

ENVIRONMENTAL MONITORING REPORT

APRIL TO JUNE, 2020

Project : Dharmapura Iron Ore Mine

(ML No.2543)

**R.M. Block, Ramgad Range, Dharmapura village,
Sandur Taluk, Ballari Dist., Karnataka.**

Lessee

M/s. VNK Menon

**No. 6, KHB colony Sandur,
Ballari District, Karnataka**

CONSULTANT

MINERAL ENGINEERING SERVICES

Mining & Environmental Engineers

(Recognised Environmental Laboratory by MoEF)

25/XXV, Club Road, BALLARI - 583 103.

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12-0-1800013-TTC

Table No. 1

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project	: Dharmapura Iron Ore Mine (ML No.2543)
Name of the Client	: M/s. V.N.K. Menon
Station at & Code	: A - I, Core Zone (ML Area)
Duration	: 24 Hrs
Date of Report	: 08.05.2020
Reference IS 5182	Report No : MES/SS/ARN/109

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
22.04.2020	6	8	38	19	<20	<1
23.04.2020	7	9	43	22	<20	<1
29.04.2020	11	13	50	23	<20	<1
30.04.2020	9	11	55	25	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
22.04.2020	0.05	<0.5	<0.5	<0.5	0.11	<20
23.04.2020	0.09	<0.5	<0.5	<0.5	0.06	21
29.04.2020	<0.05	<0.5	<0.5	<0.5	0.16	20
30.04.2020	0.11	<0.5	<0.5	<0.5	0.08	22
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S. RAJU)
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Table No. 2

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project	: Dharmapura Iron Ore Mine (ML No.2543)
Name of the Client	: M/s. V.N.K. Menon
Station at & Code	: A - II, Dharmapura
Duration	: 24 Hrs
Date of Report	: 08.05.2020
Reference IS 5182	Report No : MES/SS/ARN/100

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
22.04.2020	9	11	43	21	<20	<1
23.04.2020	7	9	33	19	<20	<1
29.04.2020	11	13	53	24	<20	<1
30.04.2020	6	10	45	22	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
22.04.2020	0.06	<0.5	<0.5	<0.5	0.13	22
23.04.2020	0.11	<0.5	<0.5	<0.5	0.06	21
29.04.2020	0.07	<0.5	<0.5	<0.5	0.21	20
30.04.2020	<0.05	<0.5	<0.5	<0.5	0.15	21
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

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12-0-1800013-TIC

Table No. 3

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project	: Dharmapura Iron Ore Mine (ML No.2543)
Name of the Client	: M/s. V.N.K. Menon
Station at & Code	: A - III, Yeshwanthanagar
Duration	: 24 Hrs
Date of Report	: 08.05.2020
Reference IS 5182	Report No : MES/SS/ARN/101

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
22.04.2020	10	13	30	19	<20	<1
23.04.2020	6	9	40	23	<20	<1
29.04.2020	11	12	55	27	<20	<1
30.04.2020	6	9	47	24	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
22.04.2020	0.05	<0.5	<0.5	<0.5	0.11	21
23.04.2020	0.08	<0.5	<0.5	<0.5	0.15	20
29.04.2020	0.11	<0.5	<0.5	<0.5	0.31	26
30.04.2020	0.18	<0.5	<0.5	<0.5	0.22	24
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

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Table No. 4

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project : Dharmapura Iron Ore Mine (ML No.2543)
Name of the Client : M/s. V.N.K. Menon
Station at & Code : A - IV Ramgad
Duration : 24 Hrs
Date of Report : 08.05.2020
Reference IS 5182 Report No : MES/SS/ARN/110

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
22.04.2020	6	9	38	20	<20	<1
23.04.2020	11	13	50	24	<20	<1
29.04.2020	10	12	40	22	<20	<1
30.04.2020	7	9	46	23	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
22.04.2020	0.06	<0.5	<0.5	<0.5	0.08	20
23.04.2020	0.11	<0.5	<0.5	<0.5	0.22	21
29.04.2020	0.05	<0.5	<0.5	<0.5	0.16	23
30.04.2020	0.16	<0.5	<0.5	<0.5	0.08	20
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

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Table No. 5

Analysis Report of Fugitive Emission

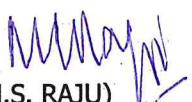
MES/AQ/FTR/08/00

Name of the Project	: Dharmapura Iron Ore Mine (ML No.2543)
Name of the Client	: M/s. V.N.K. Menon
Station at & Code	: A - VI, Loading point
Duration	: 08 Hrs
Date of Report	: 07.05.2020
Date of sample	Particulate mater ($\mu\text{g}/\text{m}^3$)
29.04.2020	No Activity
30.04.2020	

Station at & Code	: A - VII, Dumping point
Duration	: 08 Hrs
Date of Report	: 07.05.2020
Date of sample	Particulate mater ($\mu\text{g}/\text{m}^3$)
29.04.2020	No Activity
30.04.2020	

Station at & Code	: A - VIII, Haulage Road
Duration	: 08 Hrs
Date of Report	: 07.05.2020
Date of sample	Particulate mater ($\mu\text{g}/\text{m}^3$)
29.04.2020	No Activity
30.04.2020	
Ref	: Environmental (Protection) Rules, 2010 (Sixth Amendment)
	Particulate mater ($\mu\text{g}/\text{m}^3$)
Permissible limits for Fugitive Emissions	1200 $\mu\text{g}/\text{m}^3$


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12-Q-1800013-TTC

Table No. 6

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project : Dharmapura Iron Ore Mine (ML No.2543)

Name of the Client : M/s. V.N.K. Menon

Station at & Code : A - I, Core Zone (ML Area)

Duration : 24 Hrs

Date of Report : 11.06.2020

Reference IS 5182

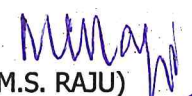
Report No : MES/SS/ARN/190

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
04.05.2020	6	9	33	20	<20	<1
05.05.2020	12	14	48	23	<20	<1
15.05.2020	9	11	56	27	<20	<1
16.05.2020	11	14	33	20	<20	<1
18.05.2020	9	12	46	28	<20	<1
19.05.2020	8	14	42	21	<20	<1
26.05.2020	6	18	40	23	<20	<1
27.05.2020	11	12	41	20	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
04.05.2020	0.15	<0.5	<0.5	<0.5	0.08	21
05.05.2020	0.08	<0.5	<0.5	<0.5	0.24	22
15.05.2020	0.13	<0.5	<0.5	<0.5	0.15	23
16.05.2020	0.11	<0.5	<0.5	<0.5	0.16	23
18.05.2020	<0.05	<0.5	<0.5	<0.5	0.18	24
19.05.2020	0.05	<0.5	<0.5	<0.5	0.15	25
26.05.2020	0.12	<0.5	<0.5	<0.5	0.17	22
27.05.2020	0.10	<0.5	<0.5	<0.5	0.11	20
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr


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12-Q-1800013-TTC

Table No. 7

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project : Dharmapura Iron Ore Mine (ML No.2543)

Name of the Client : M/s. V.N.K. Menon

Station at & Code : A - II, Dharmapura

Duration : 24 Hrs

Date of Report : 11.06.2020

Reference IS 5182

Report No : MES/SS/ARN/148

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
04.05.2020	9	10	53	26	<20	<1
05.05.2020	14	15	42	28	<20	<1
15.05.2020	8	11	36	25	<20	<1
16.05.2020	9	15	44	25	<20	<1
18.05.2020	7	13	57	33	<20	<1
19.05.2020	8	15	39	28	<20	<1
26.05.2020	12	16	44	25	<20	<1
27.05.2020	11	14	39	26	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
04.05.2020	0.28	<0.5	<0.5	<0.5	0.38	20
05.05.2020	0.19	<0.5	<0.5	<0.5	0.44	22
15.05.2020	0.25	<0.5	<0.5	<0.5	0.26	21
16.05.2020	0.34	<0.5	<0.5	<0.5	0.35	26
18.05.2020	0.26	<0.5	<0.5	<0.5	0.19	27
19.05.2020	0.15	<0.5	<0.5	<0.5	0.33	20
26.05.2020	0.16	<0.5	<0.5	<0.5	0.29	23
27.05.2020	0.23	<0.5	<0.5	<0.5	0.35	25
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr


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ISO 9001 : 2015

12-Q-1800012-TIC

BS-OHSAS-18001-2007

12-0-1800013-TIC

Table No. 8

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project	: Dharmapura Iron Ore Mine (ML No.2543)
Name of the Client	: M/s. V.N.K. Menon
Station at & Code	: A - III, Yeshwanthanagar
Duration	: 24 Hrs
Date of Report	: 11.06.2020
Reference IS 5182	Report No : MES/SS/ARN/149

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
04.05.2020	12	15	49	27	<20	<1
05.05.2020	10	13	52	20	<20	<1
15.05.2020	11	15	49	26	<20	<1
16.05.2020	10	13	56	33	<20	<1
18.05.2020	8	9	46	24	<20	<1
19.05.2020	9	12	45	25	<20	<1
26.05.2020	6	9	38	19	<20	<1
27.05.2020	7	12	44	22	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
04.05.2020	0.27	<0.5	<0.5	<0.5	0.46	27
05.05.2020	0.25	<0.5	<0.5	<0.5	0.35	23
15.05.2020	0.23	<0.5	<0.5	<0.5	0.29	22
16.05.2020	0.11	<0.5	<0.5	<0.5	0.35	20
18.05.2020	0.19	<0.5	<0.5	<0.5	0.33	21
19.05.2020	0.24	<0.5	<0.5	<0.5	0.31	28
26.05.2020	0.11	<0.5	<0.5	<0.5	0.29	23
27.05.2020	0.23	<0.5	<0.5	<0.5	0.45	20
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

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ISO 9001 : 2015

12-Q-1800012-TTC

BS-OHSAS-18001-2007

12-Q-1800013-TTC

Table No. 9

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project : Dharmapura Iron Ore Mine (ML No.2543)

Name of the Client : M/s. V.N.K. Menon

Station at & Code : A - IV Ramgad

Duration : 24 Hrs

Date of Report : 11.06.2020

Reference IS 5182

Report No : MES/SS/ARN/153

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
04.05.2020	9	11	33	25	<20	<1
05.05.2020	10	13	42	30	<20	<1
15.05.2020	13	15	30	20	<20	<1
16.05.2020	7	9	36	25	<20	<1
22.05.2020	6	13	33	19	<20	<1
23.05.2020	11	17	37	22	<20	<1
26.05.2020	12	13	30	19	<20	<1
27.05.2020	10	11	49	22	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
04.05.2020	0.07	<0.5	<0.5	<0.5	0.30	21
05.05.2020	0.07	<0.5	<0.5	<0.5	0.16	26
15.05.2020	0.11	<0.5	<0.5	<0.5	0.23	26
16.05.2020	0.13	<0.5	<0.5	<0.5	0.30	20
22.05.2020	0.10	<0.5	<0.5	<0.5	0.11	23
23.05.2020	0.05	<0.5	<0.5	<0.5	0.12	21
26.05.2020	0.05	<0.5	<0.5	<0.5	0.20	20
27.05.2020	0.05	<0.5	<0.5	<0.5	0.14	22
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

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ISO 9001 : 2015

12-Q-1800012-TIC

BS-OHSAS-18001-2007

12-Q-1800013-TIC

Table No. 10

Analysis Report of Fugitive Emission

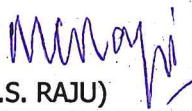
MES/AQ/FTR/08/00

Name of the Project	: Dharmapura Iron Ore Mine (ML No.2543)
Name of the Client	: M/s. V.N.K. Menon
Station at & Code	: A - VI, Loading point
Duration	: 08 Hrs
Date of Report	: 11.06.2020
Report No	: MES/SS/ARN/191
Date of sample	Particulate mater ($\mu\text{g}/\text{m}^3$)
16.05.2020	409
19.05.2020	432

Station at & Code	: A - VII, Dumping point
Duration	: 08 Hrs
Date of Report	: 07.03.2020
Date of sample	Particulate mater ($\mu\text{g}/\text{m}^3$)
15.05.2020	540
18.05.2020	488

Station at & Code	: A - VIII, Haulage Road
Duration	: 08 Hrs
Date of Report	: 07.03.2020
Date of sample	Particulate mater ($\mu\text{g}/\text{m}^3$)
15.05.2020	454
19.05.2020	477
Ref	: Environmental (Protection) Rules, 2010 (Sixth Amendment)
	Particulate mater ($\mu\text{g}/\text{m}^3$)
Permissible limits for Fugitive Emissions	1200 $\mu\text{g}/\text{m}^3$


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ISO 9001 : 2015

12-Q-1800012-TTC

BS-OHSAS-18001-2007

12-0-1800013-TTC

Table No: 11

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project : Dharmapura Iron Ore Mine (ML No.2543)

Name of the Client : M/s. V.N.K. Menon

Station at & Code : A - I, Core Zone (ML Area)

Duration : 24 Hrs

Date of Report : 13.07.2020

Reference IS 5182

Report No : MES/MS/ARN/56

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
01.06.2020	11	15	42	25	<20	<1
02.06.2020	10	13	40	23	<20	<1
12.06.2020	12	13	46	26	<20	<1
13.06.2020	11	14	50	27	<20	<1
15.06.2020	13	15	48	31	<20	<1
16.06.2020	6	8	51	26	<20	<1
24.06.2020	9	13	43	28	<20	<1
25.06.2020	9	11	40	23	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
01.06.2020	0.21	<0.5	<0.5	<0.5	0.25	26
02.06.2020	0.08	<0.5	<0.5	<0.5	0.23	26
12.06.2020	0.08	<0.5	<0.5	<0.5	0.16	25
13.06.2020	0.08	<0.5	<0.5	<0.5	0.09	23
15.06.2020	0.13	<0.5	<0.5	<0.5	0.14	24
16.06.2020	0.10	<0.5	<0.5	<0.5	0.09	28
24.06.2020	0.15	<0.5	<0.5	<0.5	0.19	23
25.06.2020	0.19	<0.5	<0.5	<0.5	0.24	28
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

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ISO 9001 : 2015

12-Q-1800012-TTC

BS-OHSAS-18001-2007

12-Q-1800013-TTC

Table No: 12

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project : Dharmapura Iron Ore Mine (ML No.2543)

Name of the Client : M/s. V.N.K. Menon

Station at & Code : A - II, Dharmapura

Duration : 24 Hrs

Date of Report : 13.07.2020

Reference IS 5182

Report No : MES/MS/ARN/36

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
01.06.2020	6	9	42	23	<20	<1
02.06.2020	6	11	49	26	<20	<1
12.06.2020	11	16	39	28	<20	<1
13.06.2020	5	10	35	22	<20	<1
15.06.2020	11	16	49	23	<20	<1
16.06.2020	11	15	42	25	<20	<1
24.06.2020	12	16	45	28	<20	<1
25.06.2020	9	14	38	22	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
01.06.2020	0.14	<0.5	<0.5	<0.5	0.17	27
02.06.2020	0.07	<0.5	<0.5	<0.5	0.09	22
12.06.2020	0.13	<0.5	<0.5	<0.5	0.17	21
13.06.2020	0.07	<0.5	<0.5	<0.5	0.09	22
15.06.2020	0.15	<0.5	<0.5	<0.5	0.16	27
16.06.2020	0.07	<0.5	<0.5	<0.5	0.20	21
24.06.2020	0.13	<0.5	<0.5	<0.5	0.18	26
25.06.2020	0.07	<0.5	<0.5	<0.5	0.08	24
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

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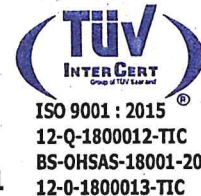
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12-Q-1800013-TIC

Table No: 13

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project	: Dharmapura Iron Ore Mine (ML No.2543)					
Name of the Client	: M/s. V.N.K. Menon					
Station at & Code	: A - III, Yeshwanthanagar					
Duration	: 24 Hrs					
Date of Report	: 13.07.2020					
Reference IS 5182	Report No : MES/MS/ARN/37					
Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
01.06.2020	11	14	41	22	<20	<1
02.06.2020	9	12	45	23	<20	<1
12.06.2020	11	13	43	23	<20	<1
13.06.2020	10	12	32	19	<20	<1
15.06.2020	9	10	44	25	<20	<1
16.06.2020	11	15	46	24	<20	<1
24.06.2020	12	17	51	25	<20	<1
25.06.2020	10	14	46	37	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
01.06.2020	0.08	<0.5	<0.5	<0.5	0.17	26
02.06.2020	0.10	<0.5	<0.5	<0.5	0.05	23
12.06.2020	0.09	<0.5	<0.5	<0.5	0.12	23
13.06.2020	0.14	<0.5	<0.5	<0.5	0.19	25
15.06.2020	0.07	<0.5	<0.5	<0.5	0.16	21
16.06.2020	0.09	<0.5	<0.5	<0.5	0.23	22
24.06.2020	0.07	<0.5	<0.5	<0.5	0.42	24
25.06.2020	0.16	<0.5	<0.5	<0.5	0.15	20
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

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ISO 9001 : 2015

12-Q-1800012-TIC

BS-OHSAS-18001-2007

12-0-1800013-TIC

Table No: 14

ANALYSIS REPORT OF AMBIENT AIR QUALITY

MES/AQ/FTR/08/00

Name of the Project : Dharmapura Iron Ore Mine (ML No.2543)

Name of the Client : M/s. V.N.K. Menon

Station at & Code : A - IV Ramgad

Duration : 24 Hrs

Date of Report : 13.07.2020

Reference IS 5182

Report No : MES/MS/ARN/58

Date of Sampling	Sulphur Dioxide (SO ₂), µg/m ³	Nitrogen Dioxide (NO ₂), µg/m ³	PM ₁₀ , (µg/m ³)	PM _{2.5} , (µg/m ³)	Ammonia (NH ₃), µg/m ³	Benzene (C ₆ H ₆), µg/m ³
01.06.2020	9	13	42	28	<20	<1
02.06.2020	12	14	40	21	<20	<1
12.06.2020	9	11	36	20	<20	<1
13.06.2020	10	14	39	21	<20	<1
15.06.2020	13	15	47	28	<20	<1
16.06.2020	11	13	41	23	<20	<1
24.06.2020	8	10	50	24	<20	<1
25.06.2020	11	13	42	25	<20	<1
Limits for Industrial , Residential, Rural and other Areas	80 24 Hrs	80 24 Hrs	100 24 Hrs	60 24 Hrs	400 24 Hrs	5 Annual

Date of Sampling	Lead (Pb), µg/m ³	Nickel (Ni), ng/m ³	Arsenic (As), ng/m ³	Benzo(a) Pyrene (BaP), ng/m ³	Carbon Monoxide* (CO), mg/m ³	Ozone* (O ₃), µg/m ³
01.06.2020	0.19	<0.5	<0.5	<0.5	0.16	21
02.06.2020	0.13	<0.5	<0.5	<0.5	0.26	20
12.06.2020	0.06	<0.5	<0.5	<0.5	0.12	24
13.06.2020	0.06	<0.5	<0.5	<0.5	0.37	27
15.06.2020	0.08	<0.5	<0.5	<0.5	0.26	25
16.06.2020	0.15	<0.5	<0.5	<0.5	0.07	20
24.06.2020	0.09	<0.5	<0.5	<0.5	0.13	24
25.06.2020	0.15	<0.5	<0.5	<0.5	0.25	23
Limits for Industrial , Residential, Rural and other Areas	1.0 24 Hrs	20 Annual	6 Annual	1 Annual	4 1 Hr	180 1 Hr

Note : * Parameters monitored for period of 1 hr

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ISO 9001 : 2015
12-Q-1800012-TTC
BS-OHSAS-18001-2007
12-0-1800013-TTC

Table No. 15

Analysis Report of Fugitive Emission

MES/AQ/FTR/08/00

Name of the Project	: Dharmapura Iron Ore Mine (ML No.2543)
Name of the Client	: M/s. V.N.K. Menon
Station at & Code	: A - VI, Loading point
Duration	: 08 Hrs
Date of Report	: 13.07.2020
Report No	: MES/MS/ARN/57
Date of sample	Particulate mater ($\mu\text{g}/\text{m}^3$)
16.06.2020	462
25.06.2020	415

Station at & Code	: A - VII, Dumping point
Duration	: 08 Hrs
Date of Report	: 07.01.2020
Date of sample	Particulate mater ($\mu\text{g}/\text{m}^3$)
15.06.2020	365
24.06.2020	408

Station at & Code	: A - VIII, Haulage Road
Duration	: 08 Hrs
Date of Report	: 07.01.2020
Date of sample	Particulate mater ($\mu\text{g}/\text{m}^3$)
15.06.2020	387
24.06.2020	356
Ref	: Environmental (Protection) Rules, 2010 (Sixth Amendment)
	Particulate mater ($\mu\text{g}/\text{m}^3$)
Permissible limits for Fugitive Emissions	1200 $\mu\text{g}/\text{m}^3$

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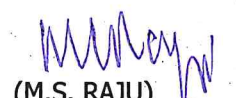
ISO 9001 : 2015
12-Q-1800012-TTC
BS-OHSAS-18001-2007
12-0-1800013-TTC

Table No. 16

STATISTICAL AMBIENT AIR QUALITY DATA

Name of the Project : Dharmapura Iron Ore Mine (ML No. 2543)								
Name of the Client : M/s. V.N.K. Menon								
Month : April to June, 2019								
Station Code : A I - Core Zone (Mine office)					A II - Dharmapura village			
	SO ₂	NO ₂	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	PM ₁₀	PM _{2.5}
Min.	6	8	33	19	5	9	33	19
10%	6	9	38	20	6	10	36	22
25%	8	11	40	22	7	11	39	23
50%	9	13	43	23	9	14	43	25
75%	11	14	49	26	11	15	46	27
98%	13	17	56	30	13	16	55	31
Max.	13	18	56	31	14	16	57	33
Avg.	9	12	44	24	9	13	43	25
SD	2	3	6	3	2	3	6	3
No. of obs	20				20			
Station Code : A III - Yeshwanthanagar					A - IV Ramgad			
	SO ₂	NO ₂	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	PM ₁₀	PM _{2.5}
Min.	6	9	30	19	6	9	30	19
10%	6	9	37	19	7	9	33	20
25%	9	12	43	22	9	11	36	21
50%	10	13	46	24	10	13	40	23
75%	11	14	49	25	11	13	43	25
98%	12	16	56	35	13	16	50	29
Max.	12	17	56	37	13	17	50	30
Avg.	9	12	45	24	10	12	40	23
SD	2	2	7	4	2	2	6	3
No. of obs	20				20			


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ISO 9001 : 2015
12-Q-1800012-TTC
BS-OHSAS-18001-2007
12-0-1800013-TTC

Table No. 17

WATER ANALYSIS REPORT

MES/W/FTR/12/00

Name of the Project		: M/s. V.N.K. Menon			
Name of the Client		: Dharmapura Iron Ore Mine (ML No. 2543)			
Month		: April, 2020			
Date of sampling		: 24.04.2020			
Date of Report		: 06.05.2020			
Report No		: MES/SS/WRN/136			
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)					
Sl.No.	Parameters	Method of Testing	Limits For Stream Water Standards	Result	
				SW1	SW2
i	pH	IS:3025(Part-11)	6.5 to 8.5	7.88	8.36
ii	Dissolved Oxygen (as O ₂), mg/l, Min	IS:3025(Part-38)	4	5.6	5.3
iii	Biochemical Oxygen Demand (as O ₂), mg/l, Max	IS:3025(Part-44)	3	1.3	1.6
iv	Total Coliform (mpn/100ml), Max	IS:1622	5000	80	96
v	Colour (Hazen Units), Max	IS:3025(Part-4)	300	5	5
vi	Fluoride (as F),mg/l, Max	IS:3025(Part-60)	1.5	<0.1	0.61
vii	Cadmium (as Cd), mg/l, Max	IS:3025(Part-41)	0.01	<0.002	<0.002
viii	Chloride (as Cl),mg/l, Max	IS:3025(Part-32)	600	25.0	24.0
ix	Chromium (as Cr ⁺⁶), mg/l, Max	IS:3025(Part-52)	0.05	<0.03	<0.03
x	Cyanides (as CN), mg/l, Max	IS:3025(Part-27)	0.05	<0.01	<0.01
xi	Total Dissolved Solids (mg/l), Max	IS:3025(Part-16)	1500	175	163
xii	Selenium (as Se), mg/l, Max	IS:3025(Part-56)	0.05	<0.005	<0.005
xiii	Sulphates as SO ₄ (mg/l), Max	IS:3025(Part-24)	400	16.0	14.0
xiv	Lead (as Pb) mg/l, Max	IS:3025(Part-47)	0.1	<0.005	<0.005
xv	Copper (as Cu),mg/l, Max	IS:3025(Part-42)	1.5	<0.01	<0.01
xvi	Arsenic as As (mg/l), Max	IS:3025(Part-37)	0.2	<0.002	<0.002
xvii	Iron (as Fe),mg/l, MAX	IS:3025(Part-53)	50	0.06	0.05
xviii	Phenolic compounds (as C ₆ H ₅ OH),mg/l, Max	IS:3025(Part-43)	0.005	<0.001	<0.001
xix	Zinc (as Zn),mg/l, Max	IS:3025(Part-49)	15	<0.005	<0.005
xx	Insecticides, mg/l, Max	APHA 21 st	Absent	NA	NA
xxi	Anionic detergents (as MBAS),mg/l, Max	Annex K of IS 13248	1	<0.1	<0.1
xxii	Oil and grease, mg/l, Max	IS:3025(Part-39)	0.1	<0.01	<0.01
xxiii	Nitrates (as NO ₃),mg/l, Max	IS:3025(Part-34)	50	1.8	1.9
xxiv	Alpha Emitters (µcurie/ml), Max	APHA 21 st	10 ⁻⁹	NA	NA
xxv	Beta Emitters (µcurie/ml), Max	APHA 21 st	10 ⁻⁸	NA	NA
SAMPLE TYPE :			Note : NA - Not Analysed		
SW1 - Ragavapura kere water					
SW2 - Dhananayakana kere water					
Samples Collected & Analysed by Mineral Engineering Services, Ballari					

(M.R. DURGA PRASAD)
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MINERAL ENGINEERING SERVICES

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ISO 9001 : 2015
12-Q-1800012-TIC
BS-OHSAS-18001-2007
12-0-1800013-TIC

Table No.18

WATER ANALYSIS REPORT

MES/W/FTR/12/00

Name of the Project	: M/s. V.N.K. Menon
Name of the Client	: Dharmapura Iron Ore Mine (ML No. 2543)
Month	: May, 2020
Date of sampling	: 22.05.2020
Date of Report	: 10.06.2020
Report No	: MES/SS/WRN/59A
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)	

Sl.No.	Parameters	Method of Testing	Limits For Stream Water Standards	Result	
				SW1	SW2
i	pH	IS:3025(Part-11)	6.5 to 8.5	7.41	8.02
ii	Dissolved Oxygen (as O ₂), mg/l, Min	IS:3025(Part-38)	4	5.4	5.6
iii	Biochemical Oxygen Demand (as O ₂), mg/l, Max	IS:3025(Part-44)	3	1.8	1.6
iv	Total Coliform (mpn/100ml), Max	IS:1622	5000	130	100
v	Colour (Hazen Units), Max	IS:3025(Part-4)	300	5	5
vi	Fluoride (as F),mg/l, Max	IS:3025(Part-60)	1.5	<0.1	0.26
vii	Cadmium (as Cd), mg/l, Max	IS:3025(Part-41)	0.01	<0.002	<0.002
viii	Chloride (as Cl),mg/l, Max	IS:3025(Part-32)	600	360.0	25.0
ix	Chromium (as Cr ⁺⁶), mg/l, Max	IS:3025(Part-52)	0.05	<0.03	<0.03
x	Cyanides (as CN), mg/l, Max	IS:3025(Part-27)	0.05	<0.01	<0.01
xi	Total Dissolved Solids (mg/l), Max	IS:3025(Part-16)	1500	1040	168
xii	Selenium (as Se), mg/l, Max	IS:3025(Part-56)	0.05	<0.005	<0.005
xiii	Sulphates as SO ₄ (mg/l), Max	IS:3025(Part-24)	400	59.8	13.0
xiv	Lead (as Pb) mg/l, Max	IS:3025(Part-47)	0.1	<0.005	<0.005
xv	Copper (as Cu),mg/l, Max	IS:3025(Part-42)	1.5	<0.01	<0.01
xvi	Arsenic as As (mg/l), Max	IS:3025(Part-37)	0.2	<0.002	<0.002
xvii	Iron (as Fe),mg/l, MAX	IS:3025(Part-53)	50	<0.05	0.09
xviii	Phenolic compounds (as C ₆ H ₅ OH),mg/l, Max	IS:3025(Part-43)	0.005	<0.001	<0.001
xix	Zinc (as Zn),mg/l, Max	IS:3025(Part-49)	15	<0.005	<0.005
xx	Insecticides, mg/l, Max	APHA 21 st	Absent	NA	NA
xxi	Anionic detergents (as MBAS),mg/l, Max	Annex K of IS 13248	1	<0.1	<0.1
xxii	Oil and grease, mg/l, Max	IS:3025(Part-39)	0.1	<0.01	<0.01
xxiii	Nitrates (as NO ₃),mg/l, Max	IS:3025(Part-34)	50	32.1	3.3
xxiv	Alpha Emitters (µcurie/ml), Max	APHA 21 st	10 ⁻⁹	NA	NA
xxv	Beta Emitters (µcurie/ml), Max	APHA 21 st	10 ⁻⁸	NA	NA

SAMPLE TYPE : Note : NA - Not Analysed

SW1 - Ragavapura kere water

SW2 - Dhananayakana kere water

Samples Collected & Analysed by Mineral Engineering Services, Ballari

(M.R. DURGA PRASAD)
GOVT. ANALYST

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ISO 9001 : 2015
12-Q-1800012-TTC
BS-OHSAS-18001-2007
12-0-1800013-TTC

Table No. 19

WATER ANALYSIS REPORT

MES/W/FTR/12/00

Name of the Project	: M/s. V.N.K. Menon
Name of the Client	: Dharmapura Iron Ore Mine (ML No. 2543)
Month	: June, 2020
Date of sampling	: 16.06.2020
Date of Report	: 13.07.2020
Report No	: MES/MS/WRN/24
Ref:IS : 2296, 1982 Class C Norms (Stream Water Standards)	

Sl.No.	Parameters	Method of Testing	Limits For Stream Water Standards	Result	
				SW1	SW2
i	pH	IS:3025(Part-11)	6.5 to 8.5	7.88	7.77
ii	Dissolved Oxygen (as O ₂), mg/l, Min	IS:3025(Part-38)	4	5.8	5.6
iii	Biochemical Oxygen Demand (as O ₂), mg/l, Max	IS:3025(Part-44)	3	1.6	1.4
iv	Total Coliform (mpn/100ml), Max	IS:1622	5000	60	94
v	Colour (Hazen Units), Max	IS:3025(Part-4)	300	5	5
vi	Fluoride (as F),mg/l, Max	IS:3025(Part-60)	1.5	0.18	0.35
vii	Cadmium (as Cd), mg/l, Max	IS:3025(Part-41)	0.01	<0.002	<0.002
viii	Chloride (as Cl),mg/l, Max	IS:3025(Part-32)	600	26.0	26.0
ix	Chromium (as Cr ⁺⁶), mg/l, Max	IS:3025(Part-52)	0.05	<0.03	<0.03
x	Cyanides (as CN), mg/l, Max	IS:3025(Part-27)	0.05	<0.01	<0.01
xi	Total Dissolved Solids (mg/l), Max	IS:3025(Part-16)	1500	180	200
xii	Selenium (as Se), mg/l, Max	IS:3025(Part-56)	0.05	<0.005	<0.005
xiii	Sulphates as SO ₄ (mg/l), Max	IS:3025(Part-24)	400	19.6	20.5
xiv	Lead (as Pb) mg/l, Max	IS:3025(Part-47)	0.1	<0.005	<0.005
xv	Copper (as Cu),mg/l, Max	IS:3025(Part-42)	1.5	<0.01	<0.01
xvi	Arsenic as As (mg/l), Max	IS:3025(Part-37)	0.2	<0.002	<0.002
xvii	Iron (as Fe),mg/l, MAX	IS:3025(Part-53)	50	0.07	0.07
xviii	Phenolic compounds (as C ₆ H ₅ OH),mg/l, Max	IS:3025(Part-43)	0.005	<0.001	<0.001
xix	Zinc (as Zn),mg/l, Max	IS:3025(Part-49)	15	<0.005	<0.005
xx	Insecticides, mg/l, Max	APHA 21 st	Absent	NA	NA
xxi	Anionic detergents (as MBAS),mg/l, Max	Annex K of IS 13248	1	<0.1	<0.1
xxii	Oil and grease, mg/l, Max	IS:3025(Part-39)	0.1	<0.01	<0.01
xxiii	Nitrates (as NO ₃),mg/l, Max	IS:3025(Part-34)	50	4.2	6.2
xxiv	Alpha Emitters (µcurie/ml), Max	APHA 21 st	10 ⁻⁹	NA	NA
xxv	Beta Emitters (µcurie/ml), Max	APHA 21 st	10 ⁻⁶	NA	NA

SAMPLE TYPE : Note : NA - Not Analysed

SW1 - Ragavapura kere water

SW2 - Dhananayakana kere water

Samples Collected & Analysed by Mineral Engineering Services, Ballari

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ISO 9001 : 2015
12-Q-1800012-TTC
BS-OHSAS-18001-2007
12-Q-1800013-TTC

Table No. 20

WATER ANALYSIS REPORT

MES/W/FTR/13/00

Name of the Client	: M/s. V.N.K. Menon
Name of the Project	: Dharmapura Iron Ore Mine (ML No. 2543)
Month	: May, 2020
Date of sampling	: 19.02.2020
Date of Report	: 09.06.2020
Report No	: MES/SS/WRN/61
Ref	: IS:10500-2012 Norms (Drinking Water Standards)

Sl.	Parameters	Method of Testing	Desirable	Permissible	Result	
					GW1	GW2
i	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	<1	1
ii	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable
iii	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	8.70	7.75
iv	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable
v	Turbidity, NTU, Max	IS:3025 (Part-10)	1	5	4.0	2.8
vi	Total Dissolved Solids, mg/l, Max	IS:3025 (Part-16)	500	2000	62	754
vii	Aluminium (as Al), Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01
viii	Ammonia (as total Ammonia -N), mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1
ix	Anionic Detergents (as MBAS), mg/l, Max	Annex K of IS:13428	0.2	1.0	<0.1	<0.1
x	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21 st	0.7	0.7	<0.05	<0.05
xi	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1
xii	Calcium (as Ca), mg/l, Max	IS:3025 (Part-40)	75	200	13	118
xiii	Chloramines (as Cl ₂), mg/l, Max	APHA 21 st	4.0	4.0	NA	NA
xiv	Chloride as Cl (mg/l), mg/l, Max	IS:3025 (Part-32)	250	1000	10	175
xv	Copper (as Cu), mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01
xvi	Fluoride (as F), mg/l, Max	IS:3025 (Part-60)	1	1.5	0.06	0.40
xvii	Residual, Free Chlorine, mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1
xviii	Iron (as Fe), mg/l, Max	IS:3025 (Part-53)	1.0	1.0	<0.05	0.06
xix	Magnesium (as Mg), mg/l, Max	IS:3025 (Part-46)	30	100	4.9	70.0
xx	Manganese (as Mn), mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03
xxi	Mineral Oil, mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01
xxii	Nitrates (as NO ₃), mg/l, Max	IS:3025 (Part-34)	45	45	7.4	4.5
xxiii	Phenolics (as C ₆ H ₅ OH), mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001
xxiv	Selenium (as Se), mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005
xxv	Silver (as Ag), mg/l, Max	Annex J of IS:13428	0.1	0.1	<0.002	<0.002
xxvi	Sulphates (as SO ₄), mg/l, Max	IS:3025 (Part-24)	200	400	3.0	122.0
xxvii	Sulphide (as H ₂ S), mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01
xxviii	Alkalinity (as CaCO ₃), mg/l, Max	IS:3025 (Part-23)	200	600	44	360
xxix	Total Hardness (as CaCO ₃), mg/l, Max	IS:3025 (Part-21)	200	600	260	585
xxx	Zinc (as Zn), mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005
xxxi	Cadmium (as Cd), mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002
xxxii	Cyanide (as CN), mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01
xxxiii	Lead (as Pb), mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005
xxxiv	Molybdenum (as Mo), mg/l, Max	APHA 21 st	0.07	0.07	NA	NA
xxxv	Mercury (as Hg), mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005
xxxvi	Nickel (as Ni), mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01
xxxvii	Pesticides (Total)	APHA 21 st	Absent	0.001	NA	NA
xxxviii	Polychlorinated biphenyls mg/l, Max	APHA 21 st Edition	0.0005	0.0005	NA	NA
xxix	Polynuclear Aromatic Hydrocarbons (as PAH), mg/l.	APHA 21 st Edition	0.0001	0.0001	NA	NA
XL	Arsenic (as As), mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002
XLi	Chromium (as Cr ⁺⁶), mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03
XLii	Trihalomethanes, mg/l, Max	APHA 21 st	--	--	NA	NA
XLiii	Radioactive materials, Bq/l, mg/l	APHA 21 st	--	--	NA	NA
XLiv	Total Coliform (/100ml)	IS:1622	Absent	Absent	Absent	Absent
XLv	E-Coli (cfu/100ml)	IS:1622	Absent	Absent	Absent	Absent

SAMPLE CODE : GW1 -Drinking Near Mine Office GW2 -Dharmapura Bore water
Samples Collected & Analysed by Mineral Engineering Services, Ballari NA - Not Analysed

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ISO 9001 : 2015

12-Q-1800012-TTC

BS-OHSAS-18001-2007

12-0-1800013-TTC

Table No. 21

WATER ANALYSIS REPORT

MES/W/FTR/13/00

Name of the Client : M/s. V.N.K. Menon
Name of the Project : Dharmapura Iron Ore Mine (ML No. 2543)
Month : May, 2020
Date of sampling : 19.02.2020
Date of Report : 09.06.2020
Report No : MES/SS/WRN/61
Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limits	Permissible Limits	Result	
					GW3	GW4
i	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	1	<1
ii	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable
iii	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	7.82	7.76
iv	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable
v	Turbidity, NTU, Max	IS:3025 (Part-10)	1	5	2.9	1.3
vi	Total Dissolved Solids, mg/l, Max	IS:3025 (Part-16)	500	2000	1200	108
vii	Aluminium (as Al), Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01
viii	Ammonia (as total Ammonia -N), mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1
ix	Anionic Detergents (as MBAS), mg/l, Max	Annex K of IS:13428	0.2	1.0	<0.1	<0.1
x	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21 st	0.7	0.7	<0.05	<0.05
xi	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1
xii	Calcium (as Ca), mg/l, Max	IS:3025 (Part-40)	75	200	68	14
xiii	Chloramines (as Cl ₂), mg/l, Max	APHA 21 st	4.0	4.0	NA	NA
xiv	Chloride as Cl (mg/l), mg/l, Max	IS:3025 (Part-32)	250	1000	397	23
xv	Copper (as Cu), mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01
xvi	Fluoride (as F), mg/l, Max	IS:3025 (Part-60)	1	1.5	0.25	<0.1
xvii	Residual, Free Chlorine, mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1
xviii	Iron (as Fe), mg/l, Max	IS:3025 (Part-53)	1.0	1.0	0.05	<0.05
xix	Magnesium (as Mg), mg/l, Max	IS:3025 (Part-46)	30	100	49.0	6
xx	Manganese (as Mn), mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03
xxi	Mineral Oil, mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01
xxii	Nitrates (as NO ₃), mg/l, Max	IS:3025 (Part-34)	45	45	30.4	7.94
xxiii	Phenolics (as C ₆ H ₅ OH), mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001
xxiv	Selenium (as Se), mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005
xxv	Silver (as Ag), mg/l, Max	Annex J of IS:13428	0.1	0.1	<0.002	<0.002
xxvi	Sulphates (as SO ₄), mg/l, Max	IS:3025 (Part-24)	200	400	185.0	3
xxvii	Sulphide (as H ₂ S), mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01
xxviii	Alkalinity (as CaCO ₃), mg/l, Max	IS:3025 (Part-23)	200	600	330	56
xxix	Total Hardness (as CaCO ₃), mg/l, Max	IS:3025 (Part-21)	200	600	370	62
xxx	Zinc (as Zn), mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005
xxxi	Cadmium (as Cd), mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002
xxxii	Cyanide (as CN), mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01
xxxiii	Lead (as Pb), mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005
xxxiv	Molybdenum (as Mo), mg/l, Max	APHA 21 st	0.07	0.07	NA	NA
xxxv	Mercury (as Hg), mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005
xxxvi	Nickel (as Ni), mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01
xxxvii	Pesticides (Total)	APHA 21 st	Absent	0.001	NA	NA
xxxviii	Polychlorinated biphenyls mg/l, Max	APHA 21 st Edition	0.0005	0.0005	NA	NA
xxix	Polynuclear Aromatic Hydrocarbons (as PAH), mg/l,	APHA 21 st Edition	0.0001	0.0001	NA	NA
XL	Arsenic (as As), mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002
XLi	Chromium (as Cr ⁶⁺), mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03
XLii	Trihalomethanes, mg/l, Max	APHA 21 st	--	--	NA	NA
XLiii	Radioactive materials, Bq/l, mg/l	APHA 21 st	--	--	NA	NA
XLiv	Total Coliform (/100ml)	IS:1622	Absent	Absent	Absent	Absent
XLv	E-Coli (cfu/100ml)	IS:1622	Absent	Absent	Absent	Absent

SAMPLE CODE : GW3 - Yeshwanthanagar Bore water

GW4 - Tayammakolla Bore water

Samples Collected & Analysed by Mineral Engineering Services, Ballari

NA - Not Analysed

(M.R. DURGA PRASAD)
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MINERAL ENGINEERING SERVICES

(Recognised by GOI, MoEF&CC under E(P) Act 1986 Vide Gazette Notification

No. SO 857 (E) dated 26.02.2018. Recognition valid upto 25.02.2023

ISO 9001 : 2015 AND BS OHSAS 18001 : 2007 Certification Valid upto 18.03.2021



ISO 9001 : 2015

12-Q-1800012-TIC

BS-OHSAS-18001-2007

12-0-1800013-TIC

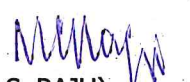
Table No. 22

NOISE LEVEL DATA

MES/NOISE/FR/02/00

Name of the Client		: M/s. V.N.K. Menon					
Name of the Project		: Dharmapura Iron Ore Mine (ML No. 2543)					
Date of monitoring		: 19.05.2020					
Date of Report		: 09.06.2020					
Report No		: MES/SS/NRN/23					
Code	Monitoring stations	Day			Night		
No.		L _{min}	L _{eq}	L _{max}	L _{min}	L _{eq}	L _{max}
Bufferzone							
N1	Dharmapura	40.0	50.1	58.6	34.8	40.4	46.0
N2	Yeshwanthanagar	38.0	47.8	57.0	35.0	41.7	48.6
N3	Ramgad village	39.0	52.2	56.4	34.0	44.2	48.0
Corezone							
N4	Core zone Near Mines office	38.0	51.1	63.0	34.0	38.1	46.5
<u>Permissible Limits of Ambient Noise Levels as per CPCB Guidelines</u>							
Leq. Limit dB(A)							
		Day	Night				
Industrial areas		75	70				
Commercial area		65	55				
Residential area		55	45				


(M.R. DURGA PRASAD)
GOVT. ANALYST


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