

## ACTION TAKEN REPORT

**Sub: Reply of Hon'ble NGT orders dated 21.10.2022 in the matter of OA 82/2022 (CZ) Dr. Subhash C Pandey v/s State of MP & Ors.**

In reference to Hon'ble NGT orders dated 21.10.2022 in the matter of OA 82/2022 (CZ) Dr. Subhash C Pandey v/s State of MP & Ors., an inspection of the site is conducted on dated 22.11.2022 by official of Madhya Pradesh Pollution Control Board, Bhopal along with the representatives of MP Tourism Department. The following officers were present during the inspection. The photographs are enclosed as **Annexure-I.**

1. Shri Brajesh Sharma, Regional Officer, MPPCB Bhopal
2. Shri A.K. Bisen, Executive Engineer, MPPCB Bhopal
3. Shri Salman Khan, Sub Engineer, MPPCB Bhopal

Shri Anil Kurup, Senior Manager and Shri D.S. Mishra, captain of cruise ship, MP Tourism, Bhopal were present at the time of inspection. As per the information provided by the representatives of MP Tourism Deptt., Bhopal and observation recorded during the inspection are as under: -

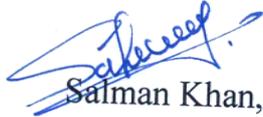
1. The Upper lake is situated in the western part of Bhopal, The Lake is located at latitude "23.2429" N and longitude "77.38119"E.
2. The main source of water in the Upper Lake is surface runoff generated due to rainfall in its catchment area. The Upper Lake is having an area of approx 31 Sq. Km.
3. Presently one Cruise ship is operated by MP Tourism deptt, Bhopal from Boat Club location on Upper Lake.
4. Cruise ship is having two floors with sitting arrangement. No outside food is allowed on the cruise.
5. Food is supplied by Wind & waves restaurants of MP Tourism deptt and served in the dining room covered from all side.
6. Check post at the entry of cruise is setup for checking of passengers by staff of Cruise ship for not taking food with us. Instructions and sign boards are placed on the cruise.
7. The details of the cruise are as under:
  - i. The cruise having the capacity of 80 Passenger.
  - ii. Cruise is installed with dual diesel engine of 125 HP capacities of John deer make.



- iii. As per the specification, diesel engines are designed for marine purposes with leakage and spillage proof technology.
  - iv. The water is used as lubricant in the engine shaft.
  - v. One Beta Marine make DG set of 12.3 KVA is installed for power back up.
  - vi. These engines are designed with no emission vent.
  - vii. The diesel engine and DG set are installed within the enclosed area of the cruise with leak proof arrangement.
  - viii. CCTVs are fitted in the Cruise ship for monitoring the working of engine and passenger area.
  - ix. One urinal is provided with waste water collection tank of 100 litres capacity.
  - x. The waste water tank is detached from the cruise and sent to Nagar Nigam for further disposal and treatment.
  - xi. For solid waste collection 03 nos. of colour coded dustbins are provided on the cruise.
  - xii. Sufficient number of staffs is deputed on cruise for cleaning and disposal of waste material and for safety purposes.
  - xiii. A wired mesh with long handle is also available at the cruise for collection of debris if found floating on the water.
  - xiv. No spillage or seepage of diesel is observed on and near the engine area. Also no traces are observed on the floor where engine is mounted.
8. Operation of the cruise ship trip starts from 2:00 PM every day. As per the information provided by M P Tourism deptt in general there is one trip on working days and 3-4 trips on holidays.
  9. The area near the Boat club is found clean from garbage and proper dust bins are found installed at suitable places. Nagar Nigam vehicle regularly picked the solid waste from this area.
  10. No floating waste is observed on the surface of upper lake water near the cruise.
  11. The intake water supply points of upper lake are marked on Google map and enclose as **Annexure - II**
  12. The water quality of Upper Lake is regularly monitored by MPPCB under National Water Monitoring Programme (NWMP) of Central Pollution Control Board. Comparing the analysis reports of previous years the quality of upper lake water falls between A to B category. The reports are enclose as **Annexure - III**



13. As per above observations no visible impact is observed on the upper lake.



Salman Khan,  
Sub Engineer  
MPPCB Bhopal



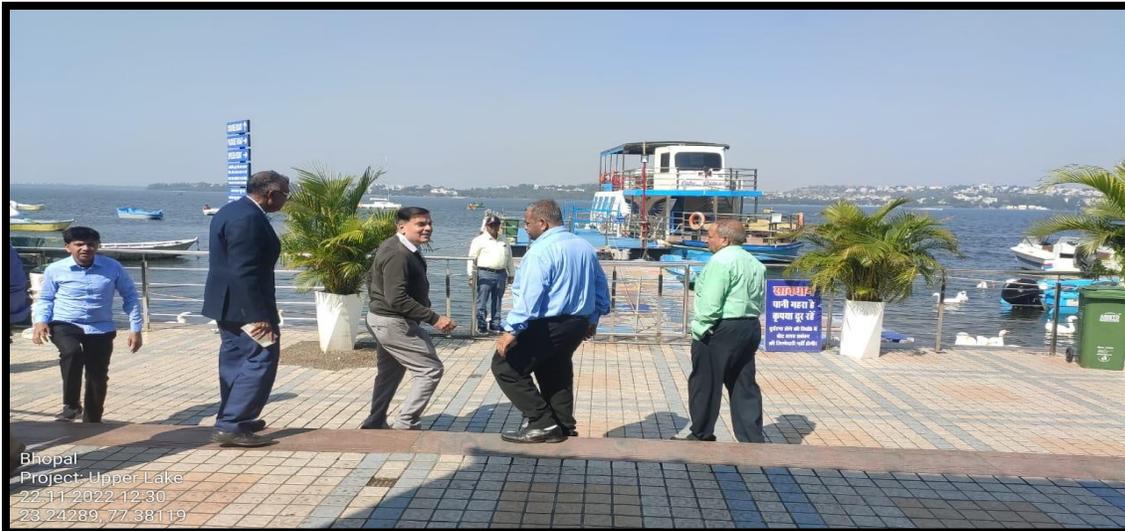
A.K. Bisen,  
Executive Engineer  
MPPCB Bhopal



Brajesh Sharma  
Regional Officer  
MPPCB Bhopal



**Geotag Location of Cruise Ship at Boat Club, Upper Lake, Bhopal**



**Inspection Team during visit of Cruise Ship at Boat Club, upper Lake, Bhopal**

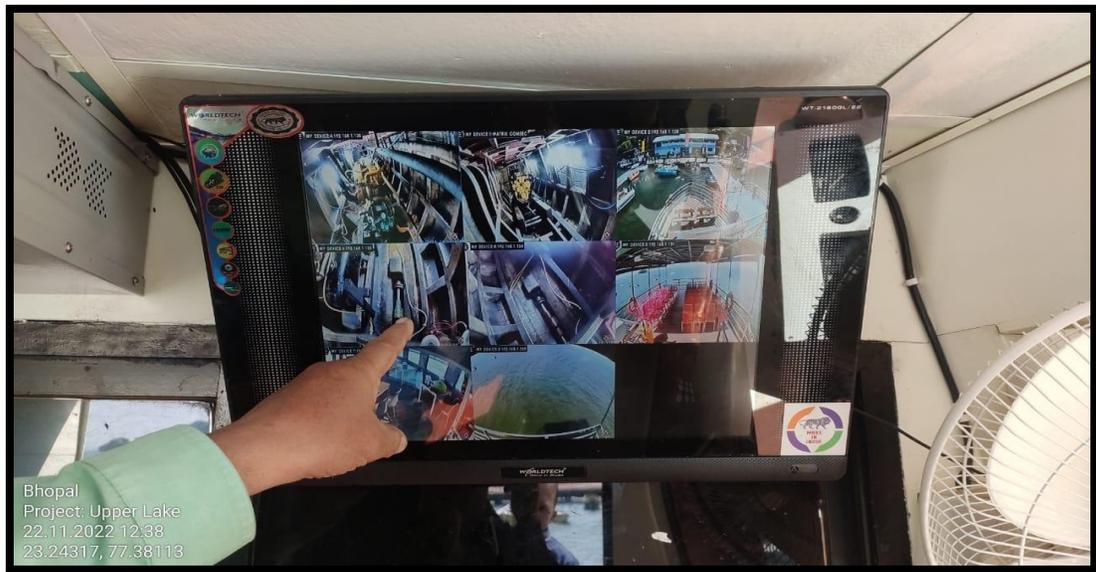


**Colour Coded Dustbins are provided**



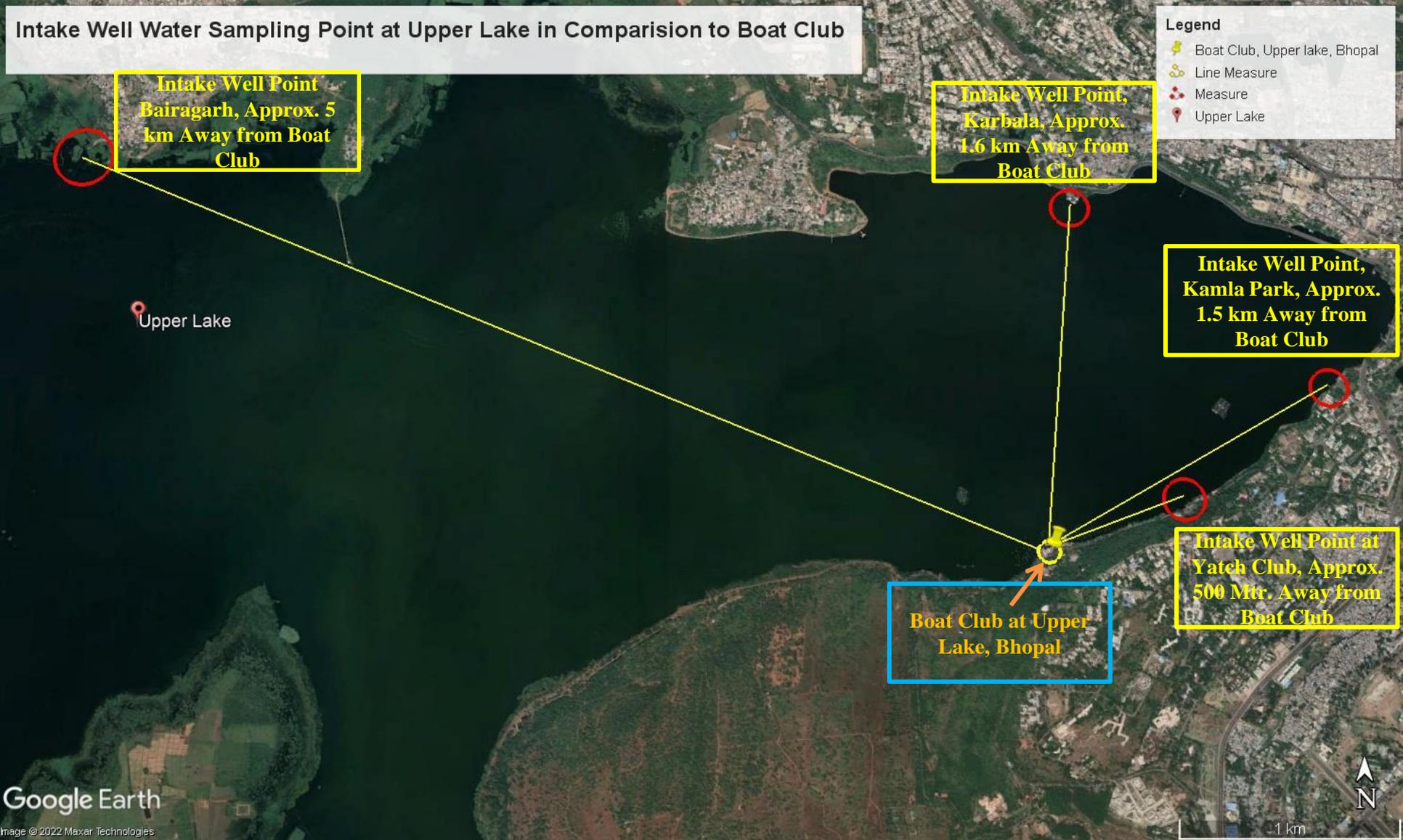


**Instruction Stickers**



**CCTV Monitoring of operation Engine and Passengers Activity**





**MADHYA PRADESH POLLUTION CONTROL BOARD, BHOPAL.**  
Water Quality during Year - 2021-22

Natural Water Resource : Upper Lake, Bhopal. (Distt.-Bhopal)

2137

Description of Sampling Station: Near w/s intake well at Yatch Club (South side of the Lake)

XGN ID: 22114

S.No.	Characteristic	Unit	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Av.	Maxi.	Mini.	
1	Date of Sampling		23/04/2021	Sampling not done due to covid-19	06-07-2021		08-12-2021	13/9/2021	29/10/21	22/11/21	13/12/21	01-10-2022	24/02/22	03-10-2022	-	-	-	
2	Appearance		Clear		clear		Clear									-	-	-
3	Temperature	oC	30		31		28		29	24	21	18	22	25	25.33	31.0	18.0	
4	Turbidity	NTU	4		4.2		9.4								5.87	9.4	4.0	
5	Colour	PCS	30		40		20								-	-	-	
6	Odour	T. No	Odourless		NO O. OB.		NO O. OB.		40	20	30	20	30	30	-	-	-	
7	pH	pH Unit	7.72	7.62		8.21	7.46	7.4	7.77	7.32	8.02	7.93	7.73	7.72	8.2	7.3		
8	Sp. Conductivity	µMhos/cm.	226.5	212.3		288.9	244.2	248.9	267.5	219.8	239.5	275.8	281.4	250.48	288.9	212.3		
9	T. Solids	mg/l	194	178		206								192.67	206.0	178.0		
10	D. Solids	mg/l	168	158		184	188	178	188	162	166	198	180	177.00	198.0	158.0		
11	S. Solids	mg/l	26	20		22	10	10	20	4	8	18	42	18.00	42.0	4.0		
12	Amm. Nitrogen	mg/l	BDL	1.8		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.80	1.8	1.8		
13	Nitrite Nitrogen	mg/l	0.05	0.03		0.03	BDL	0.02	0.05	0.01	BDL	BDL	0.01	0.03	0.1	0.0		
14	Nitrate Nitrogen	mg/l	2.6	2.58		2.56	4.63	4.73	2.65	2.01	3.83	2.33	2.61	3.05	4.7	2.0		
15	Phosphate (PO <sub>4</sub> )	mg/l	0.09	0.35		0.28	1.61	1.78	0.27	0.26	1.12	2.12	BDL	0.88	2.1	0.1		
16	Chloride	mg/l	9.99	10.76		13.69	15.65	16.63	12.81	12.99	31.3	19.56	18.58	16.20	31.3	10.0		
17	Sulphate (SO <sub>4</sub> )	mg/l	12.46	5.66		6.85	3.81	4.96	6.75	6.01	2.63	11.03	2.95	6.31	12.5	2.6		
18	T. Alkalinity	mg/l	118	98		88	94	96	88	92	128	92	108	100	128.0	88.0		
19	T. Hardness	mg/l	122	112		86	96	96	86	84	138	102	112	103	138.0	84.0		
20	Calcium Hardness	mg/l	68	70		56	64	62	58	62	96	72	66	67	96.0	56.0		
21	Magnesium H.	mg/l	54	42		30	32	34	28	22	42	30	46	36	54.0	22.0		
22	D. Oxygen	mg/l	8.6	7.2		7.7	6.4	6.8	7.1	4.7	5.7	6.4	6.3	6.69	8.6	4.7		
23	B.O.D.	mg/l	1.2	1.3		3.1	1.3	1.1	1.2	3.6	1.1	1.4	1.2	1.65	3.6	1.1		
24	C.O.D.	mg/l	10	19.6		20	10	10	19.36	29.64	9.8	9.52	9.52	14.74	29.6	9.5		
25	Sodium	mg/l	8.53	6.38		5.51	6.72	7.14	4.15	5.83	6.71	5.77	4.97	6.17	8.5	4.2		
26	Potassium	mg/l	2.08	2.14		0.37	0.68	1.23	2.32	2.4	2.8	0.62	0.64	1.53	2.8	0.4		
27	T. Coliform	MPN/100ml	430	430		240	140	150	220	280	130	350	280	265	430.0	130.0		
28	F. Coliform	MPN/100ml	11	3.6		1.8	6.4	6.8	7.1	4.7	5.7	6.4	6.3	5.98	11.0	1.8		
29	Streptococcus	MPN/100ml	1.8	1.8		1.8						1.8	1.8	1.80	1.8	1.8		
30	T.K.N.	mg/l	1.4	1.8		1.4	1.4	1.4	1.4	1.4	1.4	1.8	1.8	1.60	2.8	1.4		
31	Calcium	mg/l	27.23	28.03		22.42		24.82	23.22	24.82	38.45	28.83	26.43	27.14	38.5	22.4		
32	Magnesium	mg/l	13.11	10.19		7.28		8.25	6.79	5.34	10.19	7.28	11.17	8.84	13.1	5.3		
33	Boron	mg/3	BDL	1.8		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL					

**MADHYA PRADESH POLLUTION CONTROL BOARD, BHOPAL.**  
**Water Quality during Year - 2021-22**

Natural Water Resource : Upper Lake , Bhopal(Distt.-Bhopal)

XGN ID: 22115

Description of Sampling Station : Near w/s intake well at Karbala (North side of the Lake)

S.No.	Characteristic	Unit	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb	March	Av.	Maxi.	Mini.	
1	Date of Sampling		23/04/2021		06-07-2021		08-12-2021	29-09-2021	07-10-2021	22-11-2021	09-12-2021	12-01-2022	09-02-2022	09-03-2022	-	-	-	
2	Appearance		Clear	Sampling not done due to covid-19	clear		Clear								-	-	-	
3	Temperature	oC	29		32		29			30	24	24	19	23	24	26.00	32	19
4	Turbidity	NTU	3.9		4.6		11.4	3.1		1.7	2.8	8.4	6.1	3.2	1.4	4.66	11.4	1.4
5	Colour	PCS	20		40		30			50	30	40	20	20	30	31.11	50	20
6	Odour	T. No	Odourless			NO O. OB.		NO O. OB.								-	-	-
7	pH	pH Unit	7.69			7.62		8.08	7.74	7.44	7.58	7.29	8.2	7.62	7.99	7.73	8.2	7.29
8	Sp. Conductivity	µMhos/cm.	224.8		212.3		227.2	247.9	248.8	241.7	205.6	226.6	260.4	278.9	237.42	278.9	205.6	
9	T. Solids	mg/l	178		178		174	192	180	198	154	174	202	202	183.20	202	154	
10	D. Solids	mg/l	156		158		144	178	168	172	144	158	186	176	164.00	186	144	
11	S. Solids	mg/l	22		20		30	14	12	26	10	16	16	26	19.20	30	10	
12	Amm. Nitrogen	mg/l	BDL		BDL		BDL											
13	Nitrite Nitrogen	mg/l	0.05		0.03		0.04	BDL	BDL	0.04	0.06	BDL	BDL	0.01	0.04	0.06	0.01	
14	Nitrate Nitrogen	mg/l	2.6		2.58		2.32	4.91	4.99	3.32	2.46	4.25	2.15	2.67	3.22	4.99	2.15	
15	Phosphate (PO <sub>4</sub> )	mg/l	0.09		0.35		0.12	BDL	BDL	0.11	0.21	BDL	1.08	BDL	0.33	1.08	0.09	
16	Chloride	mg/l	8.99		10.76		15.65	13.69	14.67	12.81	12.99	20.54	20.54	19.56	15.02	20.54	8.99	
17	Sulphate (SO <sub>4</sub> )	mg/l	12.46		5.66		5.84	8.5	9.7	5.48	4.22	6.96	13.08	2.56	7.45	13.08	2.56	
18	T. Alkalinity	mg/l	112		98		88	90	92	88	94	126	90	106	98.40	126	88	
19	T. Hardness	mg/l	116		112		84	92	98	82	88	138	102	114	102.60	138	82	
20	Cal.Hardness	mg/l	74		70		50	58	68	52	56	80	68	68	64.40	80	50	
21	Magnesium H.	mg/l	42		42		34	34	30	30	32	58	34	46	38.20	58	30	
22	D. Oxygen	mg/l	8.6		7.2		7.4	6.8	6.4	5.2	5.9	6.2	6.3	9.2	6.92	9.2	5.2	
23	B.O.D.	mg/l	1.2		1.3		4	1.2	1.8	1.9	1.5	1.2	1.3	0.7	1.61	4	0.7	
24	C.O.D.	mg/l	10		19.6		40	10	10	9.68	9.88	9.8	9.52	9.52	13.80	40	9.52	
25	Sodium	mg/l	8.53		6.38		5.65	6.86	6.99	6.55	7.5	4.12	6.45	5.45	6.45	8.53	4.12	
26	Potassium	mg/l	2.08		2.14		0.43	0.62	0.82	0.42	1.25	1.63	0.37	0.42	1.02	2.14	0.37	
27	T. Coliform	MPN/100ml	430		430		170	170	170	350	430	150	140	240	268.00	430	140	
28	F. Coliform	MPN/100ml	11		3.6		5.5	33	33	2	1.8	23	3.6	3.7	12.02	33	1.8	
29	Boron	mg/l	BDL		BDL		BDL											
30	Streptococcus	MPN/100ml	1.8		1.8		1.8						1.8	1.8	1.80	1.8	1.8	
31	T.K.N.	meq/l	1.4		BDL		1.4	1.4	1.4	2.8	1.4	2.8	1.8	2.8	1.91	2.8	1.4	
32	Calcium	mg/l	29.63		28.03		20.02		27.23	20.82	22.42	32.04	27.23	27.23	26.07	32.04	20.02	
33	Magnesium	mg/l	10.19		10.19		8.25	-	7.28	7.28	7.77	14.08	8.25	11.17	9.38	14.08	7.28	

**MADHYA PRADESH POLLUTION CONTROL BOARD, BHOPAL.**  
Water Quality during Year - 2021-22

Natural Water Resource : Upper Lake , Bhopal(Distt.-Bhopal)

2139

Description of Sampling Station : Near w/s intake well at Bairagarh (West side of the Lake)

XGN ID: 22116

S.No.	Characteristic	Unit	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb	March	Av.	Maxi.	Mini.	
1	Date of Sampling		23/4/2021	Sampling not done due to covid-19	06-07-2021		12-08-2021	29-09-2021	07-10-2021	22-11-2021	09-12-2021	12-01-2022	09-02-2022	09-03-2022	-	-	-	
2	Appearance		Clear		clear		Clear									-	-	-
3	Temperature	oC	28		32		27	29	28	26	24	18	23	22	25.67	32.0	18.0	
4	Turbidity	NTU	3.2		4.1		11.4	2.7	1.7	3.5	5.5	2.3	2.5	2.6	3.95	11.4	1.7	
5	Colour	PCS	30		30		30	30	50	30	30	30	20	50	33.00	50.0	20.0	
6	Odour	T. No	Odourless		NO O. OB.		NO O. OB.									-	-	-
7	pH	pH Unit	7.77	7.79		8.08	7.75	7.48	7.85	7.68	8.14	8.15	7.03	7.77	8.2	7.0		
8	Sp. Conductivity	µMhos/cm.	219.9	214.6		227.2	258.6	285.5	254.2	231.3	230	259.4	310.4	249.11	310.4	214.6		
9	T. Solids	mg/l	170	176		174	194	214	198	178	172	202	214	189.20	214.0	170.0		
10	D. Solids	mg/l	146	158		144	182	204	184	172	162	184	176	171.20	204.0	144.0		
11	S. Solids	mg/l	24	18		30	12	10	14	6	10	18	38	18.00	38.0	6.0		
12	Amm. Nitrogen	mg/l	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL					
13	Nitrite Nitrogen	mg/l	0.09	0.02		0.04	BDL	BDL	0.03	0.04	BDL	BDL	0.09	0.05	0.1	0.0		
14	Nitrate Nitrogen	mg/l	3.12	2.27		3.05	4.96	5.01	3.06	2.38	4.42	BDL	4.27	3.62	5.0	2.3		
15	Phosphate (PO <sub>4</sub> )	mg/l	0.24	0.31		0.25	BDL	0.01	0.24	0.42	BDL	0.89	BDL	0.34	0.9	0.0		
16	Chloride	mg/l	11.99	11.74		15.65	12.71	13.69	14.78	18.99	21.52	21.52	21.52	16.41	21.5	11.7		
17	Sulphate (SO <sub>4</sub> )	mg/l	18.42	6.1		6.32	7.84	8.12	6.23	6.55	6.82	11.7	5.16	8.33	18.4	5.2		
18	T. Alkalinity	mg/l	124	86		116	94	96	110	116	136	90	112	108.00	136.0	86.0		
19	T. Hardness	mg/l	122	106		118	96	100	112	118	140	102	126	114.00	140.0	96.0		
20	Cal.Hardness	mg/l	64	64		76	66	68	78	80	82	72	94	74.40	94.0	64.0		
21	Magnesium H.	mg/l	58	42		42		32	34	38	58	30	32	40.67	58.0	30.0		
22	D. Oxygen	mg/l	7.2	7.6		4.1	6.7	8	6.9	6	6.1	6.4	4.9	6.39	8.0	4.1		
23	B.O.D.	mg/l	1.7	1.2		1.5	1.1	1.2	1.2	1.2	1.4	1.2	1.5	1.32	1.7	1.1		
24	C.O.D.	mg/l	20	29.4		30	10	10	9.68	9.88	19.6	9.52	19.04	16.71	30.0	9.5		
25	Sodium	mg/l	9.45	7.36		5.72	0.62	1.12	0.46	1.5	1.14	0.97	0.86	2.92	9.5	0.5		
26	Potassium	mg/l	3.16	3.11		0.45	5.87	6.24	5.27	6.4	5.24	5.6	4.97	4.63	6.4	0.5		
27	T. Coliform	MPN/100ml	920	430		350	280	240	240	280	240	240	350	357.00	920.0	240.0		
28	F. Coliform	MPN/100ml	24	3.7		3.6	25	24	1.8	1.8	27	1.8	5.6	11.83	27.0	1.8		
29	Boron	mg/l	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL					
30	Streptococcus	MPN/100ml	1.8	1.8		1.8								1.80	1.8	1.8		
31	Calcium	mg/l	25.63	25.63		30.43		27.23	31.23	32.03	32.84	28.83	37.64	30.17	37.6	25.6		
32	Magnesium	mg/l	14.08	10.19		10.19	7.28	7.77	8.25	9.22	14.08	7.28	7.77	9.61	14.1	7.3		
33	T.K.N.	mg/l	3.5	BDL		1.4	BDL	1.4	2.8	1.4	1.4	1.8	2.8	2.06	3.5	1.4		

**MADHYA PRADESH POLLUTION CONTROL BOARD, BHOPAL.**

**Water Quality during Year - 2021-22**

**XGN ID: 22025**

**Natural Water Resource : Upper Lake,at Kamla Park Near w/s.intake well Bhopal.**

**Description of Sampling Station :**

S.No.	Characteristic	Unit	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb	March	Av.	Maxi.	Mini.	
1	Date of Sampling		23/4/2021	Sampling not done due to covid-19	06-07-2021		12-08-2021	29-09-2021	25-10-2021	22-11-2021	21-12-2021	28-01-2022	17-02-2022	13-03-2022	-	-	-	
2	Appearance		Clear		clear		Clear									-	-	-
3	Temperature	oC	29		32		28		30	25	23	19	21	23	25.56	32.0	19.0	
4	Turbidity	NTU	3.6		4.6		11.9	2.4	1.7	4.2	7.4	6.7	2.6	3.9	4.90	11.9	1.7	
5	Colour	PCS	20		30		20	20	50	20	40	20	20	20	-	-	-	
6	Odour	T. No	Odourless		NO O. OB.		NO O. OB.								-	-	-	
7	pH	pH Unit	7.66	7.38		7.73	7.2	7.37	7.18	7.28	7.42	7.69	7.46	7.44	7.7	7.2		
8	Sp. Conductivity	µMhos/cm.	229.3	218.5		246.6	226.4	235.9	292.2	305.1	237.4	387.1	274.1	265.26	387.1	218.5		
9	T. Solids	mg/l	170	178		182	180	186	226	210	180	306	246	206.40	306.0	170.0		
10	D. Solids	mg/l	152	160		162	166	172	208	200	168	286	198	187.20	286.0	152.0		
11	S. Solids	mg/l	18	18		20	14	14	18	10	12	20	48	19.20	48.0	10.0		
12	Amm. Nitrogen	mg/l	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL					
13	Nitrite Nitrogen	mg/l	0.03	0.04		0.05	BDL	BDL	0.04	0.02	BDL	BDL	0.02	0.03	0.1	0.0		
14	Nitrate Nitrogen	mg/l	2.47	3.58		3.26	3.78	3.88	2.63	3.05	4.16	2.31	3.52	3.26	4.2	2.3		
15	Phosphate (PO <sub>4</sub> )	mg/l	0.06	0.38		0.32	BDL	BDL	0.23	0.27	BDL	0.47	BDL	0.29	0.5	0.1		
16	Chloride	mg/l	6.99	11.74		14.67	13.69	14.67	11.82	13.99	19.56	19.56	20.54	14.72	20.5	7.0		
17	Sulphate (SO <sub>4</sub> )	mg/l	9.82	6.42		6.86	11.07	13.11	6.86	6.82	10.72	10.53	2.17	8.44	13.1	2.2		
18	T. Alkalinity	mg/l	106	114		82	90	94	82	86	138	100	102	99.40	138.0	82.0		
19	T. Hardness	mg/l	110	118		80	94	98	80	88	144	108	112	103.20	144.0	80.0		
20	Calcium Hardness	mg/l	76	78		52	56	64	54	56	98	72	80	68.60	98.0	52.0		
21	Magnesium H.	mg/l	34	40		28	38	34	26	32	46	36	32	34.60	46.0	26.0		
22	D. Oxygen	mg/l	8.1	7.6		7.4	6.3	6	7.8	5	6	6.6	4.8	6.56	8.1	4.8		
23	B.O.D.	mg/l	1.1	1.9		4.2	1.2	1.6	1.3	2.3	1.3	1	1	1.69	4.2	1.0		
24	C.O.D.	mg/l	10	29.4		50	10	10	9.68	19.76	9.8	9.52	9.52	16.77	50.0	9.5		
25	Sodium	mg/l	6.42	5.82		5.57	7.86	8.31	4.57	4.81	7.16	6.75	5.32	6.26	8.3	4.6		
26	Potassium	mg/l	2.01	2.06		0.38								1.48	2.1	0.4		
27	T. Coliform	MPN/100ml	350	220		220	150	170	170	220	140	430	350	242.00	430.0	140.0		
28	F. Coliform	MPN/100ml	6	1.8		1.8	23	26	1.8	1.8	27	3.7	6.1	9.90	27.0	1.8		
29	Boron	mg/l	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL					
30	T.K.N.	mg/l	1.4	BDL		2.80	1.4	1.4	2.8	2.8	1.4	BDL	2.8	2.10	2.8	1.4		
31	Streptococcus	MPN/100ml	1.8	1.8		1.80	-					1.8	1.8	1.80	1.8	1.8		
32	Calcium	mg/l	30.43	31.23		20.82	-	25.63	21.62	22.42	39.25	28.83	32.03	28.03	39.3	20.8		
33	Magnesium	mg/l	8.25	9.71		6.79	-	8.25	6.31	7.77	11.17	8.74	7.77	8.31	11.2	6.3		