



o/c

Regd Post with A/D

Ref.No.: MGM/P&E/710 /19

Date: 26/09/2019

**The Member Secretary,
State Pollution Control Board, Orissa,
A/118, Nilakantha Nagar,
Bhubaneswar, Odisha-751012**

Sub: Submission of Annual Environment Statement (FORM-V) for Malda Manganese Mine, M/s TATA Steel Ltd. for the year 2018-19.

Dear Sir,

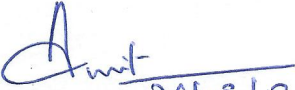
We are enclosing herewith Annual Environment Statement in Form-V for Malda Manganese Mine, M/s TATA Steel Ltd. for the year ending 31st March'2019.

This is for your kind perusal.

Thanking you,

Yours faithfully,

F: TATA STEEL LTD.


Agent & 26/09/19
Head, Manganese Gr. of Mines
Ferro Alloys & Minerals Division,
Joda.

Encl: as above.

Copy to : (1) The Regional Officer, State Pollution Control Board, Rourkela Town Engineering Office Premises, Sector-5, Rourkela-769002, Odisha.
(2) Central Pollution Control Board Southern Conclave, Block 502, 5th & 6th Floors
1582 Rajdanga Main Road Kolkata - 700 107 (W. B.)

TATA STEEL LTD.

Ferro Alloys & Minerals Division, Manganese Group of Mines, At/P.O.: Bichhakundi, Via: Joda,
Dist: Keonjhar Odisha – 758 034 Tel.: 9238101370, e-mail : mnminesadmin@tatasteel.com
Regd.Office : Bombay House, 24 Homi Modi Street, Mumbai – 400 001 Tel 912266658282, Fax 912266657724
Corporate Identity Number L27100MH1907PLC000260 website : www.tatasteel.com



ENVIRONMENTAL STATEMENT

2018-19

**UNDER RULE 14 OF ENVIRONMENT (PROTECTION)
RULES, 1986**

In

FORM - V

MALDA MANGANESE MINES

TATA STEEL LIMITED

SEPTEMBER 2019

Environmental Statement: Malda Manganese Mines – 2018-19

FORM V

[See Rule 14 of Environment (Protection) Rules, 1986]

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31ST MARCH 2019

PART - A

- (i) Name and Address of the Owner / occupier of the industry operation or process. : **MALDA MANGANESE MINE**
- Nominated Owner :-
Mr. T.V.Narendran
Managing Director, M/s TATA Steel Ltd.
Jamshedpur, Dist- East Singhbhum
Jharkhand - 831 001
- Agent :-
Mr. Amit kumar Dubey,
Head(Manganese Group of Mines),
Joda, FA & MD, TATA Steel
P.O.: Bichhakundi, Via : Joda
Dist : Keonjhar, Orissa - 758 034
- (ii) Industry Category : Opencast Mining
- (iii) Production Capacity - Units : 550000 TPA (Manganese Ore)
- (iv) Year of Establishment : 1935
- (v) Date of the last environmental statement submitted : **28th Sept'2018**

PART - B

Water and Raw Material Consumption

(1) Water Consumption m³/day

Process	: Nil
Cooling	: Nil
Domestic	: 38.58 m ³ /day (Avg. during 2018-19)

Name of the Products	<u>Process water consumption per unit of product output</u>	
	During the previous Financial year	During the current Financial year
	(1)	(2)
(1) Manganese Ore	Nil	Nil

Remarks : Manganese Ore is produced by semi mechanized Mining method, which does not involve beneficiation and thus precludes the consumption of water.

(2) Raw material consumption

Name of the raw materials	Name of the product	<u>Consumption of raw materials per unit</u>	
		During the previous Financial year	During the current Financial year
Manganese Ore	Manganese Ore	<u>Year - 2017-18</u> Production :- NIL Despatch :- NIL	<u>Year - 2018 -19</u> Production :- NIL Despatch :- NIL

Remarks: Mining operation has stopped since Feb'2011 in want of forest clearance.

PART - C

Pollution discharged to environment / unit of output

(Parameter as specified in the Consents issued)

Pollution	Quantity of pollutants discharged (mass/day)	Concentrations of Pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons

(a) Water	<p>The process of Manganese Ore production includes blasting, removal of overburden, breaking and sizing of ore to required size and then transportation to the customer does not require consumption of water. Thus, there is no process discharge from the mine.</p> <p>The surface water quality data is enclosed as Annexure - I. It shows that the concentrations of the pollutants are well within the permissible standards.</p>
(b) Air	<p>Since this is an open cast Mine, the dust generation is mainly due to the movement of vehicles in the haul roads, drilling activities etc, which is fugitive in nature and cannot be quantified. The fugitive dust is allayed by sprinkling of water by mobile tanker and development of green barrier by plantation around the residential area.</p> <p>The monthly average ambient air quality data is enclosed as Annexure - II. It shows that the concentrations of the pollutants are well within the permissible standards.</p>

PART - D

Hazardous Wastes

[As specified under the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016]

Hazardous Wastes	Total Quantity	
	During the previous Financial year	During the current Financial year
	<u>Year - 2017-18</u>	<u>Year - 2018-19</u>
(i) From Process		
Waste Oil (in Ltrs.)	0	0
Used Oil (in Ltrs.)	0	0
Cotton Waste (in Kgs)	Nil	Nil
Duster (in Nos.)	Nil	Nil
Filters (in Nos.)	Nil	Nil
(ii) From pollution control facilities	Nil	Nil

Remarks: Mining operation has stopped since Feb'2011 in want of forest clearance.

PART - E

Solid Wastes

	Total Quantity	
	During the previous Financial year <u>Year - 2017-18</u>	During the current Financial year <u>Year - 2018-19</u>
(a) From Process (Overburden rejects)	Nil	Nil
(b) From pollution control facilities	Nil	Nil
(c)		
(1) Quantity recycled or re-utilized within the unit	Nil	Nil
(2) Sold	Nil	Nil
(3) Disposal	Nil	Nil

Mining operation has stopped since Feb'2011 due to want of forest clearance.

PART - F

Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

- **Characterization of Hazardous Waste:** - The composition of hazardous wastes like Waste Oil & used oil are Hydrocarbons, lead and used acids. The composition of the solid wastes (Overburden and rejects) contains lateritic morrum, shale and quartzite.
- **Disposal Practice:-**
 - **SOLID WASTES** -The overburden is systematically and scientifically dumped on a geologically barren area and the same will be reclaimed by plantation after being declared inactive. Presently no generation of solid waste due to stoppage of mining activities.
 - **WASTE OIL** -The waste oil generated at various sources is collected in leak proof barrels and then is kept on an impervious floor with oil catch pit. It is also ensured that the caps of the barrels remain intact and horizontal. The storage area is properly fenced and caution board displayed. During transfer of waste oil to barrels, a trough is placed underneath to prevent land contamination due to oil spillage. Then at a fixed interval, these barrels are returned to Ferro Manganese Plant

Stores for final disposal through auction to the authorized party. Presently no generation of waste oil due to stoppage of mining activities.

- USED COTTON WASTES - The used cotton wastes generated at various locations are kept in designated barrels and at a fixed interval, these wastes are handed over to the Shift in-charge of the Furnace Section of FAP, Joda for incinerating in the Electric Arc Furnace at a temperature of more than 1100 degree C. Presently no generation of cotton waste due to stoppage of mining activities.

- Provision of impervious pit for collection of oily waste in the workshop premises in addition to the existing practice of collection at specified barrels.

PART - G

Impact of pollution abatement measures taken on conservation of natural resources and on the cost of production.

1. Water spraying on haul Roads and Mine Pits is done regularly to suppress the dust.
2. All the haul roads in the mining area are made up of morrum & compacted. Regular repair is being done by dozer & grader after spreading the layer of sweat morrum over it.
3. Wet drilling has been implemented in all drills. Controlled blasting pattern is being followed.
4. 11100 nos. of saplings of various forestry species were planted covering an area of 01 hectare within the leasehold areas of Malda Mn. Mine during the year 2018-19.
5. During the year 2018-19 an amount of Rs. 1557372 /- was incurred towards environmental management including Environmental Monitoring, Plantation activities and construction of toe-wall, check dams and garland drains.
6. In addition, Tata Steel Rural Development Society also undertakes the peripheral development activities with a large magnitude.

PART - H

Additional measures / investment proposal for environmental protection, abatement of pollution, prevention of pollution.


- a) Garland drains and toe wall around the OB dumping has been provided to check and channelize surface run-off .
- b) Plantation of forestry species planted over the inactive waste dump slopes to stabilize the dump slope and arrest the airborne dust.

PART - I

Any other particulars for improving the quality of environment.

1. With compliance to conditions of Environment Clearance obtained from MoEF, the following monitoring is being done at regular interval.
 - Ground Water Level at nearby bore wells
 - Trace metal in dust fall
 - Ground water quality at lower level
 - Trace metals such as Fe, Cr+6, Cu, Se, As, Cd, Hg, Pb, Zn and Mn at specific locations for both surface water (downstream & upstream) and ground water at lower elevation is being periodically monitored by referring to the standards as per BIS : 10500.
2. Top soils generated during excavation are utilized immediately for nursery development and dump slope plantation.
3. Measures taken to control Air Pollution :-
 - Water sprinkling on the haul road,
 - Provision of dust masks to the workmen,
 - Adoption of wet drilling arrangement in the drill machines and
4. Measures taken to control Water Pollution :-
 - Construction of toe wall and garland drain along the dump slope to prevent surface run-off during monsoon.
 - Construction of soak pits for discharge of sanitary sewage at residential colony.
5. Measures taken to control Noise & Ground Vibration :-
 - Thick plantation has been developed around the mines to provide a canopy cover

- Implementation of advance blasting technique(NONEL) to reduce the blast induced ground vibration and
 - Workmen are provided with ear-muff while working near heavy earth moving machineries.
6. Measures taken to control Land Degradation :-
- Afforestation around the non-active dump for stabilization
7. Surveillance of Occupational Health: - Mining operations were discontinued since 27th Feb'2011 due to want of Forest Clearance. Employees are undergoing Periodical Medical Examination which is inclusive of lungs function test and audiometry. All the personnel are trained on safety in work place and continuous awareness programs are being conducted for all employees to avert manganese poisoning.
8. The mine is certified with ISO-14001 (Environment Management System).


Manager,
Malda Mn. Mine,
M/s. TATA STEEL LTD.

Annexure – I : Surface Water Quality Monitoring at Malda Mn Mine (W1 Kundra Nallah Entering Malda)

Parameters			April'18	May'18	June'18	July'18	Aug-18	Sept-18
	Unit	Standard	Result	Result	Result	Result	Result	Result
Dissolved Oxygen (minimum)	mg/l	4	5.4	5.9	5.4	5.6	5.2	5.5
BOD (3) days at 27°C (max)	mg/l	3	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Total Coli form	MPN/100 ml	5000	310	370	350	330	120	150
pH Value	--	6.0-9.0	7.34	7.28	7.2	7.24	7.14	7.2
Colour (max)	Hazen	300	CL	CL	CL	CL	CL	CL
Total Dissolved Solids	mg/l	1500	128	134	130	132	120	125
Copper as Cu (max)	mg/l	1.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Iron as Fe (max)	mg/l	0.5	0.42	0.45	0.48	0.42	0.44	0.48
Chloride (max)	mg/l	600	27	29	30	32	20	24
Sulphates (SO ₄) (max)	mg/l	400	4.4	4.7	4.61	4.26	5.1	5.3
Nitrate as NO ₃ (max)	mg/l	50	1.54	1.68	1.72	1.78	1.8	2.2
Fluoride as F (max)	mg/l	1.5	0.013	0.016	0.014	0.012	0.012	0.011
Phenolic Compounds as C ₆ H ₅ OH (max)	mg/l	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium as Cd (max)	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium as Se (max)	mg/l	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic as As	mg/l	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cyanide as CN (max)	mg/l	0.05	ND	ND	ND	ND	ND	ND
Lead as Pb(max)	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc as Zn(max)	mg/l	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexa Chromium as Cr +6	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anionic Detergents (max)	mg/l	1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			Oct18	Nov'18	Dec'18	Jan-19	Feb19	March-19
Dissolved Oxygen (minimum)	mg/l	4	5.9	5.7	5.4	5.7	5.4	6.1
BOD (3) days at 27°C (max)	mg/l	3	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Total Coli form	MPN/100 ml	5000	360.0	360	378	359	320	380
pH Value	--	6.0-9.0	7.36	7.35	7.45	4.56	7.11	7.38
Colour (max)	Hazen	300	CL	CL	CL	CL	CL	CL
Total Dissolved Solids	mg/l	1500	178	180	132	124	126	138
Copper as Cu (max)	mg/l	1.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Iron as Fe (max)	mg/l	0.5	0.28	0.28	0.45	0.45	0.41	0.42
Chloride (max)	mg/l	600	34	32	25	29	32	36
Sulphates (SO ₄) (max)	mg/l	400	3.9	3.1	4.8	4.6	4.8	5.6
Nitrate as NO ₃ (max)	mg/l	50	1.05	1.18	1.4	1.4	3.9	1.8
Fluoride as F (max)	mg/l	1.5	0.012	0.023	0.041	0.059	0.052	0.046
Phenolic Compounds as C ₆ H ₅ OH (max)	mg/l	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium as Cd (max)	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium as Se (max)	mg/l	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic as As	mg/l	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cyanide as CN (max)	mg/l	0.05	ND	ND	ND	ND	ND	ND
Lead as Pb(max)	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc as Zn(max)	mg/l	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexa Chromium as Cr +6	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anionic Detergents (max)	mg/l	1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Annexure – I : Surface Water Quality Monitoring at Malda Mn Mine (W2 Kundra Nallah Leaving Malda)

Parameters			April'18	May'18	June'18	July'18	Aug-18	Sept-18
	Unit	Standard	Result	Result	Result	Result	Result	Result
Dissolved Oxygen (minimum)	mg/l	4	5.5	6.1	6.2	6	5.4	5.2
BOD (3) days at 27°C (max)	mg/l	3	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Total Coli form	MPN/100 ml	5000	270.0	310.0	260.0	280.0	150.0	170.0
pH Value	--	6.0-9.0	7.32	7.35	7.32	7.38	7.12	7.18
Colour (max)	Hazen	300	CL	CL	CL	CL	CL	CL
Total Dissolved Solids	mg/l	1500	133	136	134	138	124	128
Copper as Cu (max)	mg/l	1.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Iron as Fe (max)	mg/l	0.5	0.45	0.46	0.48	0.46	0.46	0.5
Chloride (max)	mg/l	600	28	31	32	30	26	24
Sulphates (SO ₄) (max)	mg/l	400	4.6	4.8	4.8	4.2	4.7	4.5
Nitrate as NO ₃ (max)	mg/l	50	1.62	1.72	1.78	1.62	1.5	1.8
Fluoride as F (max)	mg/l	1.5	0.016	0.018	0.016	0.014	0.011	0.012
Phenolic Compounds as C ₆ H ₅ OH (max)	mg/l	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium as Cd (max)	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium as Se (max)	mg/l	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic as As	mg/l	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cyanide as CN (max)	mg/l	0.05	ND	ND	ND	ND	ND	ND
Lead as Pb(max)	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc as Zn(max)	mg/l	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexa Chromium as Cr +6	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anionic Detergents (max)	mg/l	1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parameters			Oct'18	Nov'18	Dec'18	Jan-19	Feb-19	March-19
Dissolved Oxygen (minimum)	mg/l	4	6.1	7.8	5.8	5.3	5.1	7
BOD (3) days at 27°C (max)	mg/l	3	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Total Coli form	MPN/100 ml	5000	410	410	321	313	280	310
pH Value	--	6.0-9.0	7.56	7.57	7.89	7.59	7.46	7.72
Colour (max)	Hazen	300	CL	CL	CL	CL	CL	CL
Total Dissolved Solids	mg/l	1500	181	210	135	136	130	146
Copper as Cu (max)	mg/l	1.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Iron as Fe (max)	mg/l	0.5	0.32	0.32	0.47	0.56	0.52	0.56
Chloride (max)	mg/l	600	38	37	25	21	26	44
Sulphates (SO ₄) (max)	mg/l	400	4.2	4.2	4.7	4.8	4.6	6.2
Nitrate as NO ₃ (max)	mg/l	50	1.21	1.05	1.7	4.5	4.5	2.4
Fluoride as F (max)	mg/l	1.5	0.014	0.031	0.034	0.24	0.21	0.038
Phenolic Compounds as C ₆ H ₅ OH (max)	mg/l	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium as Cd (max)	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium as Se (max)	mg/l	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic as As	mg/l	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cyanide as CN (max)	mg/l	0.05	ND	ND	ND	ND	ND	ND
Lead as Pb(max)	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc as Zn(max)	mg/l	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexa Chromium as Cr +6	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anionic Detergents (max)	mg/l	1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Annexure-II : Ambient Air Quality Monitoring Report, Malda Manganese Mine, Sampling Location-1 (Near Dispensary)

	PARAMETERS												
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	O ₃	CO	NH ₃	Pb	Ni	As	C ₆ H ₆	BaP	Mn
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	mg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(µg/m ³)	(ng/m ³)	µg/m ³)
Limit as per CPCB notification, New Delhi, 18th Nov, 2009. for Ambient air quality	100	60	80	80	180	4	400	1	20	6	5	1	---
Sampling and Analysis done according to	IS: 5182(Part-23)-1999	USEPA CFR-40,Part-50, Appendix-L	IS: 5182 (Part-2)-2001	IS: 5182 (Part-6)-2006	IS: 5182 (Part-9)-1974	IS 5182 : Part.10-1999	Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	EPA IO-3.2	EPA IO-3.2	APHA 22nd-3114 C	IS 5182 : Part. 11	IS 5182 : Part. 12	EPA IO-3.2
Apr-18	44.20	20.78	4.20	9.62	< 4.0	0.22	<20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
May-18	39.44	18.36	<4.0	<9.0	< 4.0	0.22	<20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Jun-18	38.01	17.96	3.60	8.40	< 4.0	0.19	<20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Jul-18	37.29	16.93	3.10	8.10	< 4.0	0.18	<20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Aug-18	36.5	17.51	<4.0	<9.0	< 4.0	0.18	<20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Sep-18	42.28	20.93	4.15	10.85	4.10	0.16	23.50	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Oct-18	41.66	18.20	4.05	9.50	< 4.0	0.13	< 20.0	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Nov-18	46.87	22.08	4.25	9.70	< 4.0	0.26	21.55	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Dec-18	50.43	22.55	4.26	9.64	< 4.0	0.25	22.43	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Jan-19	54.13	24.03	4.60	9.78	< 4.0	0.55	24.75	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Feb-19	52.58	22.48	5.21	10.29	< 4.0	0.58	23.27	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Mar-19	44.29	21.59	4.82	10.13	4.30	0.29	23.14	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001

Annexure-II : Ambient Air Quality Monitoring Report, Malda Manganese Mine, Sampling Location-2 (Mines Pit)

	PARAMETERS												
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	O ₃	CO	NH ₃	Pb	Ni	As	C ₆ H ₆	BaP	Mn
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	mg/m ³)	(µg/m ³)	(µg/m ³)	(ng/m ³)	(ng/m ³)	(µg/m ³)	(ng/m ³)	µg/m ³)
Limit as per CPCB notification, New Delhi, 18th Nov, 2009. for Ambient air quality	100	60	80	80	180	4	400	1	20	6	5	1	---
Sampling and Analysis done according to	IS: 5182(Part-23)-1999	USEPA CFR-40,Part-50, Appendix-L	IS: 5182 (Part-2)-2001	IS: 5182 (Part-6)-2006	IS: 5182 (Part-9)-1974	IS 5182 : Part.10-1999	Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	EPA IO-3.2	EPA IO-3.2	APHA 22nd-3114 C	IS 5182 : Part. 11	IS 5182 : Part. 12	EPA IO-3.2
Apr-18	46.19	21.74	4.20	9.85	<4.0	0.23	<20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
May-18	42.14	19.39	< 4.0	9.50	< 4.0	0.25	< 20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Jun-18	41.03	18.74	4.00	9.10	< 4.0	0.22	< 20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Jul-18	38.99	17.89	3.90	9.15	< 4.0	0.21	< 20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Aug-18	40.41	20.80	<4.0	<9.0	< 4.0	0.16	< 20.0	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Sep-18	43.65	17.64	4.20	9.50	4.30	0.20	23.50	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Oct-18	42.6	18.7	4.1	9.5	<4.0	0.2	< 20.0	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Nov-18	51.1	23.5	4.2	9.3	<4.0	0.3	< 20.0	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Dec-18	52.31	26.00	4.25	9.40	<4.0	0.39	< 20.0	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Jan-19	55.58	26.80	4.64	9.98	4.72	0.53	24.70	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Feb-19	55.03	27.00	4.87	10.79	4.99	0.53	24.79	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001
Mar-19	50.62	26.89	4.41	9.69	4.69	0.43	22.56	< 0.001	< 0.01	< 0.001	< 0.001	< 0.002	< 0.001