :	KTIO - Dump
Stack ID & Capacity :	DG Set 7.5 KVA Doosan Light Source
Sample Collected by :	Environmental Laboratory (Unit of Mineral Engineering Services)
Date of Collection :	11.11.2024
Particulars of Sample Collected :	Emissions from stack collected through stack sample VSS1
Date of Sample Receipt :	12.11.2024
Lab Code :	N/24/11/3-0286
Issue date :	02.12.2024

STACK DETAILS

1	Fuel Used	Diesel
2	Ambient Temperature ($^{\circ}\text{C}$)	28
3	Stack Temperature ($^{\circ}\text{C}$)	144
4	Velocity (m/s)	9.44
5	Stack diameter (M)	0.15
6	Quantity of flue Gas Discharged into atmosphere (Nm^3/hr)	414
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	0.055	<0.2
2	CO	g/Kw-hr	0.332	<3.5
3	Nox +HC	g/Kw-hr	0.829	<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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