SAMPLING AND ANALYSIS OF AMBIENT AIR QUALITY AND WATER QUALITY IN SELECTED INDUSTRIAL/CLUSTER AREAS AT VATVA

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Sponsored by

The Green Environment Services Co-op. Society ltd.
Vatva

Prepared by:

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For

The Green Environment Services Co-op. Society Ltd.
Vatva

For and on behalf of M/s. Bhagavathi Ana Labs Pvt. Ltd.

Approved by : **Dr. Santosh Zargar**

Signed : Zargar

Position : **Lab Manager**

Date : 1/8/16

This report has been prepared by M/s. Bhagavathi Ana Labs Private Limited with all reasonable skill, care and diligence within the terms of the contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. Name of the sampling locations /sample identity details –provided by client.

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1.0 Project Study:

With a view to assess the environmental quality arising from the activities undertaken by M/s. The Green Enviroment Services Co-op. Society Ltd., Vatva retained M/s. Bhagavathi Ana Labs Private Limited for carrying out Environmental monitoring studies on Seasonal basis.

In this study report, results of Ambient Air Quality, Surface Water Quality & Ground Water Quality analysis data are presented for the month of **June 2016**.

2.0 DETAILS OF SAMPLING LOCATIONS

2.1 Ambient Air Quality:

To assess the Environment monitoring around **Vatva** for baseline data on the Ambient Air, parameters like SO_2, NO_2, PM_{10}, $PM_{2.5}$, O_3, Lead, CO, Ammonia, Benzene, Benzo(a) pyrene, Arsenic, Nickel on seasonal basis were monitored at four locations around the **Vatva** in the month of **June-2016**. Samples were collected as per CPCB guidelines based on wind direction. The details of the sampling locations are given below in **Table-1**.

2.2 Surface and Ground Water Quality:

Surface and Ground Water Quality samples are collected from different locations to know the characteristics of Surface and Ground Water Quality. Samples were collected as per CPCB guidelines. The details of the sampling locations are given below in **Table-2**.

3.0 Analytical Methodology:

IS, APHA 22nd Edition, CPCB, EPA methods were followed for sampling and analysis of ambient air quality; surface & ground water quality.

4.0 Data Analysis:

Test reports of Fieldwork during month of **June 2016** consisted of collection and analysis of samples of ambient air quality, surface & ground water quality at different locations around the **Vatva** are presented in Annexure-I.

ANNEXURE-1

Table-1 AAQ MONITORING LOCATIONS

SAMPLE CODE	NAME OF THE MONITORING LOCATION	DATE OF SAMPLING	LATITUDE	LONGITUDE
AAQ – 1	Vatva Industrial Association	04.06.2016 to 09.06.2016	N 21° 58'11.0"	E 072° 38'35.5"
AAQ – 2	M/s. Patel Chem	04.06.2016 to 09.06.2016	N 21° 58'11.0"	E 072° 38'35.5"
AAQ – 3	M/s. Mamta Narol	05.06.2016 to 10.06.2016	N 21° 58'11.0"	E 072° 36'08.3"
AAQ – 4	M/s. Hemline	05.06.2016 to 10.06.2016	E 072° 38'35.5"	E 072° 38'35.5"

Table-2 SURFACE WATER SAMPLING LOCATIONS

SAMPLE CODE	NAME OF THE SAMPLING LOCATION	DATE OF SAMPLING	LATITUDE	LONGITUDE
SW – 1	CETP Vatva Outlet	04.06.2016 to 08.06.2016	N 22° 57'15.9"	E 072° 38'21.1"
SW – 2	Mega line Outline	04.06.2016 to 08.06.2016	N 22° 58'46.4"	E 072° 32'39.3"
SW – 3	Kharikat Vanal at Vinzol Bridge	04.06.2016 to 08.06.2016	N 22° 57'07.1"	E 072° 38'24.2"
SW – 4	Miroli Pumping Station	04.06.2016 to 08.06.2016	N 22° 52'34.1"	E 072° 30'09.8"
SW - 5	Vinzol Lake	04.06.2016 to 08.06.2016	N 22° 57'07.4"	E 072° 38'32.9"

Table-2 GROUND WATER SAMPLING LOCATIONS

SAMPLE CODE	NAME OF THE SAMPLING LOCATION	DATE OF SAMPLING	LATITUDE	LONGITUDE
GW – 1	VIA Vatva	04.06.2016 to 08.06.2016	N 21° 58'11.0"	E 072° 38'35.5"
GW – 2	CETP Green Vatva	04.06.2016 to 08.06.2016	N 22° 57'03.4"	E 072° 38'16.8"
GW – 3	Hemline textiles-Narol	04.06.2016 to 08.06.2016	N 22° 57'51.4"	E 072° 36'08.3"
GW – 4	Swan Energy-Narol	04.06.2016 to 08.06.2016	N 22° 57'49.0"	E 072° 34'13.1"

AMBIENT AIR QUALITY MONITORING

Location: VIA

S.No.	Pollutant(s)	Units	RESULTS			Test Methods
			04.06.2016	06.06.2016	8.06.2016	
1	SO_2	µg/m3	12.8	10.4	11.8	IS 5182 (Part 2) – 2001, West & Gaeke Method) & CPCB Manual
2	NO_2	µg/m3	18	17.2	18.6	IS 5182 (Part 6) – 2001, Jacob & Hochheiser – Sodium Arsenite Method) & CPCB Manual
3	PM_{10}	µg/m3	82	86	98	IS 5182 (Part – 23), 1999, RA 2009, Cyclone Flow Technique & CPCB Manual
4	$PM_{2.5}$	µg/m3	33	39	36	Internal SOP & CPCB Manual
5	O_3	µg/m3	12.6	14.7	13.2	IS 5182 (Part 9), 1974, RA 2009, UV Spectrophotometric Method/ISC Method No.411, 3rd Edition 1989 & CPCB Manual
6	Lead	µg/m3	0.31	0.39	0.33	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual
7	CO	mg/m3	<2	<2	<2	IS 5182 (Part – 10), 1999, RA 2009, GC Method & CPCB Manual
8	Ammonia	µg/m3	11.4	13.8	14.7	Method 401 – Air Sampling and Analysis, APHA, 3rd Edition & CPCB Manual
9	Benzene	µg/m3	<3	<3	<3	USEPA Method – TO-3, Absorption and Desorption followed by GC-MS & CPCB Manual
10	Benzo(a) pyrene	ng/m3	<0.5	<0.5	<0.5	USEPA Method – TO-13A & CPCB Manual
11	Arsenic	ng/m3	<0.9	<0.9	<0.9	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual
12	Nickel	ng/m3	2.4	2.7	2.6	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual

AMBIENT AIR QUALITY MONITORING

Location: Patel Chem

S.No.	Pollutant(s)	Units	RESULTS			Test Methods
			04.06.2016	06.06.2016	8.06.2016	
1	SO_2	µg/m3	9.4	8.4	7.6	IS 5182 (Part 2) – 2001, West & Gaeke Method) & CPCB Manual
2	NO_2	µg/m3	13.7	14.6	13.4	IS 5182 (Part 6) – 2001, Jacob & Hochheiser – Sodium Arsenite Method) & CPCB Manual
3	PM_{10}	µg/m3	72	79	72	IS 5182 (Part – 23), 1999, RA 2009, Cyclone Flow Technique & CPCB Manual
4	$PM_{2.5}$	µg/m3	27	23	25	Internal SOP & CPCB Manual
5	O_3	µg/m3	9.7	17.8	23.4	IS 5182 (Part 9), 1974, RA 2009, UV Spectrophotometric Method/ISC Method No.411, 3rd Edition 1989 & CPCB Manual
6	Lead	µg/m3	0.27	0.34	0.37	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual
7	CO	mg/m3	<2	<2	<2	IS 5182 (Part – 10), 1999, RA 2009, GC Method & CPCB Manual
8	Ammonia	µg/m3	17.6	9.7	11.4	Method 401 – Air Sampling and Analysis, APHA, 3rd Edition & CPCB Manual
9	Benzene	µg/m3	<3	<3	<3	USEPA Method – TO-3, Absorption and Desorption followed by GC-MS & CPCB Manual
10	Benzo(a) pyrene	ng/m3	<0.5	<0.5	<0.5	USEPA Method – TO-13A & CPCB Manual
11	Arsenic	ng/m3	<0.9	<0.9	<0.9	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual
12	Nickel	ng/m3	9.1	7.6	8.4	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual

AMBIENT AIR QUALITY MONITORING

Location: Mamta Narol

S.No.	Pollutant(s)	Units	RESULTS			Test Methods
			05.06.2016	07.06.2016	9.06.2016	
1	SO_2	µg/m3	10.2	11.4	12.4	IS 5182 (Part 2) – 2001, West & Gaeke Method) & CPCB Manual
2	NO_2	µg/m3	14.3	17.5	19.7	IS 5182 (Part 6) – 2001, Jacob & Hochheiser – Sodium Arsenite Method) & CPCB Manual
3	PM_{10}	µg/m3	85	88	96	IS 5182 (Part – 23), 1999, RA 2009, Cyclone Flow Technique & CPCB Manual
4	$PM_{2.5}$	µg/m3	39	32	39	Internal SOP & CPCB Manual
5	O_3	µg/m3	12.4	18.7	17.4	IS 5182 (Part 9), 1974, RA 2009, UV Spectrophotometric Method/ISC Method No.411, 3rd Edition 1989 & CPCB Manual
6	Lead	µg/m3	0.22	0.24	0.27	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual
7	CO	mg/m3	<2	<2	<2	IS 5182 (Part – 10), 1999, RA 2009, GC Method & CPCB Manual
8	Ammonia	µg/m3	7.5	17.3	16.4	Method 401 – Air Sampling and Analysis, APHA, 3rd Edition & CPCB Manual
9	Benzene	µg/m3	<3	<3	<3	USEPA Method – TO-3, Absorption and Desorption followed by GC-MS & CPCB Manual
10	Benzo(a) pyrene	ng/m3	<0.5	<0.5	<0.5	USEPA Method – TO-13A & CPCB Manual
11	Arsenic	ng/m3	<0.9	<0.9	<0.9	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual
12	Nickel	ng/m3	5.7	8.7	8.4	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual

AMBIENT AIR QUALITY MONITORING

Location: Hemline

S.No.	Pollutant(s)	Units	RESULTS			Test Methods
			05.06.2016	07.06.2016	9.06.2016	
1	SO_2	µg/m3	8.7	9.7	10.7	IS 5182 (Part 2) – 2001, West & Gaeke Method) & CPCB Manual
2	NO_2	µg/m3	15.1	16.4	16.7	IS 5182 (Part 6) – 2001, Jacob & Hochheiser – Sodium Arsenite Method) & CPCB Manual
3	PM_{10}	µg/m3	76	83	81	IS 5182 (Part – 23), 1999, RA 2009, Cyclone Flow Technique & CPCB Manual
4	$PM_{2.5}$	µg/m3	49	40	38	Internal SOP & CPCB Manual
5	O_3	µg/m3	13.8	19.4	18.4	IS 5182 (Part 9), 1974, RA 2009, UV Spectrophotometric Method/ISC Method No.411, 3rd Edition 1989 & CPCB Manual
6	Lead	µg/m3	0.29	0.31	0.34	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual
7	CO	mg/m3	<2	<2	<2	IS 5182 (Part – 10), 1999, RA 2009, GC Method & CPCB Manual
8	Ammonia	µg/m3	11.4	12.4	13.8	Method 401 – Air Sampling and Analysis, APHA, 3rd Edition & CPCB Manual
9	Benzene	µg/m3	<3	<3	<3	USEPA Method – TO-3, Absorption and Desorption followed by GC-MS & CPCB Manual
10	Benzo(a) pyrene	ng/m3	<0.5	<0.5	<0.5	USEPA Method – TO-13A & CPCB Manual
11	Arsenic	ng/m3	<0.9	<0.9	<0.9	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual
12	Nickel	ng/m3	9.4	11.4	12.9	USEPA Method – IO-3.5, (ICP – MS Method) & CPCB Manual

SURFACE WATER QUALITY
Location-CETP Vatva Outlet

Sr. No.	Test Parameters	UOM	Results			Test Method
			4.6.16	6.6.16	8.6.16	
1	Colour	Hazen	Brown	Brown	Brown	IS 3025: Part – 4
2	Odour (Smell)	-	Non Agreeable	Non Agreeable	Non Agreeable	IS 3025: Part – 5
3	pH	-	6.91	7.51	7.46	IS 3025: Part – 11
4	Oil & Grease (O&G)	mg/l	5	7	8	IS 3025: Part – 39
5	Suspended Solids (SS)	mg/l	46	44	36	IS 3025: Part – 17
6	Dissolved Oxygen (DO)	mg/l	2.2	2.5	2.4	IS 3025: Part – 38
7	Chemical Oxygen Demand (COD)	mg/l	320	338	328	IS 3025: Part – 58
8	Bio-chemical Oxygen Demand (BOD)	mg/l	35	35	32	IS 3025: Part – 44
9	Conductivity (EC)	µS/cm	1800	1820	1840	IS 3025: Part – 14
10	Nitrite-nitrogen as N	mg/l	0.07	0.09	0.05	APHA 4500 – NO_2.B
11	Nitrate-Nitrogen as N	mg/l	6.88	5.28	8.14	APHA 4500 – NO_3.B
12	Total Nitrogen (N02 + NO3)	mg/l	6.95	5.37	8.19	By Calculation
13	Free Ammonia	mg/l	<0.02	<0.02	<0.02	APHA 4500 – NH_3.C
14	Total Residual Chlorine	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 26
15	Cyanide as CN^-	mg/l	BDL	BDL	BDL	IS 3025: Part – 27
16	Fluoride as F^-	mg/l	0.8	0.8	0.9	IS 3025: Part – 60
17	Sulphides as S^{--}	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 29
18	Dissolved Phosphates as P	mg/l	<0.01	<0.01	<0.01	APHA 4500 – P.D
19	Sodium Absorption Ratio (SAR)	-	20.4	19.5	22.69	By Calculation
20	Total Coliform	MPN/100ml	21	22	19	IS 1622
21	Faecal Coliform	MPN/100ml	9	11	13	IS 1622
22	Total Phosphorous	mg/l	<0.1	<0.1	<0.1	APHA 4500 – P.D
23	Total Kjeldal Nitrogen (TKN)	mg/l	32	36	33	APHA 4500 – Norg.B
24	Total Ammonia (NH_4+NH_3)-Nitrogen	mg/l	18	20	17	APHA 4500 – NH_3
25	Phenolic Compounds as C_6H_5OH	mg/l	<0.001	<0.001	<0.001	IS 3025: Part – 43
26	Surface Active Agent	mg/l	<0.1	<0.1	<0.1	IS 13428
27	Organo-chlorine Pesticides(OCP)	mg/l	N.D	N.D	N.D	EPA 508
28	PAH's	mg/l	N.D	N.D	N.D	EPA 525.2
29	PCB	mg/l	N.D	N.D	N.D	EPA 508
30	PCT	mg/l	N.D	N.D	N.D	EPA 508
31	Zinc as Zn	mg/l	0.41	0.38	0.4	IS 3025: Part – 49
32	Nickel as Ni	mg/l	0.05	0.03	0.02	IS 3025: Part – 54
33	Copper as Cu	mg/l	0.02	0.05	0.03	IS 3025: Part – 42
34	Hexavalent Chromium as $Cr6^+$	mg/l	BDL	BDL	BDL	APHA 3500 - Cr. D
35	Total Chromium as Cr	mg/l	BDL	BDL	BDL	IS 3025: Part – 52
36	Arsenic as As	mg/l	BDL	BDL	BDL	IS 3025: Part – 37
37	Lead as Pb	mg/l	BDL	BDL	BDL	IS 3025: Part – 47
38	Cadmium as Cd	mg/l	BDL	BDL	BDL	IS 3025: Part – 41
39	Manganese as Mn	mg/l	0.42	0.53	0.49	APHA 3111 – B
40	Mercury as Hg	mg/l	BDL	BDL	BDL	IS 3025: Part – 48
41	Iron as Fe	mg/l	2.12	2.36	2.52	IS 3025: Part – 53
42	Vanadium as V	mg/l	BDL	BDL	BDL	APHA 3111 – D
43	Selenium as Se	mg/l	BDL	BDL	BDL	IS 3025: Part – 56
44	Boron as B	mg/l	0.62	0.64	0.67	IS 3025: Part – 57

SURFACE WATER QUALITY

Location- Mega line Outline

Sr. No.	Test Parameters	UOM	Results			Test Method
			4.6.16	6.6.16	8.6.16	
1	Colour	Hazen	Brown	Brown	Brown	IS 3025: Part – 4
2	Odour (Smell)	-	Non Agreeable	Non Agreeable	Non Agreeable	IS 3025: Part – 5
3	pH	-	7.01	7.52	7.49	IS 3025: Part – 11
4	Oil & Grease (O&G)	mg/l	7	6	8	IS 3025: Part – 39
5	Suspended Solids (SS)	mg/l	120	118	112	IS 3025: Part – 17
6	Dissolved Oxygen (DO)	mg/l	4.5	4.8	5.1	IS 3025: Part – 38
7	Chemical Oxygen Demand (COD)	mg/l	350	372	346	IS 3025: Part – 58
8	Bio-chemical Oxygen Demand (BOD)	mg/l	48	56	56	IS 3025: Part – 44
9	Conductivity (EC)	µS/cm	11200	11300	11400	IS 3025: Part – 14
10	Nitrite-nitrogen as N	mg/l	0.11	0.18	0.14	APHA 4500 – NO_2.B
11	Nitrate-Nitrogen as N	mg/l	2.06	6.28	5.14	APHA 4500 – NO_3.B
12	Total Nitrogen (N02 + N03)	mg/l	2.17	6.46	5.28	By Calculation
13	Free Ammonia	mg/l	<0.02	<0.02	<0.02	APHA 4500 – NH_3.C
14	Total Residual Chlorine	mg/l	0.6	0.4	0.4	IS 3025: Part – 26
15	Cyanide as CN^-	mg/l	BDL	BDL	BDL	IS 3025: Part – 27
16	Fluoride as F^-	mg/l	0.2	0.2	0.2	IS 3025: Part – 60
17	Sulphides as S^{--}	mg/l	10	6	8	IS 3025: Part – 29
18	Dissolved Phosphates as P	mg/l	<0.01	<0.01	<0.01	APHA 4500 – P.D
19	Sodium Absorption Ratio (SAR)	-	13.8	16.4	15.3	By Calculation
20	Total Coliform	MPN/100ml	28	30	27	IS 1622
21	Faecal Coliform	MPN/100ml	28	27	30	IS 1622
22	Total Phosphorous	mg/l	<0.1	<0.1	<0.1	APHA 4500 – P.D
23	Total Kjeldal Nitrogen (TKN)	mg/l	45	48	43	APHA 4500 – Norg.B
24	Total Ammonia (NH_4+NH_3)-Nitrogen	mg/l	32	25	24	APHA 4500 – NH_3
25	Phenolic Compounds as C_6H_5OH	mg/l	<0.001	<0.001	<0.001	IS 3025: Part – 43
26	Surface Active Agent	mg/l	<0.1	<0.1	<0.1	IS 13428
27	Organo-chlorine Pesticides(OCP)	mg/l	N.D	N.D	N.D	EPA 508
28	PAH's	mg/l	N.D	N.D	N.D	EPA 525.2
29	PCB	mg/l	N.D	N.D	N.D	EPA 508
30	PCT	mg/l	N.D	N.D	N.D	EPA 508
31	Zinc as Zn	mg/l	0.82	0.92	0.78	IS 3025: Part – 49
32	Nickel as Ni	mg/l	0.11	0.12	0.1	IS 3025: Part – 54
33	Copper as Cu	mg/l	0.04	0.05	0.07	IS 3025: Part – 42
34	Hexavalent Chromium as $Cr6^+$	mg/l	BDL	BDL	BDL	APHA 3500 - Cr. D
35	Total Chromium as Cr	mg/l	BDL	BDL	BDL	IS 3025: Part – 52
36	Arsenic as As	mg/l	BDL	BDL	BDL	IS 3025: Part – 37
37	Lead as Pb	mg/l	BDL	BDL	BDL	IS 3025: Part – 47
38	Cadmium as Cd	mg/l	BDL	BDL	BDL	IS 3025: Part – 41
39	Manganese as Mn	mg/l	1.09	1.14	1.1	APHA 3111 – B
40	Mercury as Hg	mg/l	BDL	BDL	BDL	IS 3025: Part – 48
41	Iron as Fe	mg/l	4.15	4.21	4.36	IS 3025: Part – 53
42	Vanadium as V	mg/l	BDL	BDL	BDL	APHA 3111 – D
43	Selenium as Se	mg/l	BDL	BDL	BDL	IS 3025: Part – 56
44	Boron as B	mg/l	0.47	0.39	0.43	IS 3025: Part – 57

SURFACE WATER QUALITY

Location- Kharikat Vanal at Vinzol Bridge

Sr. No.	Test Parameters	UOM	Results			Test Method
			4.6.16	6.6.16	8.6.16	
1	Colour	Hazen	Pale Yellow	Pale Yellow	Pale Yellow	IS 3025: Part – 4
2	Odour (Smell)	-	Non Agreeable	Non Agreeable	Non Agreeable	IS 3025: Part – 5
3	pH	-	7.72	7.03	7.28	IS 3025: Part – 11
4	Oil & Grease (O&G)	mg/l	N.D	N.D	N.D	IS 3025: Part – 39
5	Suspended Solids (SS)	mg/l	12	18	16	IS 3025: Part – 17
6	Dissolved Oxygen (DO)	mg/l	6.2	6.4	6.8	IS 3025: Part – 38
7	Chemical Oxygen Demand (COD)	mg/l	14	16	18	IS 3025: Part – 58
8	Bio-chemical Oxygen Demand (BOD)	mg/l	4	6	6	IS 3025: Part – 44
9	Conductivity (EC)	µS/cm	680	670	680	IS 3025: Part – 14
10	Nitrite-nitrogen as N	mg/l	0.96	0.91	0.94	APHA 4500 – NO_2.B
11	Nitrate-Nitrogen as N	mg/l	5.05	8.25	6.21	APHA 4500 – NO_3.B
12	Total Nitrogen (N02 + NO3)	mg/l	6.01	9.16	7.15	By Calculation
13	Free Ammonia	mg/l	<0.02	<0.02	<0.02	APHA 4500 – NH_3.C
14	Total Residual Chlorine	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 26
15	Cyanide as CN	mg/l	BDL	BDL	BDL	IS 3025: Part – 27
16	Fluoride as F	mg/l	0.97	0.95	0.92	IS 3025: Part – 60
17	Sulphides as S	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 29
18	Dissolved Phosphates as P	mg/l	<0.01	<0.01	<0.01	APHA 4500 – P.D
19	Sodium Absorption Ratio (SAR)	-	1.95	2.6	2.1	By Calculation
20	Total Coliform	MPN/100ml	320	315	318	IS 1622
21	Faecal Coliform	MPN/100ml	23	27	25	IS 1622
22	Total Phosphorous	mg/l	<0.1	<0.1	<0.1	APHA 4500 – P.D
23	Total Kjeldal Nitrogen (TKN)	mg/l	2	2	2	APHA 4500 – Norg.B
24	Total Ammonia (NH_4+NH_3)-Nitrogen	mg/l	1.4	1.8	2	APHA 4500 – NH_3
25	Phenolic Compounds as C_6H_5OH	mg/l	<0.001	<0.001	<0.001	IS 3025: Part – 43
26	Surface Active Agent	mg/l	0.15	0.16	0.14	IS 13428
27	Organo-chlorine Pesticides(OCP)	mg/l	N.D	N.D	N.D	EPA 508
28	PAH's	mg/l	N.D	N.D	N.D	EPA 525.2
29	PCB	mg/l	N.D	N.D	N.D	EPA 508
30	PCT	mg/l	N.D	N.D	N.D	EPA 508
31	Zinc as Zn	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 49
32	Nickel as Ni	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 54
33	Copper as Cu	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 42
34	Hexavalent Chromium as $Cr6^+$	mg/l	BDL	BDL	BDL	APHA 3500 - Cr. D
35	Total Chromium as Cr	mg/l	BDL	BDL	BDL	IS 3025: Part – 52
36	Arsenic as As	mg/l	BDL	BDL	BDL	IS 3025: Part – 37
37	Lead as Pb	mg/l	BDL	BDL	BDL	IS 3025: Part – 47
38	Cadmium as Cd	mg/l	BDL	BDL	BDL	IS 3025: Part – 41
39	Manganese as Mn	mg/l	0.08	0.05	0.06	APHA 3111 – B
40	Mercury as Hg	mg/l	BDL	BDL	BDL	IS 3025: Part – 48
41	Iron as Fe	mg/l	1.15	1.08	1.11	IS 3025: Part – 53
42	Vanadium as V	mg/l	BDL	BDL	BDL	APHA 3111 – D
43	Selenium as Se	mg/l	BDL	BDL	BDL	IS 3025: Part – 56
44	Boron as B	mg/l	0.09	0.11	0.13	IS 3025: Part – 57

SURFACE WATER QUALITY
Location- Miroli Pumping Station

Sr. No.	Test Parameters	UOM	Results			Test Method
			4.6.16	6.6.16	8.6.16	
1	Colour	Hazen	Light Brown	Light Brown	Light Brown	IS 3025: Part – 4
2	Odour (Smell)	-	Non Agreeable	Non Agreeable	Non Agreeable	IS 3025: Part – 5
3	pH	-	7.02	7.43	7.36	IS 3025: Part – 11
4	Oil & Grease (O&G)	mg/l	N.D	N.D	N.D	IS 3025: Part – 39
5	Suspended Solids (SS)	mg/l	168	155	164	IS 3025: Part – 17
6	Dissolved Oxygen (DO)	mg/l	4.5	4.5	4.5	IS 3025: Part – 38
7	Chemical Oxygen Demand (COD)	mg/l	198	184	190	IS 3025: Part – 58
8	Bio-chemical Oxygen Demand (BOD)	mg/l	25	26	27	IS 3025: Part – 44
9	Conductivity (EC)	µS/cm	1500	1540	1520	IS 3025: Part – 14
10	Nitrite-nitrogen as N	mg/l	<0.01	<0.01	<0.01	APHA 4500 – NO_2.B
11	Nitrate-Nitrogen as N	mg/l	2.03	3.14	2.18	APHA 4500 – NO_3.B
12	Total Nitrogen (N02 + NO3)	mg/l	2.03	3.14	2.18	By Calculation
13	Free Ammonia	mg/l	<0.02	<0.02	<0.02	APHA 4500 – NH_3.C
14	Total Residual Chlorine	mg/l	0.3	0.3	0.2	IS 3025: Part – 26
15	Cyanide as CN	mg/l	BDL	BDL	BDL	IS 3025: Part – 27
16	Fluoride as F	mg/l	0.97	0.93	0.94	IS 3025: Part – 60
17	Sulphides as S	mg/l	5	3	4	IS 3025: Part – 29
18	Dissolved Phosphates as P	mg/l	<0.01	<0.01	<0.01	APHA 4500 – P.D
19	Sodium Absorption Ratio (SAR)	-	9.7	10.4	8.7	By Calculation
20	Total Coliform	MPN/100ml	11	13	15	IS 1622
21	Faecal Coliform	MPN/100ml	5	6	6	IS 1622
22	Total Phosphorous	mg/l	<0.1	<0.1	<0.1	APHA 4500 – P.D
23	Total Kjeldal Nitrogen (TKN)	mg/l	8	8	8	APHA 4500 – Norg.B
24	Total Ammonia (NH_4+NH_3)-Nitrogen	mg/l	6	6	6	APHA 4500 – NH_3
25	Phenolic Compounds as C_6H_5OH	mg/l	<0.001	<0.001	<0.001	IS 3025: Part – 43
26	Surface Active Agent	mg/l	0.17	0.19	0.18	IS 13428
27	Organo-chlorine Pesticides(OCP)	mg/l	N.D	N.D	N.D	EPA 508
28	PAH's	mg/l	N.D	N.D	N.D	EPA 525.2
29	PCB	mg/l	N.D	N.D	N.D	EPA 508
30	PCT	mg/l	N.D	N.D	N.D	EPA 508
31	Zinc as Zn	mg/l	0.28	0.22	0.21	IS 3025: Part – 49
32	Nickel as Ni	mg/l	0.09	0.06	0.08	IS 3025: Part – 54
33	Copper as Cu	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 42
34	Hexavalent Chromium as $Cr6^+$	mg/l	BDL	BDL	BDL	APHA 3500 - Cr. D
35	Total Chromium as Cr	mg/l	BDL	BDL	BDL	IS 3025: Part – 52
36	Arsenic as As	mg/l	BDL	BDL	BDL	IS 3025: Part – 37
37	Lead as Pb	mg/l	BDL	BDL	BDL	IS 3025: Part – 47
38	Cadmium as Cd	mg/l	BDL	BDL	BDL	IS 3025: Part – 41
39	Manganese as Mn	mg/l	0.62	0.59	0.55	APHA 3111 – B
40	Mercury as Hg	mg/l	BDL	BDL	BDL	IS 3025: Part – 48
41	Iron as Fe	mg/l	3.28	3.36	3.41	IS 3025: Part – 53
42	Vanadium as V	mg/l	BDL	BDL	BDL	APHA 3111 – D
43	Selenium as Se	mg/l	BDL	BDL	BDL	IS 3025: Part – 56
44	Boron as B	mg/l	0.17	0.21	0.14	IS 3025: Part – 57

SURFACE WATER QUALITY

Location- Vinzol Lake

Sr. No.	Test Parameters	UOM	Results			Test Method
			4.6.16	6.6.16	8.6.16	
1	Colour	Hazen	Colourless	Colourless	Colour less	IS 3025: Part – 4
2	Odour (Smell)	-	Agreeable	Agreeable	Agreeable	IS 3025: Part – 5
3	pH	-	7.78	7	7.32	IS 3025: Part – 11
4	Oil & Grease (O&G)	mg/l	N.D	N.D	N.D	IS 3025: Part – 39
5	Suspended Solids (SS)	mg/l	14	18	15	IS 3025: Part – 17
6	Dissolved Oxygen (DO)	mg/l	6.8	6.4	6.5	IS 3025: Part – 38
7	Chemical Oxygen Demand (COD)	mg/l	13	17	15	IS 3025: Part – 58
8	Bio-chemical Oxygen Demand (BOD)	mg/l	6	6	6	IS 3025: Part – 44
9	Conductivity (EC)	µS/cm	780	790	760	IS 3025: Part – 14
10	Nitrite-nitrogen as N	mg/l	0.29	0.22	0.21	APHA 4500 – NO_2.B
11	Nitrate-Nitrogen as N	mg/l	3.35	4.28	2.58	APHA 4500 – NO_3.B
12	Total Nitrogen (N02 + NO3)	mg/l	3.64	4.5	2.79	By Calculation
13	Free Ammonia	mg/l	<0.02	<0.02	<0.02	APHA 4500 – NH_3.C
14	Total Residual Chlorine	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 26
15	Cyanide as CN^-	mg/l	BDL	BDL	BDL	IS 3025: Part – 27
16	Fluoride as F^-	mg/l	0.86	0.9	0.87	IS 3025: Part – 60
17	Sulphides as S^{--}	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 29
18	Dissolved Phosphates as P	mg/l	<0.01	<0.01	<0.01	APHA 4500 – P.D
19	Sodium Absorption Ratio (SAR)	-	6.5	7.4	6.3	By Calculation
20	Total Coliform	MPN/100ml	14	17	13	IS 1622
21	Faecal Coliform	MPN/100ml	19	20	16	IS 1622
22	Total Phosphorous	mg/l	<0.1	<0.1	<0.1	APHA 4500 – P.D
23	Total Kjeldal Nitrogen (TKN)	mg/l	2	2	2	APHA 4500 – Norg.B
24	Total Ammonia (NH_4+NH_3)-Nitrogen	mg/l	0.8	1	1	APHA 4500 – NH_3
25	Phenolic Compounds as C_6H_5OH	mg/l	<0.001	<0.001	<0.001	IS 3025: Part – 43
26	Surface Active Agent	mg/l	<0.1	<0.1	<0.1	IS 13428
27	Organo-chlorine Pesticides(OCP)	mg/l	N.D	N.D	N.D	EPA 508
28	PAH's	mg/l	N.D	N.D	N.D	EPA 525.2
29	PCB	mg/l	N.D	N.D	N.D	EPA 508
30	PCT	mg/l	N.D	N.D	N.D	EPA 508
31	Zinc as Zn	mg/l	0.11	0.18	0.14	IS 3025: Part – 49
32	Nickel as Ni	mg/l	0.03	0.02	0.03	IS 3025: Part – 54
33	Copper as Cu	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 42
34	Hexavalent Chromium as $Cr6^+$	mg/l	BDL	BDL	BDL	APHA 3500 - Cr. D
35	Total Chromium as Cr	mg/l	BDL	BDL	BDL	IS 3025: Part – 52
36	Arsenic as As	mg/l	BDL	BDL	BDL	IS 3025: Part – 37
37	Lead as Pb	mg/l	BDL	BDL	BDL	IS 3025: Part – 47
38	Cadmium as Cd	mg/l	BDL	BDL	BDL	IS 3025: Part – 41
39	Manganese as Mn	mg/l	0.03	0.02	0.04	APHA 3111 – B
40	Mercury as Hg	mg/l	BDL	BDL	BDL	IS 3025: Part – 48
41	Iron as Fe	mg/l	0.68	0.59	0.63	IS 3025: Part – 53
42	Vanadium as V	mg/l	BDL	BDL	BDL	APHA 3111 – D
43	Selenium as Se	mg/l	BDL	BDL	BDL	IS 3025: Part – 56
44	Boron as B	mg/l	0.11	0.16	0.14	IS 3025: Part – 57

GROUND WATER QUALITY

Location- VIA Vatva

Sr. No.	Test Parameters	UOM	Results			Test Method
			4.6.16	6.6.16	8.6.16	
1	Colour	Hazen	Colourless	Colourless	Colourless	IS 3025: Part – 4
2	Odour (Smell)	-	Agreeable	Agreeable	Agreeable	IS 3025: Part – 5
3	pH	-	7.12	7.02	7.22	IS 3025: Part – 11
4	Oil & Grease (O&G)	mg/l	BDL	BDL	BDL	IS 3025: Part – 39
5	Suspended Solids (SS)	mg/l	14	11	12	IS 3025: Part – 17
6	Chemical Oxygen Demand (COD)	mg/l	NA	NA	NA	IS 3025: Part – 58
7	Bio-chemical Oxygen Demand (BOD)	mg/l	< 2	< 2	< 2	IS 3025: Part – 44
8	Conductivity (EC)	µS/cm	<2	<2	<2	IS 3025: Part – 14
9	Nitrite-nitrogen as N	mg/l	1450	1400	1440	APHA 4500 – NO_2.B
10	Nitrate-Nitrogen as N	mg/l	<0.01	<0.01	<0.01	APHA 4500 – NO_3.B
11	Total Nitrogen (N02 + NO3)	mg/l	3.24	2.85	2.8	By Calculation
12	Free Ammonia	mg/l	<0.02	<0.02	<0.02	APHA 4500 – NH_3.C
13	Total Residual Chlorine	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 26
14	Cyanide as CN^-	mg/l	BDL	BDL	BDL	IS 3025: Part – 27
15	Fluoride as F^-	mg/l	BDL	BDL	BDL	IS 3025: Part – 60
16	Sulphides as S^{--}	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 29
17	Dissolved Phosphates as P	mg/l	<0.01	<0.01	<0.01	APHA 4500 – P.D
18	Sodium Absorption Ratio (SAR)	-	<0.1	<0.1	<0.1	By Calculation
19	Total Coliform	MPN/100ml	8.56	7.93	8.03	IS 1622
20	Faecal Coliform	MPN/100ml	<2	<2	<2	IS 1622
21	Total Phosphorous	mg/l	<0.1	<0.1	<0.1	APHA 4500 – P.D
22	Total Kjeldal Nitrogen (TKN)	mg/l	<0.1	<0.1	<0.1	APHA 4500 – Norg.B
23	Total Ammonia (NH_4+NH_3)-Nitrogen	mg/l	<1	<1	<1	APHA 4500 – NH_3
24	Phenolic Compounds as C_6H_5OH	mg/l	<0.001	<0.001	<0.001	IS 3025: Part – 43
25	Surface Active Agent	mg/l	BDL	BDL	BDL	IS 13428
26	Organo-chlorine Pesticides(OCP)	mg/l	<0.1	<0.1	<0.1	EPA 508
27	PAH's	mg/l	N.D	N.D	N.D	EPA 525.2
28	PCB	mg/l	N.D	N.D	N.D	EPA 508
29	PCT	mg/l	N.D	N.D	N.D	EPA 508
30	Zinc as Zn	mg/l	N.D	N.D	N.D	IS 3025: Part – 49
31	Nickel as Ni	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 54
32	Copper as Cu	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 42
33	Hexavalent Chromium as $Cr6^+$	mg/l	0.02	0.02	0.02	APHA 3500 - Cr. D
34	Total Chromium as Cr	mg/l	BDL	BDL	BDL	IS 3025: Part – 52
35	Arsenic as As	mg/l	BDL	BDL	BDL	IS 3025: Part – 37
36	Lead as Pb	mg/l	BDL	BDL	BDL	IS 3025: Part – 47
37	Cadmium as Cd	mg/l	BDL	BDL	BDL	IS 3025: Part – 41
38	Manganese as Mn	mg/l	BDL	BDL	BDL	APHA 3111 – B
39	Mercury as Hg	mg/l	0.05	0.03	0.02	IS 3025: Part – 48
40	Iron as Fe	mg/l	BDL	BDL	BDL	IS 3025: Part – 53
41	Vanadium as V	mg/l	0.13	0.21	0.18	APHA 3111 – D
42	Selenium as Se	mg/l	BDL	BDL	BDL	IS 3025: Part – 56
43	Boron as B	mg/l	BDL	BDL	BDL	IS 3025: Part – 57

GROUND WATER QUALITY

Location- CETP Green Vatva

Sr. No.	Test Parameters	UOM	Results			Test Method
			4.6.16	6.6.16	8.6.16	
1	Colour	Hazen	Colourless	Colourless	Colourless	IS 3025: Part – 4
2	Odour (Smell)	-	Agreeable	Agreeable	Agreeable	IS 3025: Part – 5
3	pH	-	7.12	7.02	7.22	IS 3025: Part – 11
4	Oil & Grease (O&G)	mg/l	BDL	BDL	BDL	IS 3025: Part – 39
5	Suspended Solids (SS)	mg/l	14	11	12	IS 3025: Part – 17
6	Chemical Oxygen Demand (COD)	mg/l	NA	NA	NA	IS 3025: Part – 58
7	Bio-chemical Oxygen Demand (BOD)	mg/l	< 2	< 2	< 2	IS 3025: Part – 44
8	Conductivity (EC)	µS/cm	<2	<2	<2	IS 3025: Part – 14
9	Nitrite-nitrogen as N	mg/l	1450	1400	1440	APHA 4500 – NO_2.B
10	Nitrate-Nitrogen as N	mg/l	<0.01	<0.01	<0.01	APHA 4500 – NO_3.B
11	Total Nitrogen (N02 + NO3)	mg/l	3.24	2.85	2.8	By Calculation
12	Free Ammonia	mg/l	<0.02	<0.02	<0.02	APHA 4500 – NH_3.C
13	Total Residual Chlorine	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 26
14	Cyanide as CN^-	mg/l	BDL	BDL	BDL	IS 3025: Part – 27
15	Fluoride as F^-	mg/l	BDL	BDL	BDL	IS 3025: Part – 60
16	Sulphides as S^{--}	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 29
17	Dissolved Phosphates as P	mg/l	<0.01	<0.01	<0.01	APHA 4500 – P.D
18	Sodium Absorption Ratio (SAR)	-	<0.1	<0.1	<0.1	By Calculation
19	Total Coliform	MPN/100ml	8.56	7.93	8.03	IS 1622
20	Faecal Coliform	MPN/100ml	<2	<2	<2	IS 1622
21	Total Phosphorous	mg/l	<0.1	<0.1	<0.1	APHA 4500 – P.D
22	Total Kjeldal Nitrogen (TKN)	mg/l	<0.1	<0.1	<0.1	APHA 4500 – Norg.B
23	Total Ammonia (NH_4+NH_3)-Nitrogen	mg/l	<1	<1	<1	APHA 4500 – NH_3
24	Phenolic Compounds as C_6H_5OH	mg/l	<0.001	<0.001	<0.001	IS 3025: Part – 43
25	Surface Active Agent	mg/l	BDL	BDL	BDL	IS 13428
26	Organo-chlorine Pesticides(OCP)	mg/l	<0.1	<0.1	<0.1	EPA 508
27	PAH's	mg/l	N.D	N.D	N.D	EPA 525.2
28	PCB	mg/l	N.D	N.D	N.D	EPA 508
29	PCT	mg/l	N.D	N.D	N.D	EPA 508
30	Zinc as Zn	mg/l	N.D	N.D	N.D	IS 3025: Part – 49
31	Nickel as Ni	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 54
32	Copper as Cu	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 42
33	Hexavalent Chromium as $Cr6^+$	mg/l	0.02	0.02	0.02	APHA 3500 - Cr. D
34	Total Chromium as Cr	mg/l	BDL	BDL	BDL	IS 3025: Part – 52
35	Arsenic as As	mg/l	BDL	BDL	BDL	IS 3025: Part – 37
36	Lead as Pb	mg/l	BDL	BDL	BDL	IS 3025: Part – 47
37	Cadmium as Cd	mg/l	BDL	BDL	BDL	IS 3025: Part – 41
38	Manganese as Mn	mg/l	BDL	BDL	BDL	APHA 3111 – B
39	Mercury as Hg	mg/l	0.05	0.03	0.02	IS 3025: Part – 48
40	Iron as Fe	mg/l	BDL	BDL	BDL	IS 3025: Part – 53
41	Vanadium as V	mg/l	0.13	0.21	0.18	APHA 3111 – D
42	Selenium as Se	mg/l	BDL	BDL	BDL	IS 3025: Part – 56
43	Boron as B	mg/l	BDL	BDL	BDL	IS 3025: Part – 57

GROUND WATER QUALITY

Location- Hemline textiles-Narol

Sr. No.	Test Parameters	UOM	Results			Test Method
			4.6.16	6.6.16	8.6.16	
1	Colour	Hazen	Colourless	Colourless	Colourless	IS 3025: Part – 4
2	Odour (Smell)	-	Agreeable	Agreeable	Agreeable	IS 3025: Part – 5
3	pH	-	7.1	7.2	7.63	IS 3025: Part – 11
4	Oil & Grease (O&G)	mg/l	BDL	BDL	BDL	IS 3025: Part – 39
5	Suspended Solids (SS)	mg/l	8	10	6	IS 3025: Part – 17
6	Chemical Oxygen Demand (COD)	mg/l	NA	NA	NA	IS 3025: Part – 58
7	Bio-chemical Oxygen Demand (BOD)	mg/l	<2	<2	<2	IS 3025: Part – 44
8	Conductivity (EC)	µS/cm	<2	<2	<2	IS 3025: Part – 14
9	Nitrite-nitrogen as N	mg/l	1820	1800	1860	APHA 4500 – NO_2.B
10	Nitrate-Nitrogen as N	mg/l	<0.01	<0.01	<0.01	APHA 4500 – NO_3.B
11	Total Nitrogen (N02 + NO3)	mg/l	5.52	6.27	5.48	By Calculation
12	Free Ammonia	mg/l	<0.02	<0.02	<0.02	APHA 4500 – NH_3.C
13	Total Residual Chlorine	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 26
14	Cyanide as CN^-	mg/l	BDL	BDL	BDL	IS 3025: Part – 27
15	Fluoride as F^-	mg/l	BDL	BDL	BDL	IS 3025: Part – 60
16	Sulphides as S^{--}	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 29
17	Dissolved Phosphates as P	mg/l	<0.01	<0.01	<0.01	APHA 4500 – P.D
18	Sodium Absorption Ratio (SAR)	-	<0.1	<0.1	<0.1	By Calculation
19	Total Coliform	MPN/100ml	20.36	23.16	21.4	IS 1622
20	Faecal Coliform	MPN/100ml	<2	<2	<2	IS 1622
21	Total Phosphorous	mg/l	<0.1	<0.1	<0.1	APHA 4500 – P.D
22	Total Kjeldal Nitrogen (TKN)	mg/l	<0.1	<0.1	<0.1	APHA 4500 – Norg.B
23	Total Ammonia (NH_4+NH_3)-Nitrogen	mg/l	<1	<1	<1	APHA 4500 – NH_3
24	Phenolic Compounds as C_6H_5OH	mg/l	<0.001	<0.001	<0.001	IS 3025: Part – 43
25	Surface Active Agent	mg/l	BDL	BDL	BDL	IS 13428
26	Organo-chlorine Pesticides(OCP)	mg/l	<0.1	<0.1	<0.1	EPA 508
27	PAH's	mg/l	N.D	N.D	N.D	EPA 525.2
28	PCB	mg/l	N.D	N.D	N.D	EPA 508
29	PCT	mg/l	N.D	N.D	N.D	EPA 508
30	Zinc as Zn	mg/l	N.D	N.D	N.D	IS 3025: Part – 49
31	Nickel as Ni	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 54
32	Copper as Cu	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 42
33	Hexavalent Chromium as $Cr6^+$	mg/l	0.03	0.03	0.03	APHA 3500 - Cr. D
34	Total Chromium as Cr	mg/l	BDL	BDL	BDL	IS 3025: Part – 52
35	Arsenic as As	mg/l	BDL	BDL	BDL	IS 3025: Part – 37
36	Lead as Pb	mg/l	BDL	BDL	BDL	IS 3025: Part – 47
37	Cadmium as Cd	mg/l	BDL	BDL	BDL	IS 3025: Part – 41
38	Manganese as Mn	mg/l	BDL	BDL	BDL	APHA 3111 – B
39	Mercury as Hg	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 48
40	Iron as Fe	mg/l	BDL	BDL	BDL	IS 3025: Part – 53
41	Vanadium as V	mg/l	0.09	0.08	0.11	APHA 3111 – D
42	Selenium as Se	mg/l	BDL	BDL	BDL	IS 3025: Part – 56
43	Boron as B	mg/l	BDL	BDL	BDL	IS 3025: Part – 57

GROUND WATER QUALITY

Location- Swan Energy-Narol

Sr. No.	Test Parameters	UOM	Results			Test Method
			4.6.16	6.6.16	8.6.16	
1	Colour	Hazen	Colourless	Colourless	Colourless	IS 3025: Part – 4
2	Odour (Smell)	-	Agreeable	Agreeable	Agreeable	IS 3025: Part – 5
3	pH	-	6.12	6.09	6.21	IS 3025: Part – 11
4	Oil & Grease (O&G)	mg/l	BDL	BDL	BDL	IS 3025: Part – 39
5	Suspended Solids (SS)	mg/l	12	8	9	IS 3025: Part – 17
6	Chemical Oxygen Demand (COD)	mg/l	NA	NA	NA	IS 3025: Part – 58
7	Bio-chemical Oxygen Demand (BOD)	mg/l	<2	<2	<2	IS 3025: Part – 44
8	Conductivity (EC)	µS/cm	<2	<2	<2	IS 3025: Part – 14
9	Nitrite-nitrogen as N	mg/l	2100	2150	2160	APHA 4500 – NO_2.B
10	Nitrate-Nitrogen as N	mg/l	<0.01	<0.01	<0.01	APHA 4500 – NO_3.B
11	Total Nitrogen (N02 + NO3)	mg/l	1.56	1.24	1.63	By Calculation
12	Free Ammonia	mg/l	<0.02	<0.02	<0.02	APHA 4500 – NH_3.C
13	Total Residual Chlorine	mg/l	<0.1	<0.1	<0.1	IS 3025: Part – 26
14	Cyanide as CN	mg/l	BDL	BDL	BDL	IS 3025: Part – 27
15	Fluoride as F	mg/l	BDL	BDL	BDL	IS 3025: Part – 60
16	Sulphides as S	mg/l	0.7	0.7	0.7	IS 3025: Part – 29
17	Dissolved Phosphates as P	mg/l	<0.01	<0.01	<0.01	APHA 4500 – P.D
18	Sodium Absorption Ratio (SAR)	-	<0.1	<0.1	<0.1	By Calculation
19	Total Coliform	MPN/100ml	2.56	3.4	2.4	IS 1622
20	Faecal Coliform	MPN/100ml	<2	<2	<2	IS 1622
21	Total Phosphorous	mg/l	<0.1	<0.1	<0.1	APHA 4500 – P.D
22	Total Kjeldal Nitrogen (TKN)	mg/l	<0.1	<0.1	<0.1	APHA 4500 – Norg.B
23	Total Ammonia (NH_4+NH_3)-Nitrogen	mg/l	<1	<1	<1	APHA 4500 – NH_3
24	Phenolic Compounds as C_6H_5OH	mg/l	<0.001	<0.001	<0.001	IS 3025: Part – 43
25	Surface Active Agent	mg/l	BDL	BDL	BDL	IS 13428
26	Organo-chlorine Pesticides(OCP)	mg/l	<0.1	<0.1	<0.1	EPA 508
27	PAH's	mg/l	N.D	N.D	N.D	EPA 525.2
28	PCB	mg/l	N.D	N.D	N.D	EPA 508
29	PCT	mg/l	N.D	N.D	N.D	EPA 508
30	Zinc as Zn	mg/l	N.D	N.D	N.D	IS 3025: Part – 49
31	Nickel as Ni	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 54
32	Copper as Cu	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 42
33	Hexavalent Chromium as $Cr6^+$	mg/l	<0.01	<0.01	<0.01	APHA 3500 - Cr. D
34	Total Chromium as Cr	mg/l	BDL	BDL	BDL	IS 3025: Part – 52
35	Arsenic as As	mg/l	BDL	BDL	BDL	IS 3025: Part – 37
36	Lead as Pb	mg/l	BDL	BDL	BDL	IS 3025: Part – 47
37	Cadmium as Cd	mg/l	BDL	BDL	BDL	IS 3025: Part – 41
38	Manganese as Mn	mg/l	BDL	BDL	BDL	APHA 3111 – B
39	Mercury as Hg	mg/l	<0.01	<0.01	<0.01	IS 3025: Part – 48
40	Iron as Fe	mg/l	BDL	BDL	BDL	IS 3025: Part – 53
41	Vanadium as V	mg/l	0.05	0.08	0.09	APHA 3111 – D
42	Selenium as Se	mg/l	BDL	BDL	BDL	IS 3025: Part – 56
43	Boron as B	mg/l	BDL	BDL	BDL	IS 3025: Part – 57