

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/2024-25/2678/470

08 July 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 June 2024 in respect of Mining Lease No. 2678.

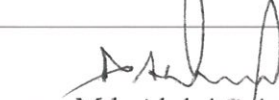
Ref: 1. Environmental Clearance F.No. IA-J-11015/45/2021-IA-II(M) dated 25 April 2023.
2. Consent for Operation No. AW-341719 dated 02 February 2024.

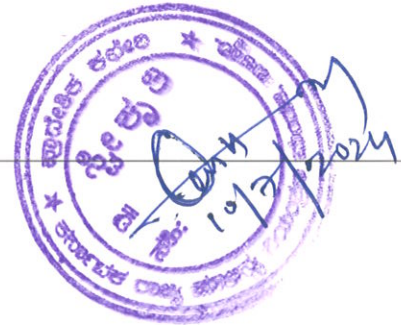
With reference to the letter cited above, we are enclosing herewith environmental monitoring reports prepared after monitoring the stipulated environmental parameters for the month of June 2024 in respect of Mining Lease No. 2678 of The Sandur Manganese & Iron Ores Limited.

Kindly acknowledge the receipt of the reports.

Thank you,

for The Sandur Manganese & Iron Ores Limited,


Md. Abdul Saleem,
Whole Time Director
& Company Secretary.



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

ENVIRONMENTAL MONITORING REPORT

June, 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,



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



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
 Parivesh Bhawan, East Arjun Nagar, Delhi-110032

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

LIST OF TABLES

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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 : 01.07.2024 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) | |
| 01.06.2024 | N/24/06/2-0002 | 10 | 14 | 40 | 22 | 0.33 |
| 07.06.2024 | N/24/06/2-0097 | 8 | 12 | 51 | 27 | 0.45 |
| 08.06.2024 | N/24/06/3-0002 | 7 | 15 | 37 | 19 | 0.26 |
| 10.06.2024 | N/24/06/4-0002 | 10 | 12 | 47 | 21 | 0.21 |
| 11.06.2024 | N/24/06/4-0060 | 9 | 14 | 45 | 25 | 0.36 |
| 21.06.2024 | N/24/06/5-0114 | 12 | 18 | 49 | 23 | 0.33 |
| 22.06.2024 | N/24/06/5-0201 | 7 | 15 | 40 | 22 | 0.22 |
| 24.06.2024 | N/24/06/5-0323 | 10 | 12 | 48 | 26 | 0.46 |
| 25.06.2024 | N/24/06/5-0434 | 11 | 17 | 37 | 19 | 0.36 |
| 30.06.2024 | N/24/07/1-0016 | 9 | 12 | 50 | 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 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 : 01.07.2024 | | | | | | |
| 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) | |
| 01.06.2024 | N/24/06/2-0003 | 7 | 9 | 36 | 18 | 0.22 |
| 07.06.2024 | N/24/06/2-0098 | 8 | 15 | 49 | 23 | 0.31 |
| 08.06.2024 | N/24/06/3-0003 | 10 | 13 | 30 | 18 | 0.22 |
| 10.06.2024 | N/24/06/4-0003 | 11 | 12 | 36 | 20 | <0.2 |
| 11.06.2024 | N/24/06/4-0061 | 8 | 11 | 53 | 22 | 0.2 |
| 21.06.2024 | N/24/06/5-0115 | 7 | 9 | 50 | 28 | 0.31 |
| 22.06.2024 | N/24/06/5-0202 | 13 | 15 | 53 | 24 | 0.28 |
| 24.06.2024 | N/24/06/5-0324 | 10 | 17 | 33 | 18 | 0.23 |
| 25.06.2024 | N/24/06/5-0435 | 8 | 10 | 41 | 22 | 0.24 |
| 30.06.2024 | N/24/07/1-0017 | 10 | 12 | 46 | 22 | 0.46 |
| 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 : 01.07.2024 | | | | | | |
| 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) | |
| 01.06.2024 | N/24/06/2-0004 | 12 | 13 | 57 | 27 | 0.33 |
| 07.06.2024 | N/24/06/2-0099 | 10 | 11 | 46 | 24 | 0.35 |
| 08.06.2024 | N/24/06/3-0004 | 13 | 17 | 41 | 22 | 0.24 |
| 10.06.2024 | N/24/06/4-0004 | 10 | 12 | 43 | 22 | 0.26 |
| 11.06.2024 | N/24/06/4-0062 | 11 | 18 | 50 | 28 | 0.28 |
| 21.06.2024 | N/24/06/5-0116 | 9 | 11 | 54 | 29 | 0.21 |
| 22.06.2024 | N/24/06/5-0203 | 8 | 10 | 48 | 26 | 0.36 |
| 24.06.2024 | N/24/06/5-0325 | 6 | 9 | 40 | 23 | 0.44 |
| 25.06.2024 | N/24/06/5-0436 | 7 | 13 | 35 | 21 | 0.25 |
| 30.06.2024 | N/24/07/1-0018 | 11 | 12 | 30 | 19 | 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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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 : 01.07.2024 | | | | | | |
| 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) | |
| 01.06.2024 | N/24/06/2-0005 | 8 | 18 | 43 | 22 | 0.34 |
| 07.06.2024 | N/24/06/2-0100 | 7 | 14 | 38 | 17 | 0.25 |
| 08.06.2024 | N/24/06/3-0005 | 10 | 12 | 48 | 25 | 0.41 |
| 10.06.2024 | N/24/06/4-0005 | 8 | 14 | 44 | 23 | 0.33 |
| 11.06.2024 | N/24/06/4-0063 | 10 | 13 | 30 | 16 | 0.26 |
| 21.06.2024 | N/24/06/5-0117 | 7 | 11 | 44 | 23 | <0.2 |
| 22.06.2024 | N/24/06/5-0204 | 11 | 14 | 35 | 19 | 0.23 |
| 24.06.2024 | N/24/06/5-0326 | 7 | 13 | 40 | 21 | 0.35 |
| 25.06.2024 | N/24/06/5-0437 | 6 | 10 | 37 | 19 | 0.31 |
| 30.06.2024 | N/24/07/1-0019 | 9 | 11 | 45 | 25 | 0.22 |
| Limits for Industrial, Residential, Rural and other Areas | | 80 24 Hrs | 80 24 Hrs | 100 24 Hrs | 60 24 Hrs | 2 8 Hr |

Arshiya Kousar
ARSHIYA KOUSAR
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 : 01.07.2024 | | | | | | |
| 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) | |
| 01.06.2024 | N/24/06/2-0006 | 11 | 14 | 51 | 29 | 0.29 |
| 07.06.2024 | N/24/06/2-0101 | 7 | 16 | 44 | 23 | 0.42 |
| 08.06.2024 | N/24/06/3-0006 | 12 | 14 | 50 | 26 | 0.36 |
| 10.06.2024 | N/24/06/4-0006 | 10 | 13 | 39 | 20 | 0.38 |
| 11.06.2024 | N/24/06/4-0064 | 8 | 11 | 48 | 22 | 0.48 |
| 21.06.2024 | N/24/06/5-0118 | 14 | 15 | 46 | 19 | 0.41 |
| 22.06.2024 | N/24/06/5-0205 | 13 | 18 | 43 | 21 | 0.36 |
| 24.06.2024 | N/24/06/5-0327 | 10 | 16 | 31 | 19 | 0.28 |
| 25.06.2024 | N/24/06/5-0438 | 8 | 17 | 51 | 27 | 0.26 |
| 30.06.2024 | N/24/07/1-0020 | 5 | 9 | 48 | 24 | 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
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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 : 01.07.2024 | | | | | | |
| 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) | |
| 01.06.2024 | N/24/06/2-0007 | 12 | 15 | 44 | 20 | 0.42 |
| 07.06.2024 | N/24/06/2-0102 | 9 | 13 | 36 | 19 | 0.22 |
| 08.06.2024 | N/24/06/3-0007 | 12 | 12 | 43 | 28 | 0.42 |
| 10.06.2024 | N/24/06/4-0007 | 10 | 11 | 30 | 18 | 0.39 |
| 11.06.2024 | N/24/06/4-0065 | 7 | 11 | 34 | 18 | 0.24 |
| 21.06.2024 | N/24/06/5-0119 | 7 | 12 | 53 | 27 | 0.33 |
| 22.06.2024 | N/24/06/5-0206 | 12 | 13 | 38 | 19 | 0.43 |
| 24.06.2024 | N/24/06/5-0328 | 8 | 11 | 33 | 18 | 0.30 |
| 25.06.2024 | N/24/06/5-0439 | 7 | 10 | 27 | 20 | 0.22 |
| 30.06.2024 | N/24/07/1-0021 | 9 | 11 | 46 | 19 | 0.27 |
| Limits for Industrial , Residential, Rural and other Areas | | 80 24 Hrs | 80 24 Hrs | 100 24 Hrs | 60 24 Hrs | 2 8 Hr |

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Table No.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 : 01.07.2024 | | | | | | |
| 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) | |
| 01.06.2024 | N/24/06/2-0008 | 11 | 12 | 35 | 19 | 0.22 |
| 07.06.2024 | N/24/06/2-0103 | 10 | 11 | 45 | 24 | 0.20 |
| 08.06.2024 | N/24/06/3-0008 | 11 | 12 | 40 | 22 | 0.46 |
| 10.06.2024 | N/24/06/4-0008 | 5 | 9 | 42 | 19 | 0.38 |
| 11.06.2024 | N/24/06/4-0066 | 11 | 12 | 44 | 23 | 0.45 |
| 21.06.2024 | N/24/06/5-0120 | 9 | 11 | 39 | 20 | 0.22 |
| 22.06.2024 | N/24/06/5-0207 | 10 | 15 | 49 | 26 | 0.29 |
| 24.06.2024 | N/24/06/5-0329 | 7 | 10 | 46 | 25 | 0.44 |
| 25.06.2024 | N/24/06/5-0440 | 11 | 14 | 51 | 29 | 0.42 |
| 30.06.2024 | N/24/07/1-0022 | 9 | 11 | 37 | 17 | 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 |

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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 : 01.07.2024 | | | | | | |
| 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) | |
| 01.06.2024 | N/24/06/2-0009 | 11 | 12 | 44 | 33 | 0.48 |
| 07.06.2024 | N/24/06/2-0104 | 8 | 12 | 33 | 18 | 0.28 |
| 08.06.2024 | N/24/06/3-0009 | 11 | 13 | 33 | 18 | 0.22 |
| 10.06.2024 | N/24/06/4-0009 | 8 | 11 | 33 | 16 | 0.36 |
| 11.06.2024 | N/24/06/4-0067 | 9 | 12 | 36 | 15 | 0.48 |
| 21.06.2024 | N/24/06/5-0121 | 7 | 10 | 55 | 30 | 0.25 |
| 22.06.2024 | N/24/06/5-0208 | 9 | 13 | 52 | 30 | 0.20 |
| 24.06.2024 | N/24/06/5-0330 | 11 | 16 | 46 | 25 | 0.26 |
| 25.06.2024 | N/24/06/5-0441 | 7 | 10 | 40 | 24 | 0.38 |
| 30.06.2024 | N/24/07/1-0032 | 11 | 14 | 35 | 18 | 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 |

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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 : 01.07.2024 | | | | | | |
| 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) | |
| 01.06.2024 | N/24/06/2-0176 | 9 | 12 | 46 | 24 | 0.31 |
| 07.06.2024 | N/24/06/2-0105 | 10 | 11 | 37 | 22 | 0.22 |
| 08.06.2024 | N/24/06/3-0010 | 7 | 9 | 50 | 28 | 0.31 |
| 10.06.2024 | N/24/06/4-0010 | 10 | 12 | 48 | 22 | 0.46 |
| 11.06.2024 | N/24/06/4-0068 | 12 | 13 | 36 | 16 | 0.38 |
| 21.06.2024 | N/24/06/5-0122 | 10 | 12 | 50 | 29 | 0.35 |
| 22.06.2024 | N/24/06/5-0209 | 7 | 9 | 58 | 33 | 0.33 |
| 24.06.2024 | N/24/06/5-0331 | 11 | 14 | 47 | 24 | 0.28 |
| 25.06.2024 | N/24/06/5-0442 | 9 | 11 | 38 | 21 | 0.36 |
| 30.06.2024 | N/24/07/1-0023 | 10 | 13 | 50 | 24 | 0.42 |
| 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 : 01.07.2024 | | | | | | |
| 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) | |
| 01.06.2024 | N/24/06/2-0001 | 10 | 14 | 44 | 17 | 0.22 |
| 07.06.2024 | N/24/06/2-0096 | 11 | 13 | 38 | 19 | 0.26 |
| 08.06.2024 | N/24/06/3-0001 | 7 | 9 | 33 | 18 | <0.2 |
| 10.06.2024 | N/24/06/4-0001 | 10 | 11 | 38 | 20 | 0.31 |
| 11.06.2024 | N/24/06/4-0059 | 12 | 12 | 36 | 18 | 0.26 |
| 21.06.2024 | N/24/06/5-0113 | 7 | 11 | 56 | 35 | 0.22 |
| 22.06.2024 | N/24/06/5-0200 | 10 | 12 | 46 | 23 | 0.34 |
| 24.06.2024 | N/24/06/5-0322 | 7 | 9 | 30 | 18 | 0.41 |
| 25.06.2024 | N/24/06/5-0433 | 9 | 15 | 48 | 24 | 0.25 |
| 30.06.2024 | N/24/07/1-0015 | 11 | 12 | 33 | 19 | 0.36 |
| 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 | | : 01.07.2024 | |
| Station at & Code | Date of sample | Lab Code | Particulate mater ($\mu\text{g}/\text{m}^3$) |
| FA1, Mine Face / Benches | 22.06.2024 | N/24/06/5-0210 | 256 |
| FA2, Haulage Road / Service Road | 22.06.2024 | N/24/06/5-0211 | 386 |
| FA3, Crushing & Screening Plant | 22.06.2024 | N/24/06/5-0212 | 415 |
| FA4, Mineral Stock Yard / Loading | 22.06.2024 | N/24/06/5-0213 | 358 |
| FA5, Active Waste Dump | 22.06.2024 | N/24/06/5-0214 | 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. 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 | | : 01.07.2024 | |
| Station at & Code | Date of sample | Lab Code | Particulate mater ($\mu\text{g}/\text{m}^3$) |
| FA1, Mine Face / Benches | 08.06.2024 | N/24/06/3-0011 | 254 |
| FA2, Haulage Road / Service Road | 08.06.2024 | N/24/06/3-0012 | 315 |
| FA3, Crushing & Screening Plant | 08.06.2024 | N/24/06/3-0013 | 368 |
| FA4, Mineral Stock Yard / Loading | 08.06.2024 | N/24/06/3-0014 | 235 |
| FA5, Active Waste Dump | 08.06.2024 | N/24/06/3-0015 | 426 |
| Ref : Environmental (Protection) Rules, 2010 (Sixth Amendment) | | | |
| Permissible limits for Fugitive Emissions | | | Particulate mater ($\mu\text{g}/\text{m}^3$) 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 | : 01.07.2024 | | |
| Station at & Code | Date of sample | Lab Code | Particulate mater ($\mu\text{g}/\text{m}^3$) |
| FA1, Mine Face / Benches | 21.06.2024 | N/24/06/5-0123 | 385 |
| FA2, Haulage Road / Service Road | 21.06.2024 | N/24/06/5-0124 | 425 |
| FA3, Crushing & Screening Plant | 21.06.2024 | N/24/06/5-0125 | 389 |
| FA4, Mineral Staoock Yard / Loading | 21.06.2024 | N/24/06/5-0126 | 255 |
| FA5, Active Waste Dump | 21.06.2024 | N/24/06/5-0127 | 486 |
| 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 | 01.06.2024 to 30.06.2024 |
| 4 | Sample Type | Total Dust Fall Rate |
| 5 | Duration of Monitoring | One Month |
| 6 | Issue Date | 01.07.2024 |

Result

| Code | Location | Result | unit | Reference Method |
|------|-------------------------------------|--------|------------------------|--------------------------|
| DF1 | Deogiri mines office | 0.044 | g/m ² month | IS 5182 (Part 01) : 2006 |
| DF2 | Kammathuru (Near School) | 0.048 | 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) | 0.022 | 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. ELMES0012406

Report No. ELMES0012406

| | | | | | | | |
|--|---|------------------|-----------------|------------------|------------------|-----------------|------------------|
| 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 | : 21.06.2024 | | | | | | |
| Issue Date | : 01.07.2024 | | | | | | |
| Code No. | Monitoring stations | Day | | | Night | | |
| | | L _{min} | L _{eq} | L _{max} | L _{min} | L _{eq} | L _{max} |
| Corezone | | | | | | | |
| N1 | Mine Pit (SK/CBG) | 40.0 | 50.5 | 55.6 | 34.0 | 45.1 | 50.0 |
| N2 | Kammathuru ML Area | 39.3 | 55.2 | 64.0 | 34.6 | 42.5 | 45.8 |
| N3 | Deogiri ML Area | 37.6 | 52.6 | 57.4 | 34.2 | 44.3 | 51.0 |
| N4 | SBS Plot (Mine Boundary) | 37.3 | 49.5 | 55.3 | 35.0 | 42.9 | 47.0 |
| N5 | SB Halli ML Area | 40.2 | 56.7 | 63.0 | 35.3 | 45.8 | 52.0 |
| N6 | Mine area | 43.0 | 58.1 | 63.0 | 34.0 | 43.1 | 47.0 |
| Bufferzone | | | | | | | |
| N7 | Appayanahalli (Narayanapura) | 38.6 | 50.1 | 54.0 | 34.0 | 42.3 | 46.0 |
| N8 | Vitthalanagar (Navalatti) | 39.3 | 51.0 | 56.4 | 34.0 | 43.3 | 47.0 |
| N9 | Swamihalli | 38.1 | 48.0 | 53.0 | 33.7 | 40.7 | 45.8 |
| N10 | Yeshwanthnagar | 40.0 | 50.0 | 55.2 | 34.0 | 42.6 | 48.0 |
| N11 | Tonasingeri | 36.0 | 49.8 | 54.6 | 34.0 | 39.7 | 43.0 |
| N12 | Kumaraswamy Temple | 37.0 | 50.3 | 56.0 | 35.0 | 43.6 | 48.6 |
| 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. 17

Report No : N009524063

| | |
|---|--|
| 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 | : 10.06.2024 |
| Lab Code | : N/24/06/3-0095 |
| Issue Date | : 21.06.2024 |
| Ref: G S R 1265 (e) and Schedule VI (Rule 3A of EP rule 1986) | |

| Sl. No. | Sample Code Parameters | STP1 Results | Method of Testing |
|---------|--|-----------------|-------------------------------|
| 1 | pH | 6.90 | IS 3025 (P-11)2017 |
| 2 | Biochemical Oxygen Demand BOD ₃ 27 ^o C, mg/l | 58 | IS 3025 (P-44) 1993 RA 2019 |
| 3 | Total Suspended Solids, at 105 ^o C, mg/l | 134 | IS 3025 (P-16)1984 RA 2017 |
| 4 | Fecal coliform, MPN/100ml | 6 | APHA-23 rd Edition |

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TEST REPORT

Table No. 18

Report No : N009624063

| | |
|---|--|
| 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 | : 10.06.2024 |
| Lab Code | : N/24/06/3-0096 |
| Issue Date | : 21.06.2024 |
| Ref: G S R 1265 (e) and Schedule VI (Rule 3A of EP rule 1986) | |

| Sl. No. | Sample Code | STP2 | Sewage Effluent Discharge Standards | Method of Testing |
|---------|--|---------|-------------------------------------|-------------------------------|
| | Parameters | Results | | |
| 1 | pH | 6.78 | 5.5 to 9.0 | IS 3025 (P-11)2017 |
| 2 | Biochemical Oxygen Demand BOD ₅ 27° C, mg/l | 24 | <30 | IS 3025 (P-44) 1993 RA 2019 |
| 3 | Total Suspended Solids, at 105°C, mg/l | 46 | <50 | IS 3025 (P-16)1984 RA 2017 |
| 4 | Fecal coliform, MPN/100ml | <1.8 | <1000 | APHA-23 rd Edition |

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ENVIRONMENTAL LABORATORY

(UNIT OF MINERAL ENGINEERING SERVICES LLP)

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TEST REPORT

Table No. 19

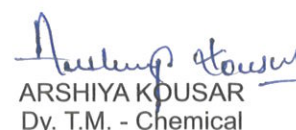
| Name of the Client | | : The Sandur Manganese & Iron Ores Limited | | | | |
|--|--|--|----------------|----------------|-----------------------------------|------------------------------|
| Name of the Project | | : Mining Lease No. 2678 | | | | |
| Sample Collected by | | : Environmental Laboratory (Unit of Mineral Engineering Services) | | | | |
| Particulars of sample collected | | : SW1 - Durgammakolla spring water, SW2 - JLK spring water SW3 - Katrasinghkolla spring water | | | | |
| Date of sample collection | | : 10.06.2024 | | | | |
| Date of sample receipt | | : 12.06.2024 | | | | |
| Issue Date | | : 21.06.2024 | | | | |
| Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards) | | | | | | |
| Lab Code | | N/24/06/3-0097 | N/24/06/3-0098 | N/24/06/3-0099 | Limits For Stream Water Standards | Method of Testing |
| Sl.No. | Parameters | Results | | | | |
| | | SW1 | SW2 | SW3 | | |
| 1 | pH | 7.06 | 6.18 | 5.41 | 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 | 380 | 194 | 105 | 1500 | IS:3025(Part-16)2023 |
| 5 | Total Suspended Solids, mg/l | 30 | 20 | 21 | - | IS 3025 (P-17) 2022 |
| 6 | Dissolved Oxygen (as O ₂), mg/l, Max | 5.0 | 5.2 | 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 & 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 | 210 | 130 | 51 | - | IS:3025 (P-21):2009 RA 2019 |
| 10 | Sulphates as SO ₄ (mg/l), Max | 35.2 | 0.84 | 2.4 | 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 | 65.4 | 46.74 | 28.18 | 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 | 0.02 | 0.016 | 0.054 | 50 | IS:3025(P-2) 2019 |
| 17 | Percent of Sodium (%) | 24 | 36 | 30 | - | IS 11624 .2009 |
| 18 | Residual Sodium Carbonate (meq/l) | 2.6 | <0.5 | <0.5 | - | IS:2488 (P-5) 1976 |
| 19 | Total Coliform, MPN/100ml | 43 | 48 | 58 | 5000 | IS:1622:1981 |

""END OF REPORT""


BINU MANI

T.M. - Microbiology

Govt. Analyst / Authorised Signatory


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TEST REPORT

Table No.20

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 | | : SW4 - Hari Shankar Spring Water, SW5 - Narihalla Dam water | | | |
| Date of sample collection | | : 10.06.2024 | | | |
| Date of sample receipt | | : 12.06.2024 | | | |
| Issue Date | | : 21.06.2024 | | | |
| Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards) | | | | | |
| Lab Code | | N/24/06/3-0100 | N/24/06/3-0101 | Limits For Stream Water Standards | Method of Testing |
| Sl.No. | Parameters | Results | | | |
| | | SW4 | SW5 | | |
| 1 | pH | 6.52 | 8.02 | 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 | - | IS:3025 (P-5) 2018 |
| 4 | Total Dissolved Solids (mg/l), Max | 82.0 | 454.0 | 1500 | IS:3025(Part-16)2023 |
| 5 | Total Suspended Solids, mg/l | <5.0 | 32 | - | IS 3025 (P-17) 2022 |
| 6 | Dissolved Oxygen (as O ₂), mg/l, Max | 5.20 | 5.00 | 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 & Grease, mg/l | <0.1 | <0.1 | 0.1 | IS:3025(Part 39)2021 |
| 9 | Total Hardness (as CaCO ₃),mg/l,Max | 18 | 88.58 | - | IS:3025 (P-21):2009 RA 2019 |
| 10 | Sulphates as SO ₄ (mg/l), Max | 3.4 | 59 | 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 | 22.6 | 53.71 | 600 | IS:3025(Part-32) ;1988RA2019 |
| 13 | Fluoride (as F),mg/l, Max | <0.1 | 0.2 | 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 | 0.018 | 0.025 | 50 | IS:3025(P-2) 2019 |
| 17 | Percent of Sodium (%) | 24.00 | 18.00 | - | IS 11624 .2009 |
| 18 | Residual Sodium Carbonate (meq/l) | <0.05 | <0.05 | - | IS:2488 (P-5) 1976 |
| 19 | Total Coliform, MPN/100ml | 39 | 70 | 5000 | IS:1622:1981 |

""END OF REPORT""


BINU MANI

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Govt. Analyst / Authorised Signatory


ARSHIYA KOUSAR
Dy. T.M. - Chemical

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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 | | : GW1 - Deogiri Mine Office Bore water, GW2 - Kammaturu Bore water, GW3 - Appayyanahalli (Narayanpura) Bore water | | | | | |
| Date of sample collection | | : 10.06.2024 | | | | | |
| Issue Date | | : 21.06.2024 | | | | | |
| Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards) | | | | | | | |
| Sl. No. | Lab Code Sample Code Parameters | N/24/06/3-0102 GW1 | N/24/06/3-0103 GW2 | N/24/06/3-0104 GW3 | Desirable Limits | Permissible Limits | Method of Testing |
| 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 | 6.01 | 7.13 | 7.65 | 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 Conductivity (µmhos/cm) | 177.4 | 395.1 | 1782.0 | -- | -- | IS 3025 (P-14) |
| 6 | Total Dissolved Solids, mg/l, Max | 125.0 | 245.0 | 1080.0 | 500 | 2000 | IS:3025 (P-16) 1984 RA 2017 |
| 7 | Aluminium (as Al), Max | <0.005 | <0.005 | 0.024 | 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 | 21.30 | 8.80 | 130.46 | 75 | 200 | IS:3025 (P-40) 1991 RA 2019 |
| 10 | Copper (as Cu), mg/l, Max | <0.005 | <0.005 | 0.038 | 0.05 | 1.5 | IS:3025 (P-2) 2019 |
| 11 | Chloride as Cl (mg/l), mg/l, Max | 27.10 | 40.66 | 490.35 | 250 | 1000 | IS:3025 (P-32) 1988 RA 2019 |
| 12 | Fluoride (as F), mg/l, Max | <0.1 | 0.30 | 0.85 | 1 | 1.5 | IS:3025 (P-60) 2008 RA 2019 |
| 13 | Iron (as Fe), mg/l, Max | 0.010 | 0.018 | 0.031 | 1.0 | 1.0 | IS:3025 (Part-2) 2019 |
| 14 | Magnesium (as Mg) mg/l, Max | 6.00 | 2.43 | 91.43 | 30 | 100 | IS:3025 (P-46) 1994 RA 2019 |
| 15 | Manganese (as Mn), mg/l, Max | <0.001 | <0.001 | 0.012 | 0.1 | 0.3 | IS:3025 (P-2) 2019 |
| 16 | Nitrates (as NO ₃), mg/l, Max | 0.56 | 7.25 | 8.20 | 45 | 45 | IS:3025 (P-34) 2024 |
| 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 | 10.40 | 10.70 | 132.00 | 200 | 400 | IS:3025 (P-24) Sec 1 2022 |
| 19 | Alkalinity (as CaCO ₃) mg/l, Max | 34.65 | 122.0 | 460.0 | 200 | 600 | IS:3025 (P-23):1986 RA 2019 |
| 20 | Total Hardness (as CaCO ₃), mg/l, Max | 22.0 | 32.0 | 440.0 | 200 | 600 | IS:3025 (P-21):2009 RA 2019 |
| 21 | Zinc (as Zn), mg/l, Max | <0.005 | <0.005 | 0.08 | 5 | 15 | IS:3025 (P-2) 2019 |
| 22 | Sodium, (as Na), mg/l, Max | 8 | 18 | 95 | - | - | IS:3025 (Part-45) |
| 23 | Potassium, (as K), mg/l, Max | <1 | <1 | 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-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 |

"END OF REPORT"

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ARSHIYA KOUSAR

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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 | | | | |
| 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 | | : 10.06.2024 | | | | |
| Issue Date | | : 21.06.2024 | | | | |
| Ref : IS:10500-2012 Norms Amendment - 4 (Drinking Water Standards) | | | | | | |
| Sl. No. | Lab Code | N/24/06/3-0105 | N/24/06/3-0106 | Desirable Limits | Permissible Limits | Method of Testing |
| | Sample Code Parameters | GW4 | GW5 | | | |
| 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 | 7.50 | 7.43 | 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 Conductivity (µmhos/cm) | 1388.0 | 1178.0 | -- | -- | IS 3025 (P-14) |
| 6 | Total Dissolved Solids, mg/l, Max | 1100.0 | 980.0 | 500 | 2000 | IS:3025 (P-16) 1984 RA 2017 |
| 7 | Aluminium (as Al), Max | 0.043 | 0.018 | 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 | 138.94 | 129.05 | 75 | 200 | IS:3025 (P-40) 1991 RA 2019 |
| 10 | Copper (as Cu), mg/l, Max | 0.036 | 0.014 | 0.05 | 1.5 | IS:3025 (P-2) 2019 |
| 11 | Chloride as Cl (mg/l), mg/l, Max | 402.61 | 266.13 | 250 | 1000 | IS:3025 (P-32) 1988 RA 2019 |
| 12 | Fluoride (as F), mg/l, Max | 0.60 | 0.30 | 1 | 1.5 | IS:3025 (P-60) 2008 RA 2019 |
| 13 | Iron (as Fe), mg/l, Max | 0.094 | 0.081 | 1.0 | 1.0 | IS:3025 (Part-2) 2019 |
| 14 | Magnesium (as Mg), mg/l, Max | 39.66 | 46.66 | 30 | 100 | IS:3025 (P-46) 1994 RA 2019 |
| 15 | Manganese (as Mn), mg/l, Max | 0.084 | 0.013 | 0.1 | 0.3 | IS:3025 (P-2) 2019 |
| 16 | Nitrates (as NO ₃), mg/l, Max | 6.20 | 3.90 | 45 | 45 | IS:3025 (P-34) 2024 |
| 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 | 71.80 | 48.00 | 200 | 400 | IS:3025 (P-24) Sec 1 2022 |
| 19 | Alkalinity (as CaCO ₃), mg/l, Max | 397.8 | 362.0 | 200 | 600 | IS:3025 (P-23):1986 RA 2019 |
| 20 | Total Hardness (as CaCO ₃), mg/l, Max | 510.0 | 514.0 | 200 | 600 | IS:3025 (P-21):2009 RA 2019 |
| 21 | Zinc (as Zn), mg/l, Max | 0.15 | 0.071 | 5 | 15 | IS:3025 (P-2) 2019 |
| 22 | Sodium, (as Na), mg/l, Max | 210 | 150 | -- | -- | IS:3025 (Part-45) |
| 23 | Potassium, (as K), mg/l, Max | 18 | 14 | -- | -- | 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"

BINU MANI

T.M. - Microbiology

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ARSHIYA KOUSAR

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TEST REPORT

Table No. 23

Table No: 2

| | | | | | | | |
|----------------------------|-------------------------------|---|----------------|----------------|----------------|----------------|----------------|
| 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 | | : 10.06.2024 | | | | | |
| Issue Date | | : 25.06.2024 | | | | | |
| Lab Code | | | N/24/06/3-0109 | N/24/06/3-0110 | N/24/06/3-0111 | N/24/06/3-0112 | N/24/06/3-0113 |
| 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 | Clay Loam | Slity Clay | Slity Clay | Clay Loam |
| 3 | Size Distribution | | | | | | |
| | Sand | % | 30.11 | 36.24 | 33.11 | 32.88 | 36.21 |
| | Clay | % | 41.34 | 32.88 | 25.89 | 38.90 | 37.79 |
| | Silt | % | 28.55 | 30.88 | 41.00 | 28.22 | 26.00 |
| 4 | Moisture Content | % | 7.06 | 6.88 | 7.11 | 5.6 | 6.95 |
| 5 | Bulk Density | gm/cc | 1.66 | 1.66 | 1.58 | 1.84 | 1.2 |
| 6 | Water holding capacity | % | 33.84 | 30.48 | 22.1 | 26.22 | 24.65 |
| 7 | pH | -- | 6.78 | 6.66 | 7.38 | 7.34 | 6.42 |
| 8 | EC | m.mohs/cm | 0.188 | 0.278 | 0.21 | 0.248 | 0.155 |
| Chemical Properties | | | | | | | |
| 9 | Organic Carbon | % | 0.58 | 0.38 | 0.18 | 1.68 | 2.15 |
| 10 | Nitrogen as N | Kg/Ha | 122 | 245 | 120 | 124 | 186 |
| 11 | Phosphorous as P | Kg/Ha | 8.31 | 9.38 | 7.18 | 7.3 | 7.28 |
| 12 | Potassium as K ₂ O | Kg/Ha | 1.88 | 138 | 113 | 124 | 132 |
| 13 | Sodium as Na | mg/kg | 32 | 22 | 56 | 32 | 42 |
| 14 | Chloride as Cl | mg/kg | 128 | 110 | 124 | 141 | 312 |
| 15 | Sulphate as SO ₄ | mg/kg | 44 | 42 | 38 | 23 | 46 |
| Sample Locations : | | | | | | | |
| S1 - Top soil (Kammathuru) | | | | | | | |
| S2 - Top soil (Deogiri) | | | | | | | |
| S3 - Top soil (SB Halli) | | | | | | | |
| S4 - Active Dump 1 | | | | | | | |
| S5 - Active Dump 2 | | | | | | | |

Arshiya Kousar
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TEST REPORT

Table No. 24

Table No. 24

| | | | | | | | |
|---------------------------------------|-------------------------------|---|----------------|----------------|----------------|----------------|-----------|
| 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 | | : 10.06.2024 | | | | | |
| Issue Date | | : 25.06.2024 | | | | | |
| Lab Code | | N/24/06/3-0114 | N/24/06/3-0115 | N/24/06/3-0116 | N/24/06/3-0117 | N/24/06/3-0118 | |
| 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 | % | 35.88 | 33.94 | 40.26 | 36.75 | 41.23 |
| | Clay | % | 32.91 | 35.44 | 26.18 | 26.71 | 25.15 |
| | Silt | % | 31.21 | 30.62 | 33.56 | 36.54 | 33.62 |
| 4 | Moisture Content | % | 6.95 | 7.12 | 7.42 | 5.31 | 4.55 |
| 5 | Bulk Density | gm/cc | 11.81 | 1.96 | 1.85 | 1.68 | 1.61 |
| 6 | Water holding capacity | % | 37 | 36 | 35 | 40 | 42 |
| 7 | pH | -- | 7.58 | 7.9 | 7.85 | 7.68 | 7.96 |
| 8 | EC | m.mohs/cm | 0.443 | 0.461 | 0.441 | 0.358 | 0.596 |
| Chemical Properties | | | | | | | |
| 9 | Organic Carbon | % | 0.55 | 0.68 | 0.55 | 0.52 | 0.48 |
| 10 | Nitrogen as N | Kg/Ha | 130 | 132 | 138 | 1.54 | 130 |
| 11 | Phosphorous as P | Kg/Ha | 36 | 42 | 54 | 52 | 44 |
| 12 | Potassium as K ₂ O | Kg/Ha | 140 | 146 | 151 | 144 | 138 |
| 13 | Sodium as Na | mg/kg | 50 | 50 | 49 | 58 | 40 |
| 14 | Chloride as Cl | mg/kg | 34 | 34 | 36 | 42 | 36 |
| 15 | Sulphate as SO ₄ | mg/kg | 32 | 32 | 34 | 38 | 45 |
| 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. 25

Stack Monitoring Report

Report No. 013024063

| | | | | |
|---|---|--|---------|----------|
| 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 | | : 10.06.2024 | | |
| Particulars of Sample Collected | | : Emissions from stack collected through stack sample VSS1 | | |
| Date of Sample Receipt | | : 11.06.2024 | | |
| Issue date | | : 21.06.2024 | | |
| STACK DETAILS | | | | |
| 1 | Fuel Used | Diesel | | |
| 2 | Ambient Temperature (°C) | 30 | | |
| 3 | Stack Temperature (°C) | 170 | | |
| 4 | Velocity (m/s) | 14.86 | | |
| 5 | Stack diameter (M) | 0.30 | | |
| 6 | Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr) | 3377 | | |
| 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 | NO _x (as NO ₂) (as 15% O ₂), dry basis | ppmv | 37.77 | 360 |
| 2 | NMHC (as C) (at 15 % O ₂) | mg/Nm ³ | 38.66 | 100 |
| 3 | PM (as C) (at 15 % O ₂) | mg/Nm ³ | 30.00 | 75 |
| 4 | CO (at 15 % O ₂) | (mg/Nm ³) | 62.00 | 150 |

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TEST REPORT

Table No. 26

Stack Monitoring Report

Report No. 013124063

| | |
|-----------------------------------|--|
| 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 : | 10 KVA TOWER LIGHT DG - Lighting |
| Sample Collected by : | Environmental Laboratory (Unit of Mineral Engineering Services) |
| Date of Collection : | 10.06.2024 |
| Particulars of Sample Collected : | Emissions from stack collected through stack sample VSS1 |
| Date of Sample Receipt : | 11.06.2024 |
| Issue date : | 21.06.2024 |

STACK DETAILS

| | | |
|----|---|--|
| 1 | Fuel Used | Diesel |
| 2 | Ambient Temperature ($^{\circ}\text{C}$) | 30 |
| 3 | Stack Temperature ($^{\circ}\text{C}$) | 140 |
| 4 | Velocity (m/s) | 6.77 |
| 5 | Stack diameter (M) | 0.15 |
| 6 | Quantity of flue Gas Discharged into atmosphere (Nm^3/hr) | 300 |
| 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 | 0.09 | <0.2 |
| 2 | CO | g/Kw-hr | 0.24 | <3.5 |
| 3 | Nox +HC | g/Kw-hr | 1.14 | <4.0 |

INFERENCE

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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. N013224063

| | |
|-----------------------------------|--|
| 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 : | 10KVA DG Sert - Water pumping |
| Sample Collected by : | Environmental Laboratory (Unit of Mineral Engineering Services) |
| Date of Collection : | 10.06.2024 |
| Particulars of Sample Collected : | Emissions from stack collected through stack sample VSS1 |
| Date of Sample Receipt : | 11.06.2024 |
| Issue date : | 21.06.2024 |

STACK DETAILS

| | | |
|----|---|--|
| 1 | Fuel Used | Diesel |
| 2 | Ambient Temperature ($^{\circ}\text{C}$) | 30 |
| 3 | Stack Temperature ($^{\circ}\text{C}$) | 148 |
| 4 | Velocity (m/s) | 5.78 |
| 5 | Stack diameter (M) | 0.15 |
| 6 | Quantity of flue Gas Discharged into atmosphere (Nm^3/hr) | 238 |
| 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 | 0.07 | <0.2 |
| 2 | CO | g/Kw-hr | 0.38 | <3.5 |
| 3 | Nox +HC | g/Kw-hr | 2.28 | <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. 013324063

| | |
|-----------------------------------|--|
| Name of the Client : | The Sandur Manganese & Iron Ores Limited |
| Name of the Mine : | Kammathuru Iron Ore (KTIO) (ML No. 2678) |
| Location : | KTIO D-04 DUMP |
| Stack ID & Capacity : | 7.5 KVA DG SET (Open DG) - Lighting |
| Sample Collected by : | Environmental Laboratory (Unit of Mineral Engineering Services) |
| Date of Collection : | 10.06.2024 |
| Particulars of Sample Collected : | Emissions from stack collected through stack sample VSS1 |
| Date of Sample Receipt : | 11.06.2024 |
| Issue date : | 21.06.2024 |

STACK DETAILS

| | | |
|----|---|--|
| 1 | Fuel Used | Diesel |
| 2 | Ambient Temperature (°C) | 30 |
| 3 | Stack Temperature (°C) | 135 |
| 4 | Velocity (m/s) | 7.44 |
| 5 | Stack diameter (M) | 0.15 |
| 6 | Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr) | 334 |
| 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 | 0.09 | <0.2 |
| 2 | CO | g/Kw-hr | 0.53 | <3.5 |
| 3 | Nox +HC | g/Kw-hr | 2.36 | <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. 014824063

| | |
|-----------------------------------|--|
| 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 : | 35 KVA DG SET - Lighting |
| Sample Collected by : | Environmental Laboratory (Unit of Mineral Engineering Services) |
| Date of Collection : | 11.06.2024 |
| Particulars of Sample Collected : | Emissions from stack collected through stack sample VSS1 |
| Date of Sample Receipt : | 13.06.2024 |
| Issue date : | 21.06.2024 |

STACK DETAILS

| | | |
|----|---|--|
| 1 | Fuel Used | Diesel |
| 2 | Ambient Temperature ($^{\circ}\text{C}$) | 30 |
| 3 | Stack Temperature ($^{\circ}\text{C}$) | 110 |
| 4 | Velocity (m/s) | 9.11 |
| 5 | Stack diameter (M) | 0.15 |
| 6 | Quantity of flue Gas Discharged into atmosphere (Nm^3/hr) | 436 |
| 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 | 0.10 | <0.2 |
| 2 | CO | g/Kw-hr | 0.02 | <3.5 |
| 3 | Nox +HC | g/Kw-hr | 0.29 | <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. 014924063

Name of the Client : The Sandur Manganese & Iron Ores Limited
 Name of the Mine : Deogiri Manganese & Iron Ore Mine (ML NO. 2678)
 Location : K-Kolla W/Pump
 Stack ID & Capacity : 100 KVA DG SET - Water pumping
 Sample Collected by : Environmental Laboratory |
 (Unit of Mineral Engineering Services)
 Date of Collection : 11.06.2024
 Particulars of Sample Collected : Emissions from stack collected through stack sample VSS1
 Date of Sample Receipt : 13.06.2024
 Issue date : 21.06.2024

STACK DETAILS

| | | |
|----|---|--|
| 1 | Fuel Used | Diesel |
| 2 | Ambient Temperature (°C) | 30 |
| 3 | Stack Temperature (°C) | 136 |
| 4 | Velocity (m/s) | 8.31 |
| 5 | Stack diameter (M) | 0.15 |
| 6 | Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr) | 372 |
| 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 | 0.10 | <0.2 |
| 2 | CO | g/Kw-hr | 0.08 | <3.5 |
| 3 | Nox +HC | g/Kw-hr | 0.4 | <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. 015024063

| | |
|-----------------------------------|--|
| 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 : | 250 KVA DG SET - Lighting |
| Sample Collected by : | Environmental Laboratory (Unit of Mineral Engineering Services) |
| Date of Collection : | 11.06.2024 |
| Particulars of Sample Collected : | Emissions from stack collected through stack sample VSS1 |
| Date of Sample Receipt : | 13.06.2024 |
| Issue date : | 21.06.2024 |

STACK DETAILS

| | | |
|----|---|--|
| 1 | Fuel Used | Diesel |
| 2 | Ambient Temperature (°C) | 30 |
| 3 | Stack Temperature (°C) | 160 |
| 4 | Velocity (m/s) | 10.25 |
| 5 | Stack diameter (M) | 0.15 |
| 6 | Quantity of flue Gas Discharged into atmosphere (Nm ³ /hr) | 434 |
| 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 | 0.038 | <0.2 |
| 2 | CO | g/Kw-hr | 0.09 | <3.5 |
| 3 | Nox +HC | g/Kw-hr | 0.19 | <4.0 |

| | |
|-----------|--|
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|-----------|--|

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TEST REPORT

Table No. 32

Stack Monitoring Report

Report No. 015124063

| | |
|-----------------------------------|--|
| Name of the Client : | The Sandur Manganese & Iron Ores Limited |
| Name of the Mine : | Deogiri Manganese & Iron Ore Mine (ML NO. 2678) |
| Location : | Deogiri 86 Quarters |
| Stack ID & Capacity : | 35 KVA DG SET - Colony Ligting |
| Sample Collected by : | Environmental Laboratory (Unit of Mineral Engineering Services) |
| Date of Collection : | 11.06.2024 |
| Particulars of Sample Collected : | Emissions from stack collected through stack sample VSS1 |
| Date of Sample Receipt : | 13.06.2024 |
| Issue date : | 21.06.2024 |

STACK DETAILS

| | | |
|----|--|--|
| 1 | Fuel Used | Diesel |
| 2 | Ambient Temperature (°C) | 30 |
| 3 | Stack Temperature (°C) | 110 |
| 4 | Velocity (m/s) | 8.06 |
| 5 | Stack diameter (M) | 0.15 |
| 6 | Quantity of flue Gas Discharged into atmosphere (Nm³/hr) | 385 |
| 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 | 0.090 | <0.2 |
| 2 | CO | g/Kw-hr | 0.14 | <3.5 |
| 3 | Nox +HC | g/Kw-hr | 0.32 | <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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