# Inspection Report

**In compliance of Order dated 10.01.2023 passed in O.A. No. 82 of 2022 (CZ); "Dr. Subhash C. Pandey Vs. State of Madhya Pradesh & Ors" by Hon'ble N.G.T., C.Z.B. Bhopal.**

**Date of Inspection: 6th & 7th February 2023**

**Submitted by:**

**Central Pollution Control Board**

**Regional Directorate (Central), Bhopal**

# CENTRAL POLLUTION CONTROL BOARD
# REGIONAL DIRECTORATE, BHOPAL

## INDEX

# Abbreviations

| S. No. | Acronym | Full-form |
|---|---|---|
| 1. | M.P.S.T.D.C. | Madhya Pradesh State Tourism Development Corporation |
| 2. | HP | Horse Power |
| 3. | KVA | Kilo Volt Hour |
| 4. | DG | Diesel Generator |
| 5. | M.P.P.C.B. | Madhya Pradesh Pollution Control Board |
| 6. | C.P.C.B. | Central Pollution Control Board |
| 7. | N.W.M.P. | National Water-Quality Monitoring Program |
| 8. | E.W.Q.D.E.S. | Environmental Water Quality Data Entry System |
| 9. | DBU | Designated Best Use |
| 10. | E.P.C.O | Environmental Planning & Co-ordination Organization |
| 11. | ISO | International Organization for Standardization |
| 12. | RD | Regional Directorate |

**Inspection Report w.r.t. Order dated 10.01.2023 passed in O.A. No. 82 of 2022 in the matter of "Dr. Subhash C. Pandey Vs. State of Madhya Pradesh & Ors." by the Hon'ble N.G.T., (C.Z.B) Bhopal.**

## A. Upper Lake in Bhopal:

The Upper Lake of Bhopal was created by constructing an earthen dam on perennial River Kolans. The lake accounts for more than 40% of the City's water supply. The water is drawn from 4 parts of the lake and is being treated in 5 water works units. The south – eastern side of the lake is bounded by Shyamla Hills, Van Vihar and the north – eastern side by Medical College, Koh-e-Fiza and Ahmedabad Hills. Bairagarh is located at the western side of the lake. The main source of water in the Upper Lake is surface runoff generated due to rainfall in its catchment area.

The lake has been a tourist hotspot for the local residents. Motorized, rowing and pedal boats have been introduced by the Madhya Pradesh State Tourism Development Corporation and Private Boat Owners in the lake at the Boat Club with the permission of Bhopal Municipal Corporation. M.P.S.T.D.C. is operating 01 large 80 Seater Cruise Boat, 11 Paddle Boats, 09 Small Motor Boats, 01 Large 20 Seater Motor Boat, 01 Big 10 Seats Motor Boat and 01 Water Scooter at the Boat Club for recreational activity. About 45 hectare of the lake area on the southern bank of the lake falls in the Van Vihar National Park, a Wildlife Conservation Park notified under Wildlife (Protection) Act 1972.

## B. Cruise Operation in Upper Lake:

Madhya Pradesh State Tourism Development Corporation (M.P.S.T.D.C.) is operating one Cruise with the permission of Bhopal Municipal Corporation, Bhopal. The Cruise is having two floors with the seating capacity of 80 passengers and as per order passed by the Collector, Bhopal on 06.12.2019 the Cruise is operated from 10:00 am to 7:00 pm. The Cruise is operated with the help of two John Deere make Diesel Engines of 125 H.P. capacity each on both sides of the Cruise. One Beta Marine make 12.3 K.V.A. capacity D.G. is also installed for power back up purposes. The Cruise is also equipped with 3 batteries on one side and 1 battery on the other side of the Cruise for power back up to the engines. Three diesel storage tanks of 90 litres capacity each are provided for storage of diesel. Food is supplied by Wind & Waves Restaurant of Madhya Pradesh State Tourism Development Corporation and served in the dining room of the Cruise which is covered from all sides. No food is prepared on the Cruise. Check Post at the entry of Cruise has been put in place for restricting entry of external food with passengers.

## C. Background of the Case:

One O.A. No. 82 of 2022 was filed on 14.10.2022 before the Hon'ble National Green Tribunal, Central Zonal Bench at Bhopal by the Applicant, Dr. Subhash C. Pandey against the operation of Cruise in Upper Lake, Bhopal while also challenging the launching several Cruises in various other water bodies in Madhya Pradesh. The

Applicant's main grievance is that due to alleged spillage of Diesel in water, air pollution from Diesel Generator, noise pollution from Music System used in Cruise etc. adverse impact is being created on aquatic and land biodiversity.

Hon'ble Tribunal had issued directions to the M.P.P.C.B. to submit Action Taken Report on 21.10.2022. In compliance to the Hon'ble Tribunal's Order passed in OA No. 82/2022(CZ) in the matter of "Dr. Subhash C. Pandey Vs. State of Madhya Pradesh & Ors." the Regional Office M.P.P.C.B., Bhopal had inspected the Cruise on 22.11.2022 and had submitted the Action Taken Report.

The Applicant being aggrieved by the Action Taken Report, filed an Objection to the same and also filed an Application to implead the C.P.C.B. as Respondent No. 10 in the Petition for proper adjudication. The Hon'ble Tribunal (CZ) accordingly directed the C.P.C.B. vide Order dated 10.01.2023 as under:

*"In view of the above facts, we deem it just and proper to call an independent report from the CPCB. CPCB at its own convenience may co-opt Expert Members as required by them and submit the factual and action taken report with regard to the compliance of the rules and Govt. orders."*

Copy of the Hon'ble NGT order dated 10.01.2023 is enclosed at **Annexure – I.**

## D. Action taken by the C.P.C.B.

In compliance to the above order dated 10.01.2023, The C.P.C.B. has conducted site Inspection between 6th & 7th February 2023. During Inspection, ambient air monitoring was done on the deck of Cruise to assess the ambient air quality. Noise monitoring was also conducted on the deck during operation of the Cruise with music as well as without music. Water & sediment samples were collected from 06 different locations of the lake for analysing prescribed general parameters, Heavy Metals, Total and Faecal Coliforms. Two samples were also collected from the Cooling Water vent pipes of the D.G. and Engines of the Cruise. Emission of gases was also observed that during operation of both the diesel engines and to detect the emission status, it was monitored using flu gas analyser. Samples of Benthic Macro–invertebrate were also collected to study the health of water body using Diversity Score and Saprobic Score. In order to gather scientific data during the Inspection independent opinion has been taken from the subject experts of M.P. State Biodiversity Board and Department of Limnology of Barkatullah University, Bhopal. The photographs taken during the visit are enclosed herewith.

## E. Sampling and analysis

1. **Water quality monitoring:**

During the Inspection water samples were collected from all the four locations defined under N.W.M.P. as well as two additional locations along the path of Cruise. The collected Samples were analysed by the laboratories at C.P.C.B., Regional Directorate, Bhopal and C.P.C.B., Head Office. The Google Map showing the sampling locations is given at **Figure – 1**. The details of sampling locations are shown in the **Table:1.**

The water quality of Upper Lake is regularly monitored by M.P.P.C.B. under National Water Monitoring Programme (N.W.M.P.) at four locations on the lake (station code: 2137, 1373, 2138 & 2139). The data is being submitted to the Central Pollution Control Board through E.W.Q.D.E.S. Portal. The analysis data for the last one year is enclosed as **Annexure – II.**

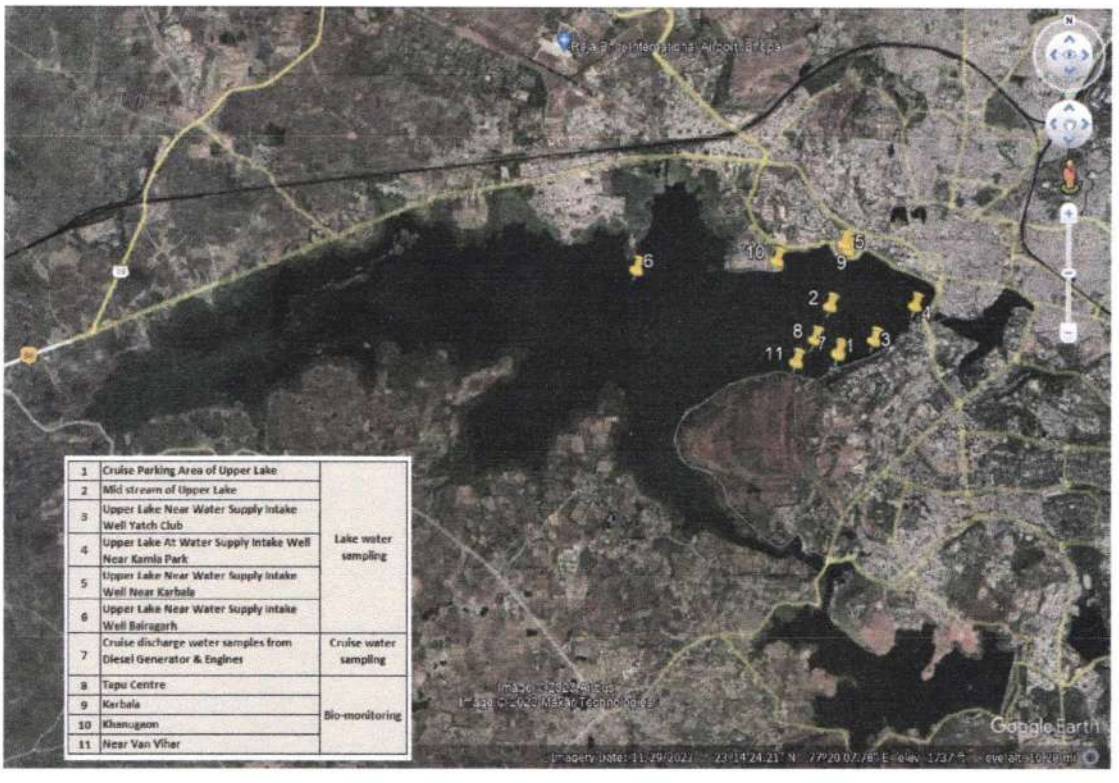
**Table1: Upper Lake water and cruise engine discharge sampling locations**

| S. No. | Location | Latitude | Longitude |
|---|---|---|---|
| **A. Lake water sampling** | | | |
| 1. | Cruise Parking Area of upper lake | 23.243212 | 77.38116 |
| 2. | Mid-stream of upper lake | 23.254232 | 77.382897 |
| 3. | Upper Lake Near Water Supply Intake Well Yatch Club | 23.244941 | 77.386945 |
| 4. | Upper Lake Near Water Supply Intake Well Near Kamla Park | 23.249952 | 77.393756 |
| 5. | Upper Lake Near Water Supply Intake Well Near Karbala | 23.258062 | 77.382858 |
| 6. | Upper Lake Near Water Supply Intake Well Bairagarh | 23.255211 | 77.348082 |
| **B. Cruise water sampling** | | | |

| | | | |
|---|---|---|---|
| 1 | Cruise discharge water samples from Diesel Generator | 23.243212 | 77.38116 |
| 2 | Cruise discharge water samples from Engines | 23.243212 | 77.38116 |
| **C. Biomonitoring** | | | |
| 1 | Near Tapu Centre | 23.245046 | 77.377247 |
| 2 | Near Karbala | 23.259002 | 77.382264 |
| 3 | Near Khanugaon | 23.256532 | 77.371176 |
| 4 | Near Van Vihar | 23.241729 | 77.374135 |
| **D. Sediment sampling** | | | |
| 1 | Cruise Parking Area of upper lake | 23.243212 | 77.38116 |
| 2 | Mid-stream of upper lake | 23.254232 | 77.382897 |
| 3 | Upper Lake Near Water Supply Intake Well Yatch Club | 23.244941 | 77.386945 |
| 4 | Upper Lake At Water Supply Intake Well Near Kamla Park | 23.249952 | 77.393756 |
| 5 | Upper Lake Near Water Supply Intake Well Near Karbala | 23.258062 | 77.382858 |
| 6 | Upper Lake Near Water Supply Intake Well Bairagarh | 23.255211 | 77.348082 |

The results of analysis are shown in the **Tables 2, 3 & 4**. The Upper Lake is a source of drinking water which is supplied for drinking to the local public after conventional treatment and disinfection through the Water Treatment Plants installed and maintained by the Municipal Corporation, Bhopal. The analysis results are compared with the prescribed standards of 'Designated Best Use' for Lakes, Ponds and Tanks. The link for the same is https://cpcb.nic.in/nwmp-data/.

## Figure 1: Google Map showing the Upper Lake and its water sampling, bio monitoring and sediments sampling locations




## Table 2: Upper Lake Water Samples General Parameters Analysis Results

(Sampling Date: 6th & 7th February 2023)

| S. No | Parameter | Sampling locations | | | | | | DBU (class C) Limit |
|---|---|---|---|---|---|---|---|---|
| | | Cruise parking area | Mid-stream of upper lake | Yatch club intake well | Kamla Park intake well | Karbala intake well | Bairagarh intake well | |
| 1. | DO | 7.95 | 8.32 | 6.92 | 6.35 | 8.6 | 8.81 | 4 |
| 2. | pH | 7.9 | 8.2 | 8.4 | 8.3 | 8.3 | 8.4 | 6 - 9 |
| 3. | Temperature | 21.8 | 22.01 | 22.8 | 21.9 | 22.8 | 22.4 | - |
| 4. | Specific Conductivity | 264 | 250 | 245 | 250 | 241 | 238 | - |
| 5. | Suspended Solids | 6 | 3 | 9 | 9 | 4 | 4 | - |
| 6. | TDS | 132 | 140 | 126 | 128 | 127 | 125 | - |
| 7. | COD | 12.8 | 13.2 | 13.6 | 13.6 | 12.0 | 14.4 | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8. | BOD | 2.31 | 1.03 | 1.12 | 1.06 | 1.44 | 1.76 | 3 |
| 9. | Chloride | 14.14 | 12.25 | 13.20 | 17.91 | 8.48 | 12.75 | - |
| 10. | Total Alkalinity | 128 | 130 | 127 | 124 | 126 | 127 | - |
| 11. | Total Hardness as $CaCO_3$ | 227 | 238 | 261 | 188 | 218 | 204 | - |
| 12. | Ca Hardness as $CaCO_3$ | 154 | 150 | 131 | 138 | 157 | 127 | - |
| 13. | Mg Hardness as $CaCO_3$ | 73 | 88 | 130 | 50 | 61 | 77 | |
| 14. | Oil & Grease | 0.3 | 0.4 | BDL | 0.4 | 0.4 | BDL | - |
| 15. | TKN | 10 | 9.5 | 9 | 8.4 | 7.8 | 8.4 | - |
| 16. | Turbidity | 4.65 | 2.34 | 3.23 | 4.01 | 4.33 | 2.89 | - |
| 17. | Phosphate | 0.011 | 0.014 | 0.014 | 0.012 | 0.008 | 0.011 | - |
| 18. | Sodium | 11.75 | 11.48 | 11.48 | 11.91 | 12.05 | 12.38 | - |
| 19. | Potassium | 2.75 | 2.66 | 2.66 | 2.72 | 2.77 | 2.51 | - |
| 20. | TC (MPN/100 ml) | 126 | 115 | 108 | 168 | 125 | 121 | <5000 MPN/ 100 ml |

Note: All the values are in mg/l except pH, conductivity;
Conductivity-µmho/cm, Temperature is in oC

**Table 3: Cruise Water Discharge Samples General Parameters Analysis Results**

(Sampling Date: 6th February 2023)

| S. No. | Parameter | Unit | Sampling locations | |
|---|---|---|---|---|
| | | | Generator discharge | Engine discharge |
| 1. | Temperature | **oC** | 25.6 | 24.7 |
| 2. | pH | - | 7.5 | 7.6 |
| 3. | Specific Conductivity | **(µmho/ cm.)** | 263 | 256 |
| 4. | Suspended Solids | **(mg/L.)** | 8 | 12 |
| 5. | TDS | **(mg/L.)** | 131 | 135 |
| 6. | COD | **(mg/L.)** | 14.8 | 16.0 |
| 7. | Chloride | **(mg/L.)** | 11.31 | 12.25 |
| 8. | Oil & Grease | **(mg/L.)** | 0.4 | 0.6 |
| 9. | Turbidity | **(N.T,U)** | 3.02 | 2.83 |
| 10. | Phosphate | **(mg/L.)** | 0.011 | 0.048 |
| 11. | Sodium | **(mg/L.)** | 10.86 | 11.33 |
| 12 | Potassium | **(mg/L.)** | 2.67 | 2.62 |

**Table 4: Upper Lake Water Samples Heavy Metal Analysis Results**

(Sampling Date: 6th & 7th February 2023)

| S. No. | Sampling location | As | Cd | Co | Cr | Cu | Fe | Mn | Ni | Pb | Sb | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Cruise parking area | BDL | BDL | BDL | BDL | BDL | 0.02 | 0.12 | BDL | BDL | BDL | BDL |
| 2. | Mid-stream of upper lake | BDL | BDL | BDL | BDL | BDL | 0.19 | 0.06 | BDL | 0.01 | BDL | 0.01 |
| 3. | Yatch club intake well | BDL | BDL | BDL | BDL | BDL | 0.15 | 0.05 | BDL | BDL | BDL | BDL |
| 4. | Kamla Park intake well | BDL | BDL | BDL | BDL | BDL | 0.14 | 0.05 | BDL | BDL | BDL | BDL |
| 5 | Karbala intake well | BDL | BDL | BDL | BDL | BDL | 0.03 | 0.09 | BDL | BDL | BDL | 0.01 |
| 6. | Bairagarh intake well | BDL | BDL | BDL | BDL | BDL | 0.18 | 0.07 | BDL | BDL | BDL | BDL |

Note: All values are in mg/l

The detailed Laboratory Water Quality Analysis Reports of Lake Water and Cruise Discharge for General Parameters and Heavy Metals is enclosed as **Annexure – III.**

2. **Ambient Air quality monitoring:**

**Table 5: AAQ Monitoring Results**
(Monitoring Date: 6th February 2023)

| S. No | Monitoring location | Parameter | Value in µg/M³ | Limits in µg/M³ |
|---|---|---|---|---|
| 1. | On the cruise ship | $PM_{10}$ | 21 | 100 |
| | | Nitrogen Dioxide (NOx) | 12 | 80 |
| | | Sulphur Dioxide (SOx) | BDL | 80 |

Ambient air quality monitoring was carried out on the deck of the Cruise during operation for assessing the impact caused due to engine and generator operation for P.M.10, SOx and NOx. All the monitored values are within the prescribed limits. The Lab Analysis Report is enclosed at **Annexure – IV.**

3. **Ambient Noise Monitoring:**

**Table 6: Ambient Noise level monitoring results**
(Monitoring Date: 7th February 2023)

| S. No | Location name | Approx. Aerial distance from cruise | Type of area | d(B)A Leq | | Limit (day) |
|---|---|---|---|---|---|---|
| | | | | without music | with music | |
| 1. | On the Cruise | - | - | 68.9 | 86.0 | - |
| 2. | Near Boat club entry gate | 52 m | - | 65.7 | 78.5 | - |
| 3. | Near Van-Vihar entry gate | 730 m | Silence Zone | 63.7 | 65.8 | 50 |

To assess the impact of music boxes used on the Cruise, ambient noise levels were measured in day time on the Cruise and surrounding areas. The noise levels were monitored with music and without music on the Cruise, Boat Club Entry Gate and Van Vihar Entry Gate for 10 minutes in each location for Lmin, Lmax and Leq. All the measured values with music & without music are exceeding the limits prescribed under Noise Pollution (Regulation and Control) Rules, 2000. The copy of the noise monitoring report is enclosed at **Annexure – V.**

4. **Source Emission Monitoring:**

During the visit on 07.02.2023 visual emissions were observed from the Exhaust Pipes attached to both Diesel engines and Generator. In order to ascertain the concentration levels, the Team has monitored the source emissions for the engine and generator Exhaust Pipes for CO, $NO_X$, NO, $NO_2$, $CO_2$, $O_2$ using Flu Gas Analyser. The Laboratory Analysis Report is enclosed as **Annexure – VI**.

**Table 7: Source Emission Monitoring Results**

(Monitoring Date: 07.02.2023)

| S. No. | Parameter | Unit | Value | |
|---|---|---|---|---|
| | | | D. G. 12.3 KVA | Engine |
| 1 | CO | PPM | 1 | 3 |
| 2 | Nitrogen Dioxide (NOx) | PPM | 0.1 | 1 |
| 3 | NO | PPM | 0 | 1 |
| 4 | $NO_2$ | PPM | 0.1 | 0 |
| 5 | $CO_2$ | % | 0.03 | 0.05 |
| 6 | $O_2$ | % | 3 | 3 |

5. **Biological Monitoring:**

Besides Total Coliform and Faecal Coliform, **Benthic Macro – invertebrates** samples were also collected to assess the health of the water body (long term) using Diversity Score and Saprobic Score (Bio-monitoring), the Team had collected the benthic macro – invertebrate samples at four locations in the Lake and found Viviparidae, Bythinidae, Assamineidae, Physidae, Planorbidae, Unionidae, Thiaridae, Palaemonidae, Atydae, Lestidae, Gomphidae, Macromiidae, Libellulidae, Belastomatidae, Corixidae and Chironomidae. After plotting the identified animals on the prescribed protocol of Diversity Score and Saprobic Score, it was summarised that the Lake Water body falls under Class C (Moderate Pollution). The instance of Chironomidae directly indicates sewage contamination in the Water Body, though due to huge volume of water in the lake, the effect of this phenomena is not reflecting in the results of physic-chemical parameters. The detailed Biological Analysis Data Sheet is enclosed as **Annexure – VII**.

The Environmental Planning and Coordination Organisation (E.P.C.O.) also monitors the water quality of the Upper lake on regular basis for the Biological Parameters such as Zooplankton, Phytopalnkton, Macrophytes, Benthic macro – invertebrates, Avian species etc. The data as received from EPCO is enclosed as **Annexure – VIII**.

The Sewage Contamination was physically verified after flocks of Chironomidae were found in the sample and it was found that more than 10 numbers of sewage drains are discharging the wastewater into the lake without any treatment.

**Table 8: Upper Lake Water Samples Bio Monitoring Results**

(Sampling Date: 7th February 2023)

| S. No. | Parameter | Scores |
|---|---|---|
| 1. | Diversity score | 0.5 |
| 2. | Saprobic score | 5.4 |
| 3. | Class | C |
| 4. | Colour Code | Green |
| 5. | Data interpretation | Moderate Pollution |

**Table 9: Upper Lake Water Samples Bacteriological Analysis Results**

(Sampling Date: 7th February 2023)

| S. No | Parameter | Sampling locations | | | | | | Limit (As per DBU) |
|---|---|---|---|---|---|---|---|---|
| | | Cruise parking area | Mid-stream of upper lake | Yatch club intake well | Kamla Park intake well | Karbala intake well | Bairagarh intake well | |
| 1. | TC (MPN/100 ml) | 126 | 115 | 108 | 168 | 125 | 121 | <5000 MPN/ 100 ml |
| 2. | FC (MPN/100 ml) | 06 | 4.5 | 8.1 | <1.8 | 04 | 3.7 | - |

All the 6 samples were analysed for TC & FC and the results are given at Annexure – III.

## 6. **Sediment Sampling:**

Six sediment samples were collected from the Upper Lake during 6th and 7th February 2023 and the samples were submitted to Indian Institute of Soil Science, Bhopal for analysis of productivity parameters and heavy metals. The analysis report is awaited and shall be filed before the Hon'ble Tribunal as soon as the same is received.

## F. Observations:

1. Retired Navy Commander Shri. Rajendra Nigam, Advisor for the Development of Water Sports and Adventure Tourism to the M.P. Tourism Corporation and Shri D. S. Mishra, Captain of cruise of M.P. Tourism Development Corporation, Bhopal were present during visit. Shri Nigam explained to the team about the cruise design, its functioning, safety precautions, maintenance schedule, operation timings etc. He informed that Bhopal municipal corporation has given permission for operating the cruise in the Upper Lake to MP tourism on 31.12.2005. Copy of the permission is enclosed at **Annexure-IX**. It was told that the cruise has been certified under ISO 14001: 2015 but copy of the quality manual was not made available during visit.

2. The cruise having the capacity of 80 Passengers and operated from 10 am to 7 pm on normal days and on booking of parties the timings will be from 8 pm to 10 pm. In this regard the order passed by the Collector, Bhopal on 06.12.2019 is enclosed at **Annexure-X**. During the visit it was informed that the occupancy of the cruise is almost full in Sundays and holidays. Cruise is having two floors with sitting arrangement. Food is supplied by Wind & Waves Restaurant of MP Tourism Development Corporation and served in the dining room which is covered from all side. Menu card is attached as **Annexure-XI**.

During the party bookings banquet menu is served as per demand. No food is prepared on the Cruise but stored in the pantry area. Check post at the entry of cruise is setup for restricting entry of external food with passengers.

3. Cruise is installed with two diesel engines (make: John Deere) of 125 HP capacity each on both side of the cruise. The operator claiming that the engines are designed for marine purpose with leakage and spillage proof technology but during the visit some spillage of oil was observed near the engines and DG at bottom of cruise. The copy of cruise general arrangement plan drawing is enclosed at **Annexure-XII**. As per the operator, the engines are designed for zero emissions but during visit visual emissions were observed from the exhaust pipes. The team has monitored the source emissions by using Flue Gas Analyser.

4. During the visit verified all the probable water, air, noise, oil, solid waste pollution sources, collected the wastewater samples from the discharge of cruise, monitored the ambient air quality on the cruise, ambient noise levels and source emissions from the engines/DG exhaust. Also carried out the biomonitoring, collected 06 water samples from different locations and 06 sediment samples from the lake. As the petition mostly raising the issues about the pollution of water bodies due to operation of Cruise by the M.P. State Tourism Development Corporation, therefore, thrust was given on inspection of the source i.e. cruise.

5. Three diesel storage tanks of 90 liters capacity each have been provided for storage of diesel inside the cruise near the Engines and DG. It was informed that the average diesel consumption of the cruise is approximately 7 litters/hour (28 litters/day). The daily consumption is depending upon the number of rounds. The cruise path is fixed and the water depth along the cruise path is approximately 8-10 feet at cruise parking area and 15-20 feet at midway of the path. 02 propellers and 02 radars of cruise submerges about 3 feet inside water. As informed, each round takes approx. 45 minutes to 1 hour. Copy of the diesel consumption log book for the month of January and February 2023 is enclosed at **Annexure-XIII**.

6. One Diesel Generator is also installed (make: Beta Marine) of 12.3 KVA capacity for power back up. During visit it was observed that there is no platform provided for collecting back the spillage of oil if any during filling of diesel in engines & Diesel Generator and found that there is a possibility of spillage of diesel while pouring. It was also observed that there is no proper vent provided at appropriate height for the exhaust gases generating from the DG and engines.

7. The operator is generating waste oil/ used oil from cruise engines & DG and not taken authorization under Hazardous Waste (M, H & TM) Rules 2016 from MP Pollution Control Board. The records of the waste oil/used oil are also not being maintained and

disposing illegally instead of sending to authorized recyclers. Due to non-availability of record the waste oil/used oil generation quantity could not be assessed.

8. About 200 litters capacity sintex tank provided for storage of fresh water for using in wash basins and toilets. One washroom has been provided with urinal inside the cruise premises. The lavatory waste collected in a collection tank of 100 litres capacity and sent to Nagar Nigam for treatment and disposal for that MPSTDC is paying Rs.1,000/- per month. Copy of receipt is enclosed at **Annexure-XIV**.

9. For solid waste collection 03 nos. of dustbins were found on the cruise but not collecting dry and wet waste separately. The Instructions and sign boards were found placed on the cruise for proper management of waste but not implemented properly.

10. During visit it was observed that huge quantity of waste water directly mixing in lake from Bairagarh, Khanugaon, VIP Road areas etc. Nagar Nigam Bhopal has installed 05 water fountains/aerators in the lake to maintain the DO in the lake but during the visit none of them were found operational. A wired mesh with long handle is also available at the cruise for collection of debris if found floating on the water.

11. The operator is using two numbers of sound boxes 450 watt of capacity in the cruise for entertainment of the tourists. During

visit the CPCB team has carried out the noise monitoring and it was found that noise levels are above limit.

12. The operator has not taken consents under Water (Prevention and Control of Pollution) Act 1974 and Air (Prevention and Control of Pollution) Act, 1981 and authorization under hazardous waste Rules, 2016 from MPPCB.

13. MP Wetland Authority has issued a letter to the M.P. Tourism Corporation and Municipal Corporation, Bhopal for complying the norms on 20.09.2022.

14. Request letter written to M.P. Pollution Control Board for providing the status of cruises operation and monitoring of water bodies in Madhya Pradesh and the information is awaited and shall be filed before the Hon'ble Tribunal as soon as the same is received. Copy of the letter dated 03.03.2023 is enclosed at **Annexure-XV**.

**G. Recommendations:**

1. As the Operator is discharging the engine cooling water, wash basin wastewater into the Lake, using Music System and is generating Toilet Waste in the Cruise for which consent/ Environmental Management Plan may be approved from the M.P.P.C.B. and the District Administration may develop a monitoring mechanism to ensure compliance of Environmental

Norms for running and operating the Cruise in the surface water bodies.

2. As the Operator is generating waste oil/used oil from the engines/DG, it is mandatory to take authorization under Hazardous Waste Rules, 2016 from the M.P.P.C.B.

3. To Operator must provide proper vent pipe at appropriate height as for the exhaust gases emanating from the DG and engines being used for operation of the Cruise.

4. To prevent mixing of Diesel in the Lake Water, the Operator should make necessary arrangements for collecting back the spillage if any during filling of Diesel in Cruise Engines and DG.

5. The Operator should provide separate Dry and Wet Waste Collection Bins and dispose the waste as per the Solid Waste Management Rules, 2016.

6. The Operator should not use high decibel sound boxes in the Cruise because the Van Vihar National Park is situated quite near the path of the Cruise and it falls under Silence Zone.

7. To prevent Water Pollution in Upper Lake, Municipal Corporation Bhopal should stop the discharging of the waste water into the Lake.

8. The Wash Basin wastewater should not be discharged directly in to the lake. It is also recommended to provide Bio – Toilets with suction system for collection of lavatory waste instead of manual collection of the same.

9. The capacity of water storage tank of 200 L. and the capacity of grey water collection & storage tank is of 100 L. Therefore, it is recommended to install grey water storage tank of 200 L.

10. The Operator should explore the possibility to use gas/solar/bio – fuel based engines etc. for operation of the Cruise instead of Diesel Engines.

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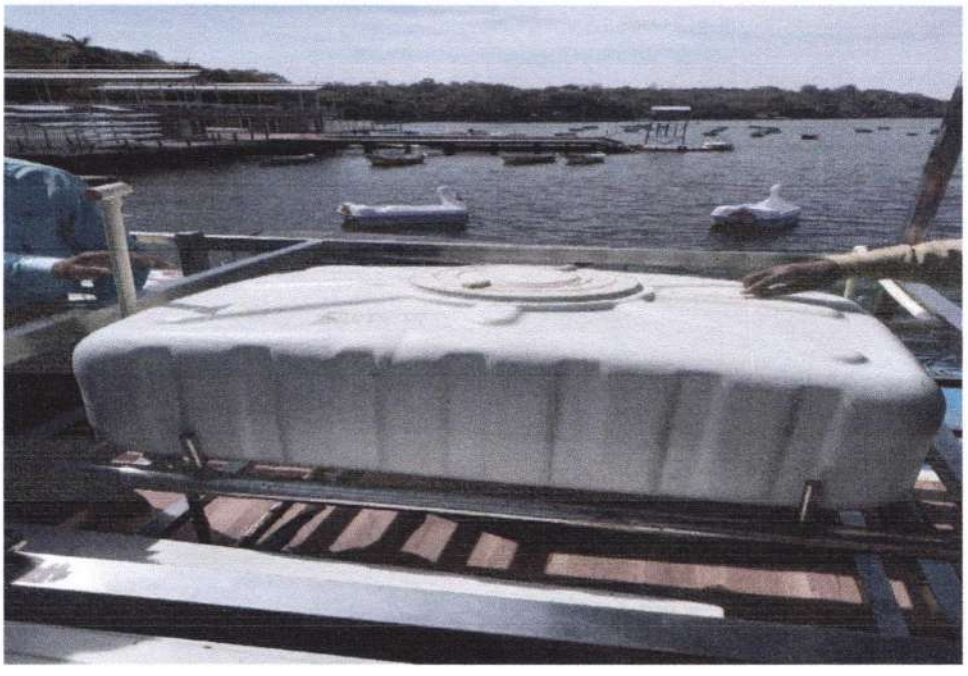
# Photographs Taken During the Visit of Upper Lake, Bhopal (MP)

**Team members conducting the Inspection of cruise on 6th Feb 2023.**

**View of the Cruise being operated by MPSTDC in Upper Lake**

**View of the Sitting Area at ground floor on the cruise**

**View of the open sitting Area at 1st floor on the Cruise**

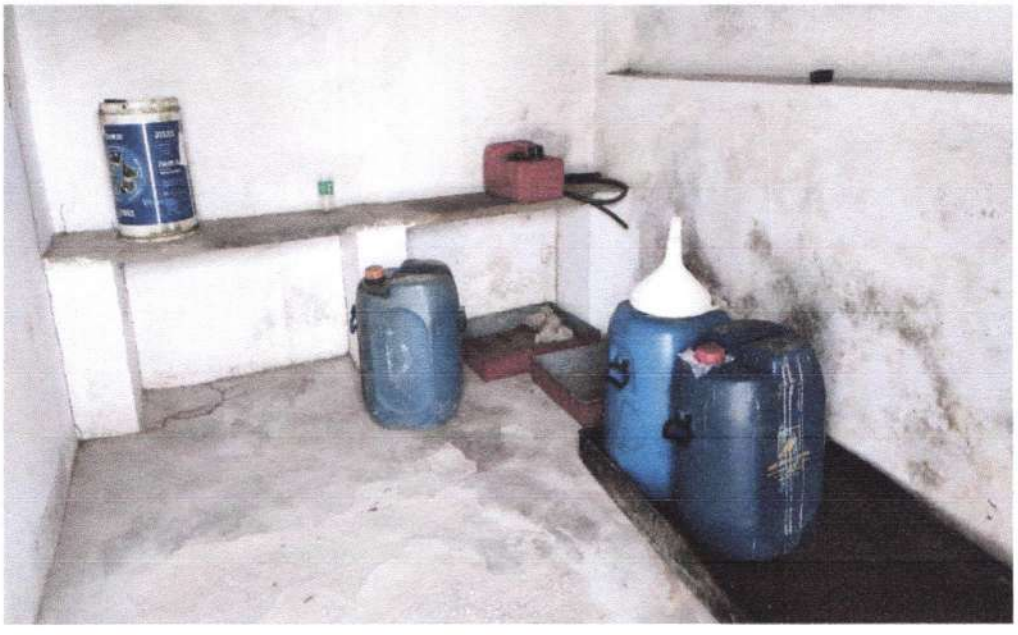


**200 liters capacity water storage sintex tank for using in wash basin and wash room**

**View of the wash Basinprovided in the Cruise**

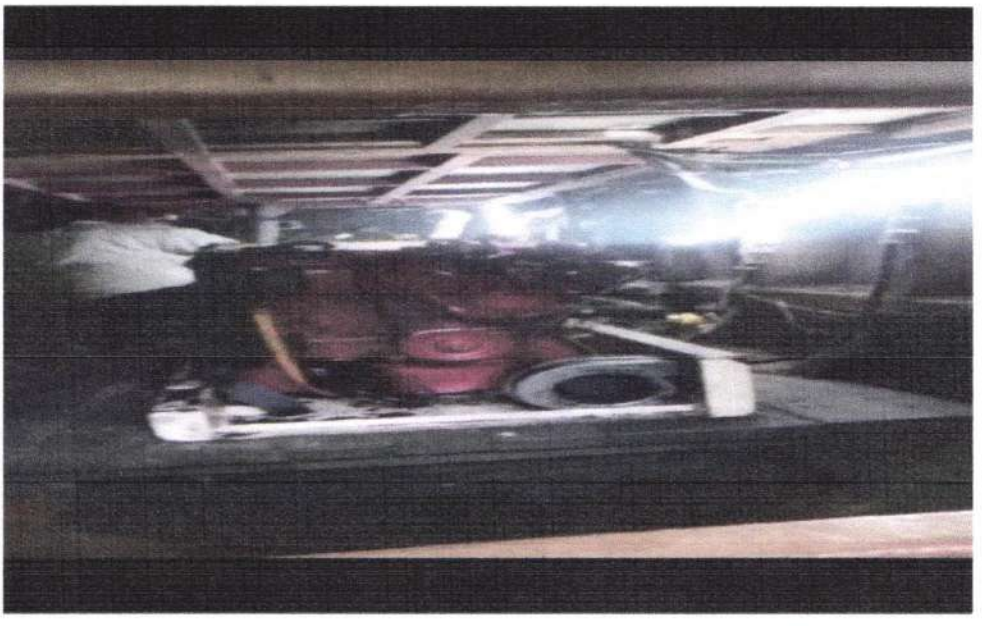
**View of the Lavatory Provided in Cruise**

**Lavatory waste collection tank**



**View of the waste oil storage at Hotel Wind and Waves Restaurant**

**Diesel filling in cruise**

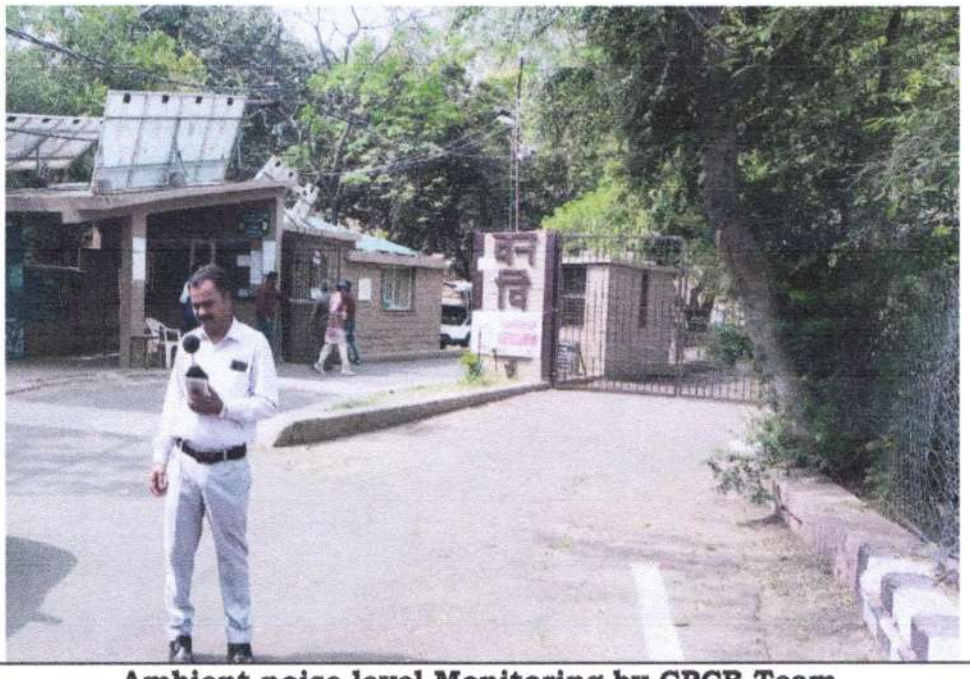


**Inspection of the engine and generator at the bottom of the cruise**

**View of the oil spillage on the floor near the Diesel Generator at the bottom of cruise**

**Discharging of effluent and emissions from the cruise engine and diesel generator**

**Cruise Engine Source Emission Monitoring by CPCB Team**



**Ambient noise level Monitoring by CPCB Team**


**Ambient Noise level monitoring at the Boat club entry gate by CPCB Team**


**Ambient Noise Level Monitoring on the cruise by CPCB Team**

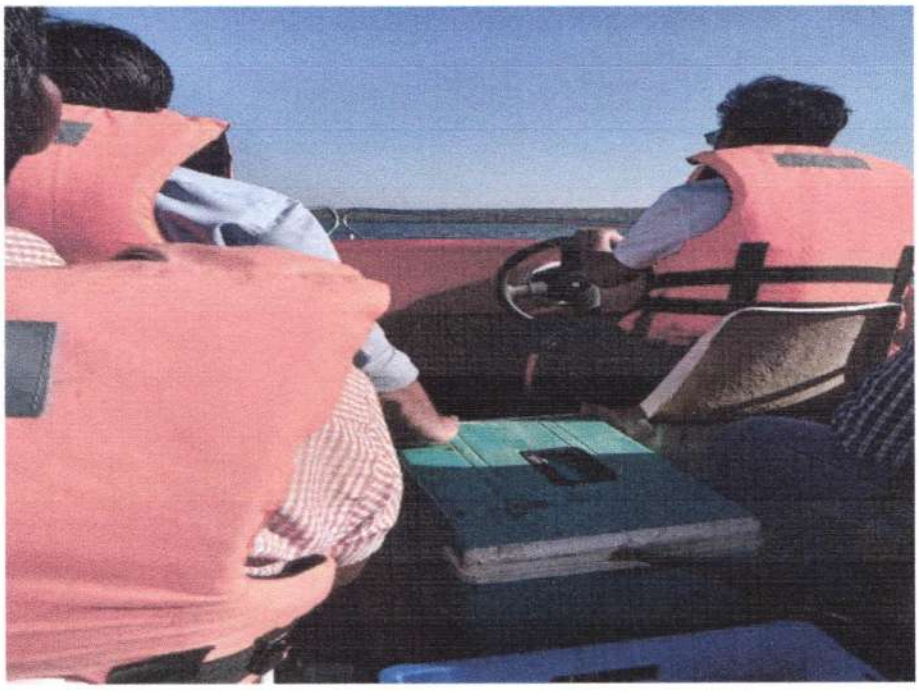

**Cruise Engine cooling water samples collection by CPCB Team which are released in to lake from cruise**

**Sediment Sampling in Upper Lake by using depth Sampler by CPCB team**

**Upper lake Water Sampling at Cruise Parking Area ( Boat Club)**

**Bio-monitoring at Upper Lake**

**Analysis of Benthic Macro invertebrates in the laboratory of CPCB**

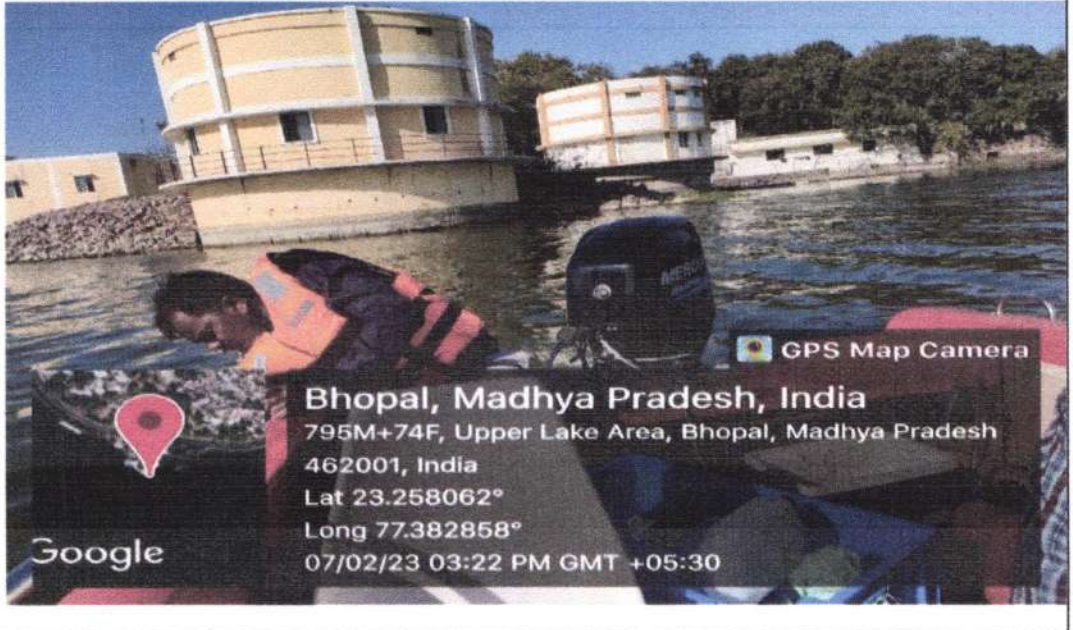


**Upper Lake water sampling at middle of the lake**

**(Along the Path of Cruise)**


**Upper Lake water sampling near Kamla Park (NWMP Station Code-1373)**


**Upper Lake water sampling near Yacht club (NWMP station code-2137 )**




**Upper Lake water sampling at Karbala Intake Well**

**(NWMP station code-2138)**

**Upper Lake water samplingnear Bairagarh intake well (NWMPstation code-2139)**

**VIP Road**

**Near Crescent club drain**

**Near Kohefiza square drain**

**Shahid nagar drain VIP road**

# CENTRAL POLLUTION CONTROL BOARD
# REGIONAL DIRECTORATE, BHOPAL

## LIST OF DOCUMENTS

Item No. 03

**BEFORE THE NATIONAL GREEN TRIBUNAL**
**CENTRAL ZONE BENCH, BHOPAL**
**(Through Video Conferencing)**

**Original Application No. 82/2022 (CZ)**
**(I.A. No. 68/2022)**

Dr. Subhash C. Pandey — Applicant(s)

Versus

State of Madhya Pradesh & Ors. — Respondent(s)

Date of Hearing: **10.01.2023**

**CORAM: HON'BLE MR. JUSTICE SHEO KUMAR SINGH, JUDICIAL MEMBER**
**HON'BLE DR. ARUN KUMAR VERMA, EXPERT MEMBER**

For Applicant(s): Dr. Subhash C. Pandey
(Applicant in Person)

For Respondent(s): Mr. Sachin K. Verma, Adv.
Mr. Qasim Ali, Adv.
Ms. Samriddhi Sharma, Adv.

**ORDER**

1. Nature is manifestation of God. The very pious contention of the applicant, a qualified environmental scientists, is that:-

   i. *"Upper lake Bhopal is the most precious water body of the state of Madhya Pradesh, water of which is being used regularly for drinking, and other religious rituals. About 12 lakh people of Capital city Bhopal are dependent on this water body for their drinking needs. Moreover, Upper lake along with Lower lake is jointly called as Bhoj wetland and endorsed as Ramsar site – A Wetland of International significance. Therefore merely for entertainment and making money, no institution or individual be permitted to pollute drinking water body like Upper lake by way of launching cruise ships in it.*

   ii. *Even a small cruise ships carrying passengers and crew has been compared to "floating colonies," and the volume of wastes that they produce is comparably large, consisting of sewage;*

*wastewater from sinks, showers, and galleys (greywater i.e. Water from sinks, baths, showers, laundry and galleys); hazardous wastes; solid waste; oily bilge water; ballast water; and air pollution. Hence the waste streams generated by cruise ships are hazardous to environment in many ways.*

iii. *The research report says that a mid-sized cruise ship can use as much as 150 tonnes of fuel each day, which emits as much particulate as one million cars !!! In fact cruise ships are a catastrophe for the environment. They dump toxic waste into our waters, fill the planet with carbon dioxide, and kill marine wildlife. Cruise ships' environmental impact is never ending, and they continue to get bigger. However they are all set to start with a small ship of 50 passengers but soon they will come up with bigger and bigger ships. Eventually they will contaminate potable water of the lake and pollute the environment like anything. In addition to other pollutants, a smallest cruise ship which can carry over 50 passengers and crew, on a one week running is estimated to generate 1,500 gallons of human sewage and 5,000 gallons (19,000 litre) of gray water).*

iv. *Carbon emissions and dangerous particulates emitted by cruise ships are caused by the quantity and quality of the fuel used by these floating citadels. The biggest issues with cruise emissions are the levels of nitrogen oxide, which has been linked to acid rain, higher rates of cancer and other forms of respiratory diseases. This cruise emission will contribute a lot in to the air pollution level of capital city Bhopal which has already reached to alert zone."*

2. Further contention of the applicant in person is that :-

i. *"Launching of cruise ship(s) in the Upper lake is direct violation of State Government's own directions given in the Order / Notification released by the Environment Department on 16th March 2022 (Annexure A-2) where it has been clearly mentioned in the B. Regulated Activities iii. That Plying of non-*

*motorized boats only be permitted. It clearly* means no diesel *cruise ship(s) / motor boats will be permitted in the Upper lake.*

ii. *Unauthorized, illegal and unethical act of BSCCL/ Government agencies/ project proponent (s) /cruise operator(s) is direct violation of provisions of Environment Protection Act,1986, Water (prevention and control of pollution) Act,1974, Air (prevention and control of pollution) Act, 1981 and Biological Diversity Act,2002 given in this behalf.*

iii. *Upper lake, Bhopal has more than 15 kinds of fish and several vulnerable animals like turtles. It is, therefore, important to ask how cruises will impact our ecosystems and socio – economic equations of the communities that live in these landscapes. Moreover, more than 2500 migratory birds across the world are regularly coming to this wetland for breeding and other purposes. Large number of wild animals are also living at adjoining forest called Van Vihar. Therefore launching the cruise ships in the already shrinking Upper lake will hinder the free and frequent movement and development of fishes and other aquatic lives (zooplanktons and phytoplanktons). It may have direct negative impact on aquatic and land biodiversity of the area.*

iv. *However, if cruise tourism is introduced in this region, increasing tourist activities will increase the hindrances in the nesting process of turtles and other aquatic animals and nearby natural habitats of wild animals too. Eventually it will have potential negative impact on aquatic and land biodiversity of the lake. Indeed then fishermen will not be allowed for fishing in the "water paths" of cruise ships. These landscapes are also conflict-ridden; bringing in cruise tourism can exacerbate them. So the lives and livelihoods of fishermen will be compromised in the name of cruise ships and mechanical entertainment, which will be highly detrimental to the local ecosystem. That is why this cruise launching has been experiencing strong resistance from local communities. The existing problems are complex and*

*deep-rooted. With the introduction of cruise tourism, the ongoing conflicts may increase."*

3. The Wetland Authority, M.P. has issued certain directions vide order dated 20.09.2022, which has been annexed as annexure-2 regarding enforcement of rules dividing the activities within prohibited, permitted and regulated categories.

4. Prohibited activities are as follows :-

   i. *Conversion for non-wetland uses including encroachment of any kind;*

   ii. *Setting up of any industry and expansion of existing Industries;*

   iii. *Manufacture or handling or storage or disposal of construction and demolition waste covered under the Construction and Demolition Waste Management Rules, 2016; hazardous substances covered under the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 or the Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/Genetically Engineered Organisms or cells, 1989 or the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008; electronic waste covered under the E-Waste (Management) Rules, 2016;*

   iv. *Solid waste dumping;*

   v. *Discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements;*

   vi. *Any construction of a permanent nature except for boat jetties within fifty metres (50) from the mean high flood level observed in the past ten years calculated from the date of commencement of these rules."*

5. Regulated activities are as follows :-

i. *Subsistence level biomass harvesting (including traditional practices);*
ii. *Sustainable culture fisheries practices (in private lands);*
iii. *Plying of non-motorized boats;*
iv. *Desilting, in case where wetlands inflow regimes and water-holding capacity are impacted by siltation (note that 'deepening' activities are not the same as 'desilting'); &*
v. *Construction of temporary nature*
vi. *Construction of STP/SPH by Municipal Corporation, Bhopal.*

6. Permitted Activities are as follows :

i. *Ecological rehabilitation and rewinding of nature;*
ii. *Wetlands Inventory, assessment and monitoring;*
iii. *Research;*
iv. *Communication, environmental education and participation activities;*
v. *Management planning;*
vi. *Habitat management and conservation of wetland-dependent species;*
vii. *Community-based eco-tourism (with minimum construction activities);*
viii. *Harvesting of wetlands products within regenerative capacity; and,*
ix. *Integrating wetlands as nature-based solutions for climate change mitigation and adaptation.*

7. Applicant has further contended that Section 24(1)(a) of the Water (Prevention and Control of Pollution) Act, 1974 provides that :-

> *"No person shall knowingly cause or permit any noxious or polluting matter determined in accordance with such standards as may be laid down by the State board to enter (whether directly or indirectly) into any stream or well or sewer or on land."*

And Section 17(d) provides that:-

*"Section 17 (d) of the Water (prevention and control of pollution) Act, 1974 empowers State PCB to encourage, conduct and participate investigations and Research relating to problems of water pollution and prevention, control or abatement of water pollution. Moreover, Environment (Protection) Act, 1986 under section 5 gives power to State PCB to impose penalty due to violation of environmental laws and start prosecution against the polluters. Moreover, Sec. 17 (1) and 17 (2) of the same act empowers the State Board to impose penalty for contravention of the provisions of Act, the Rules, the Orders and directions given in this behalf".*

8. The further contention of the applicant in person is that during the rainy season, the cruise which was under operation in Bhoj Lake was damaged due to heavy rain and due to leakage and partial drowning of the cruise, there was spillage of the more than two hundred liter of diesel into the water body and the water was supplied to the citizens of the Bhopal, which is being used by more than 12 lakhs of the people and thus causing health hazard.

9. It is further argued that no certificate is shown by the operators, giving guarantee of leakage and spillage proof technology of the cruise. There are always probability of spillage in the cruise while refilling the storage tank.

10. In reply to the above contention, Learned Counsel for the State Sh. Sachin K. Verma has submitted that State/Administrative Authorities responsible for operating the cruise are complying the directions issued by the wetland Authority and the State Government. Though the reply filed by him, contains many contradictory facts.

11. The contention of the applicant is that the activities, which are being done by the operators and are being directly or indirectly permitted by

the State Authorities and are in contravention of Government order dated 16.03.2022 and Wetland Rules, 2017.

12. In view of the above facts, we deem it just and proper to call an independent report from the CPCB. CPCB at its own convenience may co-opt Expert Members as required by them and submit the factual and action taken report with regard to the compliance of the rules and Govt. orders.

13. Copy of the objections raised by the applicant be also supplied to the CPCB alongwith the Joint Committee Report to submit alongwith report

14. The applicant has further submitted to implead CPCB as a party on which there is no objection by the opposite parties. Thus CPCB is necessary and proper party and should be impleaded as Respondent No. 10. Applicant is directed to make necessary incorporation and provide the copy of the application and relevant documents to the CPCB for further necessary action and submit the reply and report.

15. We further direct the CPCB and State Pollution Control Board to periodically monitor the activities of cruise running in the Bhoj Wetland and incase of any pollution being caused by the cruise while in operation either under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 to take necessary remedial action in addition to imposition of environmental compensation in accordance with rules.

16. Learned counsel for State Pollution Control Board has submitted that latest status report with regard to the water quality has been filed just yesterday. Copy of the same may be provided to the opposite parties /applicant for reply and response, if any.

17. Learned counsel for respondent no. 2 has sought a short time to file the response. He is permitted to file the response and reply be filed within three weeks. In addition to that we direct the respondent no. 2 to ensure the compliances of Environmental Rules and Government orders quoted above. Respondent No. 2 would be personally responsible if any, violation of environmental rules and norms occur.

List it on **13th February, 2023.**

**Sheo Kumar Singh, JM**

**Dr. Arun Kumar Verma, EM**

10th January, 2023
OA No. 82/2022(CZ)
PN

**MADHYA PRADESH POLLUTION CONTROL BOARD**

ANNEXURE- II

**Water Quality during Year:**

**Natural Water Resource : UPPER LAKE AT BHOPAL NEAR INTAKE POINT KAMLA PARK, M.P. (Sta. code- 1373) XGN**
**ID: 22025 Description of Sampling Station: Upper Lake Kamla Park , Upper Lake**

From Date:
To Date:

| Sr No | Par | Unit | April (07-04-2022) | May (19-05-2022) | June (20-06-2022) | July (26-07-2022) | Aug (16-08-2022) | Sep (08-09-2022) | Oct (10-10-2022) | Nov (23-11-2022) | Dec (27-12-2022) | Jan (12-01-2022) | Feb (09-02-2022) | March (09-03-2022) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Aldrin | mg/l | Under Process | | | | | | | | | | | |
| 2 | Alkalinity as CaCO3 | mg/l | 120 | 124 | 108 | 108 | 110 | 82 | 106 | 116 | 118 | 138 | 100 | 102 |
| 3 | Alpha B.H.C. | mg/l | Under Process | | | | | | | | | | | |
| 4 | Ammonical Nitrogen | mg/l | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL |
| 5 | Arsenic | mg/l | BDL | | | | | | | | | | | |
| 6 | B.O.D (3 Days 27oC) | mg/l | 1.2 | 2.8 | 1 | 2.1 | 1 | 0.9 | 1.5 | 0.8 | 0.9 | 1.3 | 1 | 1 |
| 7 | Boron | mg/l | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL |
| 8 | Cadmium | mg/l | BDL | | | | | | | | | | | |
| 9 | Calcium | mg/l | 31.24 | 30.43 | 31.23 | 33.64 | 28.03 | 23.22 | 29.63 | 29.63 | 33.64 | 39.25 | 28.83 | 32.03 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | Calcium Hardness as CaCO3 | Mg/Lts | 78 | 76 | 78 | 84 | 70 | 58 | 74 | 74 | 84 | 98 | 72 | 80 |
| 11 | Chemical Oxygen Demand | mg/l | 20 | 19.6 | 9.68 | 9.88 | 10 | 9.4 | 10 | 10 | 9.88 | 9.8 | 9.52 | 9.52 |
| 12 | Chloride | mg/l | 22.66 | 24.88 | 12.99 | 18.58 | 19.99 | 14.78 | 20.99 | 16.63 | 21.68 | 19.56 | 19.56 | 20.54 |
| 13 | Colour | Pt.Co.S | 40 | 40 | 30 | 200 | 50 | 30 | 10 | 20 | 30 | 20 | 20 | 20 |
| 14 | Conductivity | micromho/cm | 295.9 | 323.1 | 301.8 | 267.9 | 230.2 | 179.4 | 161.3 | 226.1 | 219.8 | 237.4 | 387.1 | 274.1 |
| 15 | Copper | mg/l | 0.027 | | | | | | | | | | | |
| 16 | D.D.T. | mg/l | Under Process | | | | | | | | | | | |
| 17 | DDE | µgm/l | Under Process | | | | | | | | | | | |
| 18 | Di-Aldrin | mg/l | Under Process | | | | | | | | | | | |
| 19 | Dissolved Oxygen | mg/l | 5.8 | 5.9 | 5.8 | 5.1 | 7.2 | 5 | 6.9 | 4.7 | 7.6 | 6 | 6.6 | 4.8 |
| 20 | Endosulphar | µgm/l | Under Process | | | | | | | | | | | |
| 21 | Fecal Coliform | MPN/100 ml | 23 | 26 | 6.1 | 6.1 | 4 | 23 | 4 | 5.5 | 23 | 27 | 3.7 | 6.1 |
| 22 | Fixed Dissolved Solids | mg/l | Instrument out of order | instrument out of order | Instrument not working | Instrument not working | Instrument not working | Instrument out of order | Instrument not working | Instrument not working | Instrument not working | Instrument out of order | Instrument not working | instrument not working |
| 23 | Fluoride | mg/l | 0.18 | 0.09 | BDL | BDL | BDL | 0.21 | BDL | BDL | 0.1 | 0.46 | BDL | BDL |
| 24 | Gamma-BHC | µgm/l | Under Process | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | Iron | mg/l | 0.2 | | | | | | | | | | | |
| 26 | Lead | mg/l | BDL | | | | | | | | | | | |
| 27 | Magnesium | mg/l | 13.11 | 15.05 | 8.25 | 6.79 | 10.68 | 7.28 | 9.71 | 9.22 | 10.68 | 11.17 | 8.74 | 7.77 |
| 28 | Magnesium Hardness as CACO3 | Mg/Lts | 54 | 62 | 34 | 28 | 44 | 30 | 40 | 38 | 44 | 46 | 36 | 32 |
| 29 | Malathion | µgm/l | Under Process | | | | | | | | | | | |
| 30 | Mangenese | mg/l | 0.12 | | | | | | | | | | | |
| 31 | MERCURY | mg/l | ND | | | | | | | | | | | |
| 32 | Methyl Parathion | µgm/l | Under Process | | | | | | | | | | | |
| 33 | Nickel | mg/l | BDL | | | | | | | | | | | |
| 34 | Nitrate | mg/l | 5.15 | 2.33 | 2.61 | 2.16 | 2.16 | 2.76 | 2.61 | 2.02 | 2.16 | 4.16 | 2.31 | 3.52 |
| 35 | Nitrite | mg/l | BDL | BDL | 0.01 | BDL | 0.02 | BDL | 0.04 | 0.04 | BDL | BDL | BDL | 0.02 |
| 36 | Oil & Grease | mg/l | | | | | | | | NIL | NA | | | |
| 37 | P-Alkanity | -- | Nil | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL |
| 38 | pH | pH Units | 7.88 | 7.65 | 7.97 | 7.1 | 7.21 | 7.6 | 8.14 | 7.59 | 7.78 | 7.42 | 7.69 | 7.46 |
| 39 | Phosphate | mg/l | BDL | BDL | BDL | 0.17 | BDL | BDL | 0.01 | BDL | 0.07 | BDL | 0.47 | BDL |
| 40 | Potassium | mg/l | 1.98 | 1.01 | 0.55 | 0.46 | 0.61 | 1.82 | 0.16 | 0.25 | 1.29 | 2.36 | 0.43 | 0.65 |
| 41 | Sodium | mg/l | 6.82 | 4.19 | 2.32 | 4.79 | 5.77 | 4.23 | 5.77 | 5.64 | 5.17 | 7.16 | 6.75 | 5.32 |
| 42 | Sodium Absorption | SAR | 0.26 | 0.15 | 0.09 | 0.19 | 0.23 | 0.19 | 0.23 | 0.23 | 0.33 | 0.22 | 0.28 | 0.21 |
| 43 | ß-BHC | µgm/l | Under Process | | | | | | | | | | | |
| 44 | streptococci | MPN/100 ml | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | | 1.8 | <1.8 |
| 45 | Sulphate | mg/l | 6.06 | 6.26 | 4.18 | 2.59 | 2.59 | 4.31 | 3.29 | 9.06 | 9.41 | 10.72 | 10.53 | 2.17 |
| 46 | Suspended Solids | mg/l | 34 | 16 | 42 | 32 | 82 | 14 | 24 | 30 | 16 | 12 | 20 | 48 |
| 47 | Temperature | Centigrade | 29 | 32 | 29 | 25 | 25 | 25 | 23 | 16 | 15 | 19 | 21 | 23 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48 | Total coliform | MPN/100 ml | 130 | 280 | 350 | 350 | 110 | 130 | 110 | 170 | 170 | 140 | 430 | 350 |
| 49 | Total Dissolved Solids | mg/l | 218 | 210 | 224 | 196 | 168 | 136 | 116 | 96 | 142 | 168 | 286 | 198 |
| 50 | Total Hardness as CaCO3 | mg/l | 132 | 138 | 112 | 112 | 114 | 88 | 114 | 122 | 128 | 144 | 108 | 112 |
| 51 | Total Kjeldahl Nitrogen | mg/l | 1.4 | 2.8 | 1.4 | 1.4 | 1.4 | Instrument out of order | Instrument of out of order | 1.4 | 1.4 | 1.4 | BDL | 2.8 |
| 52 | Total Organic Carbon | mg/l | Facility not available | | | | | | | | | | | |
| 53 | Total Solids | mg/l | 252 | 226 | 266 | 228 | 250 | 150 | 140 | 126 | 158 | 180 | 306 | 246 |
| 54 | Turbidity | N.T.U. | 3.5 | 4.5 | 8.3 | 21 | 5.9 | 2.3 | 1.4 | 0.8 | 8.9 | 6.7 | 2.6 | 3.9 |
| 55 | Zinc | mg/l | 0.09 | | | | | | | | | | | |

## MADHYA PRADESH POLLUTION CONTROL BOARD

**Water Quality during Year:**

**Natural Water Resource : Upper Lake Near Water Supply Intake Well at Bairagarh Bhopal (Sta. code- 2139) XGN ID: 22116 Description of Sampling Station: Upper Lake , Bhopal**

From Date:
To Date:

| Sr. No | Particulars | Unit | April (07-04-2022) | May (19-05-2022) | June (20-06-2022) | July (26-07-2022) | Aug (16-08-2022) | Sep (08-09-2022) | Oct (10-10-2022) | Nov (23-11-2022) | Dec (27-12-2022) | Jan (12-01-2022) | Feb (09-02-2022) | March (09-03-2022) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Aldrin | mg/l | Under Process | | | | | | | | | | | |
| 2 | Alkalinity as CaCO3 | mg/l | 108 | 90 | 120 | 114 | 120 | 76 | 122 | 118 | 104 | 136 | 90 | 112 |
| 3 | Alpha B.H.C. | mg/l | Under Process | | | | | | | | | | | |
| 4 | Ammonical Nitrogen | mg/l | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL |
| 5 | Arsenic | mg/l | BDL | | | | | | | | | | | |
| 6 | B.O.D (3 Days 27oC) | mg/l | 1.3 | 1.2 | 1.3 | 2.5 | 1 | 1.3 | 1.7 | 0.4 | 1 | 1.4 | 1.2 | 1.5 |
| 7 | Boron | mg/l | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL |
| 8 | Cadmium | mg/l | BDL | | | | | | | | | | | |
| 9 | Calcium | mg/l | 27.23 | 31.23 | 37.64 | 37.64 | 38.44 | 22.42 | 37.64 | 28.03 | 33.64 | 32.84 | 28.83 | 37.64 |
| 10 | Calcium Hardness as CaCO3 | Mg/Lts | 68 | 78 | 94 | 94 | 96 | 56 | 94 | 70 | 84 | 82 | 72 | 94 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | Chemical Oxygen Demand | mg/l | 20 | 9.6 | 19.36 | 19.76 | 20 | 9.4 | 10 | 20 | 29.64 | 19.6 | 9.52 | 19.04 |
| 12 | Chloride | mg/l | 21.68 | 23.92 | 18.99 | 19.56 | 22.99 | 14.78 | 21.99 | 16.63 | 21.68 | 21.52 | 21.52 | 21.52 |
| 13 | Colour | Pt.Co.Scale | 70 | 20 | 50 | 110 | 30 | 50 | 30 | 30 | 20 | 30 | 20 | 50 |
| 14 | Conductivity | micromho/cm | 341.6 | 304.6 | 296.5 | 269.7 | 228.8 | 174.7 | 195 | 214.5 | 214 | 230 | 259.4 | 310.4 |
| 15 | Copper | mg/l | BDL | | | | | | | | | | | |
| 16 | D.D.T. | mg/l | Under Process | | | | | | | | | | | |
| 17 | DDE | Âµgm/l | Under Process | | | | | | | | | | | |
| 18 | Di-Aldrin | mg/l | Under Process | | | | | | | | | | | |
| 19 | Dissolved Oxygen | mg/l | 5.2 | 6.6 | 4.9 | 6 | 7.6 | 5.3 | 5.3 | 7.4 | 7.5 | 6.1 | 6.4 | 4.9 |
| 20 | Fecal Coliform | MPN/100 ml | 33 | 17 | 5.6 | 3.7 | 5.6 | 23 | 5.6 | 6.1 | 21 | 27 | 1.8 | 5.6 |
| 21 | Fixed Dissolved Solids | mg/l | Instrument out of order | Instrument not working | Instrument not working | Instrument not working | Instrument not working | Instrument out of order | Instrument not working | Instrument not working | Instrument not working | Instrument out of order | Instrument not working | instrument not working |
| 22 | Fluoride | mg/l | 0.42 | BDL | BDL | BDL | BDL | 0.26 | BDL | BDL | 0.16 | 0.51 | BDL | BDL |
| 23 | Gamma-BHC | Âµgm/l | Under Process | | | | | | | | | | | |
| 24 | Iron | mg/l | 0.26 | | | | | | | | | | | |
| 25 | Lead | mg/l | BDL | | | | | | | | | | | |
| 26 | Magnesium | mg/l | 12.63 | 7.77 | 7.77 | 7.77 | 7.77 | 6.79 | 7.77 | 13.59 | 6.79 | 14.08 | 7.28 | 7.77 |
| 27 | Magnesium Hardness as CACO3 | Mg/Lts | 52 | 32 | 32 | 32 | 32 | 28 | 32 | 56 | 28 | 58 | 30 | 32 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | Malathion | Âµgm/l | Under Process | | | | | | | | | | | |
| 29 | Mangenese | mg/l | 0.69 | | | | | | | | | | | |
| 30 | MERCURY | mg/l | ND | | | | | | | | | | | |
| 31 | Methyl Parathion | Âµgm/l | Under Process | | | | | | | | | | | |
| 32 | Nickel | mg/l | BDL | | | | | | | | | | | |
| 33 | Nitrate | mg/l | 4.06 | 4.13 | 4.22 | 4.17 | 4.72 | 2.55 | 4.27 | 2.15 | 1.26 | 4.42 | BDL | 4.27 |
| 34 | Nitrite | mg/l | BDL | 0.01 | 0.08 | 0.68 | 0.08 | BDL | 0.1 | 0.07 | 0.04 | BDL | BDL | 0.09 |
| 35 | Oil & Grease | mg/l | | | | | | | | NIL | NA | | | |
| 36 | P-Alkanity | -- | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL |
| 37 | pH | pH Units | 7.24 | 7.89 | 7.96 | 7.04 | 7.48 | 8.06 | 8.34 | 7.71 | 7.89 | 8.14 | 8.15 | 7.03 |
| 38 | Phosphate | mg/l | BDL | 0.08 | BDL | 0.2 | BDL | BDL | 0.02 | BDL | BDL | BDL | 0.89 | BDL |
| 39 | Potassium | mg/l | 1.02 | 1.01 | 0.96 | 0.68 | 0.89 | 1.04 | 0.89 | 0.45 | 1.69 | 1.14 | 0.97 | 0.86 |
| 40 | Sodium | mg/l | 4.96 | 3.91 | 4.96 | 3.97 | 5.76 | 3.18 | 7.67 | 5.05 | 7.1 | 5.24 | 5.6 | 4.97 |
| 41 | Sodium Absorption Ratio(SAR) | SAR | 0.2 | 0.16 | 0.19 | 0.15 | 0.22 | 0.14 | 0.29 | 0.19 | 0.28 | 0.16 | 0.24 | 0.19 |
| 42 | ÃŸ-BHC | Âµgm/l | Under Process | | | | | | | | | | | |
| 43 | streptococci | MPN/100 ml | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | | 1.8 | <1.8 |
| 44 | Sulphate | mg/l | 6.24 | 7.31 | 5.16 | 5.61 | 1.61 | 4.47 | 2.61 | 11.16 | 9.15 | 6.82 | 11.7 | 5.16 |
| 45 | Suspended Solids | mg/l | 56 | 12 | 36 | 14 | 66 | 18 | 20 | 40 | 12 | 10 | 18 | 38 |
| 46 | Temperature | Centigrade | 29 | 32 | 29 | 25 | 23 | 26 | 22 | 16 | 17 | 18 | 23 | 22 |
| 47 | Total Chromium | mg/l | BDL | | | | | | | | | | | |
| 48 | Total coliform | MPN/100 ml | 220 | 280 | 350 | 350 | 220 | 210 | 220 | 350 | 220 | 240 | 240 | 350 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | Total Dissolved Solids | mg/l | 242 | 218 | 220 | 194 | 166 | 128 | 138 | 156 | 124 | 162 | 184 | 176 |
| 50 | Total Hardness as CaCO3 | mg/l | 120 | 110 | 126 | 126 | 128 | 84 | 126 | 126 | 112 | 140 | 102 | 126 |
| 51 | Total Kjeldahl Nitrogen | mg/l | 2.8 | 1.4 | 2.8 | 1.4 | 1.4 | Instrument out of order | Instrument of out of order | 1.4 | 1.4 | 1.4 | 1.8 | 2.8 |
| 52 | Total Organic Carbon | mg/l | Facility not | | | | | | | | | | | |
| 53 | Total Solids | mg/l | 298 | 230 | 256 | 208 | 232 | 146 | 158 | 196 | 136 | 172 | 202 | 214 |
| 54 | Turbidity | N.T.U. | 9.3 | 5.8 | 11.8 | 7 | 5.6 | 5.3 | 2.4 | 0.4 | 8 | 2.3 | 2.5 | 2.6 |
| 55 | Zinc | mg/l | 0.02 | | | | | | | | | | | |

MADHYA PRADESH POLLUTION CONTROL BOARD

Water Quality during Year

Natural Water Resource : Upper Lake Near Water Supply Intake Well Near Karbala Bhopal (Sta. code- 2138) XGN ID: 22115

Description of Sampling Station: Upper Lake , Bhopal

| Search | Par | Unit | April(07-04-2022) | May(19-05-2022) | June(20-06-2022) | July(26-07-2022) | Aug(16-08-2022) | Sep(08-09-2022) | Oct(10-10-2022) | Nov(23-11-2022) | Dec(27-12-2022) | Jan(12-01-2022) | Feb(09-02- | March(09-03-2022) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Aldrin | mg/l | Under Process | | | | | | | | | | | |
| 2 | Alkalinity as CaCO3 | mg/l | 128 | 134 | 106 | 110 | 112 | 84 | 110 | 116 | 124 | 126 | 90 | 106 |
| 3 | Alpha B.H.C. | mg/l | Under Process | | | | | | | | | | | |
| 4 | Ammonical Nitrogen | mg/l | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL |
| 5 | Arsenic | mg/l | BDL | | | | | | | | | | | |
| 6 | B.O.D (3 Days 27oC) | mg/l | 1.1 | 1.5 | 0.8 | 2.2 | 1.1 | 1.4 | 1.6 | 1 | 2.8 | 1.2 | 1.3 | 0.7 |
| 7 | Boron | mg/l | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL |
| 8 | Cadmium | mg/l | BDL | | | | | | | | | | | |
| 9 | Calcium | mg/l | 33.64 | 34.44 | 27.23 | 33.64 | 28.83 | 21.62 | 28.83 | 28.03 | 35.24 | 32.04 | 27.2 | 27.23 |
| 10 | Calcium Hardness as CaCO3 | Mg/Lts | 84 | 86 | 68 | 84 | 72 | 54 | 72 | 70 | 88 | 80 | 68 | 68 |
| 11 | Chemical Oxygen Demand | mg/l | 10 | 9.8 | 9.68 | 9.88 | 10 | 18.8 | 10 | 10 | 39.52 | 9.8 | 9.52 | 9.52 |
| 12 | Chloride | mg/l | 20.69 | 26.8 | 18.99 | 19.56 | 21.99 | 15.77 | 22.99 | 16.63 | 21.68 | 20.54 | 20.5 | 19.56 |
| 13 | Colour | Pt.Co.Scale | 50 | 50 | 20 | 110 | 50 | 40 | 20 | 20 | 30 | 20 | 20 | 30 |
| 14 | Conductivity | micromho/cm | 337.7 | 314.2 | 298.5 | 266.2 | 231 | 174.8 | 154.8 | 218.6 | 234.3 | 226.6 | 260 | 278.9 |
| 15 | Copper | mg/l | BDL | | | | | | | | | | | |
| 16 | D.D.T. | mg/l | Under Process | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | DDE | µgm/l | Under Process | | | | | | | | | | | |
| 18 | Di-Aldrin | mg/l | Under Process | | | | | | | | | | | |
| 19 | Dissolved Oxygen | mg/l | 5.3 | 5.8 | 6.7 | 5 | 6.8 | 7.1 | 7 | 5 | 6.9 | 6.2 | 6.3 | 9.2 |
| 20 | Endosulphar | µgm/l | Under Process | | | | | | | | | | | |
| 21 | Fecal Coliform | MPN/100 ml | 26 | 13 | 3.6 | 5.6 | 3.7 | 21 | 6.1 | 3.6 | 23 | 23 | 3.6 | 3.7 |
| 22 | Fixed Dissolved Solids | mg/l | Instrument out of order | instrument out of order | Instrument not working | Instrument not working | Instrument not working | Instrument out of order | Instrument not working | Instrument not working | Instrument not working | Instrument out of order | Instrument not work | instrument not working |
| 23 | Fluoride | mg/l | 0.12 | 0.1 | BDL | BDL | BDL | 0.14 | BDL | BDL | 0.14 | 0.21 | BDL | BDL |
| 24 | Gamma-BHC | µgm/l | Under Process | | | | | | | | | | | |
| 25 | Iron | mg/l | 0.17 | | | | | | | | | | | |
| 26 | Lead | mg/l | BDL | | | | | | | | | | | |
| 27 | Magnesium | mg/l | 13.59 | 13.59 | 10.68 | 7.28 | 10.68 | 8.74 | 10.68 | 13.11 | 10.68 | 14.08 | 8.25 | 11.17 |
| 28 | Magnesium Hardness as CACO3 | Mg/Lts | 56 | 56 | 44 | 30 | 44 | 36 | 44 | 54 | 44 | 58 | 34 | 46 |
| 29 | Malathion | µgm/l | Under Process | | | | | | | | | | | |
| 30 | Mangenese | mg/l | 0.5 | | | | | | | | | | | |
| 31 | MERCURY | mg/l | ND | | | | | | | | | | | |
| 32 | Methyl Parathion | µgm/l | Under Process | | | | | | | | | | | |
| 33 | Nickel | mg/l | BDL | | | | | | | | | | | |
| 34 | Nitrate | mg/l | 4.18 | 2.31 | 2.65 | 2.64 | 2.76 | 0.44 | 3.67 | 2.37 | 3.26 | 4.25 | 2.15 | 2.67 |
| 35 | Nitrite | mg/l | BDL | BDL | 0.03 | BDL | 0.02 | BDL | 0.04 | 0.06 | 0.06 | BDL | BDL | 0.01 |
| 36 | Oil & Grease | mg/l | | | | | | | | NIL | NA | | | |
| 37 | P-Alkanity | -- | Nil | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL |
| 38 | pH | pH Units | 7.29 | 7.68 | 7.78 | 7.14 | 7.38 | 7.94 | 8.25 | 7.5 | 7.57 | 8.2 | 7.62 | 7.99 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | Phosphate | mg/l | BDL | BDL | BDL | 0.21 | BDL | BDL | 0.03 | BDL | 0.1 | BDL | 1.08 | BDL |
| 40 | Potassium | mg/l | 1.21 | 0.91 | 0.43 | 0.24 | 0.35 | 1.18 | 0.53 | 0.5 | 1.89 | 1.63 | 0.37 | 0.42 |
| 41 | Sodium | mg/l | 4.71 | 4.92 | 4.45 | 5.45 | 6.54 | 3.26 | 6.45 | 5.23 | 6.67 | 4.12 | 6.45 | 5.45 |
| 42 | Sodium Absorption Ratio(SAR) | SAR | 0.17 | 0.17 | 0.18 | 0.22 | 0.26 | 0.15 | 0.25 | 0.2 | 0.25 | 0.15 | 0.27 | 0.22 |
| 43 | ß-BHC | µgm/l | Under Process | | | | | | | | | | | |
| 44 | streptococci | MPN/100 ml | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | | 1.8 | <1.8 |
| 45 | Sulphate | mg/l | 5.82 | 4.95 | 2.48 | 2.55 | 2.05 | 5.87 | 2.06 | 9.76 | 11.45 | 6.96 | 13.1 | 2.56 |
| 46 | Suspended Solids | mg/l | 32 | 20 | 28 | 12 | 74 | 16 | 18 | 32 | 26 | 16 | 16 | 26 |
| 47 | Temperature | Centigrade | 30 | 33 | 28 | 24 | 25 | 27 | 24 | 17 | 16 | 19 | 23 | 24 |
| 48 | Total coliform | MPN/100 ml | 170 | 210 | 240 | 240 | 210 | 140 | 120 | 210 | 280 | 150 | 140 | 240 |
| 49 | Total Dissolved Solids | mg/l | 238 | 194 | 218 | 188 | 170 | 126 | 112 | 112 | 144 | 158 | 186 | 176 |
| 50 | Total Hardness as CaCO3 | mg/l | 140 | 142 | 112 | 114 | 116 | 90 | 116 | 124 | 132 | 138 | 102 | 114 |
| 51 | Total Kjeldahl Nitrogen | mg/l | 2.8 | 4.2 | 2.8 | 1.4 | 2.8 | Instrument out of order | Instrument of out of | 1.4 | 2.8 | 2.8 | 1.8 | 2.8 |
| 52 | Total Organic Carbon | mg/l | Facility not available | | | | | | | | | | | |
| 53 | Total Solids | mg/l | 270 | 214 | 246 | 200 | 244 | 142 | 130 | 144 | 170 | 174 | 202 | 202 |
| 54 | Turbidity | N.T.U. | 9.6 | 8.7 | 9.7 | 7 | 5.4 | 5.6 | 1.8 | 0.8 | 6.5 | 6.1 | 3.2 | 1.4 |
| 55 | Zinc | mg/l | BDL | | | | | | | | | | | |

## MADHYA PRADESH POLLUTION CONTROL BOARD

**Water Quality during Year:**

**Natural Water Resource : Upper Lake at Yatch Club (Sta. code- 2137) XGN ID: 22114 Description of Sampling Station: Upper Lake , Bhopal**

From Date:
To Date:

| Sr No | Par | Unit | April (07-04-2022) | May (19-05-2022) | June (20-06-2022) | July (26-07-2022) | Aug (16-08-2022) | Sep (08-09-2022) | Oct (10-10-2022) | Nov (23-11-2022) | Dec (27-12-2022) | Jan (12-01-2022) | Feb (09-02-2022) | March (09-03-2022) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Aldrin | mg/l | Under Process | | | | | | | | | | | |
| 2 | Alkalinity as CaCO3 | mg/l | 138 | 136 | 108 | 106 | 108 | 96 | 108 | 122 | 114 | 128 | 92 | 108 |
| 3 | Alpha B.H.C. | mg/l | Under Process | | | | | | | | | | | |
| 4 | Ammonical Nitrogen | mg/l | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL |
| 5 | Arsenic | mg/l | BDL | | | | | | | | | | | |
| 6 | B.O.D (3 Days 27oC) | mg/l | 1.4 | 2.8 | 1.1 | 2 | 0.9 | 1 | 1.9 | 1 | 1.1 | 1.1 | 1.4 | 1.2 |
| 7 | Boron | mg/l | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL |
| 8 | Cadmium | mg/l | BDL | | | | | | | | | | | |
| 9 | Calcium | mg/l | 35.24 | 32.03 | 26.43 | 32.83 | 32.83 | 25.63 | 31.23 | 30.43 | 38.44 | 38.45 | 28.83 | 26.43 |
| 10 | Calcium Hardness as CaCO3 | Mg/Lts | 88 | 80 | 66 | 82 | 82 | 64 | 78 | 76 | 96 | 96 | 72 | 66 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | Chemical Oxygen Demand | mg/l | 20 | 19.6 | 9.68 | 9.88 | 10 | 9.4 | 10 | 10 | 9.88 | 9.8 | 9.52 | 9.52 |
| 12 | Chloride | mg/l | 21.68 | 24.88 | 12.99 | 19.56 | 21.99 | 16.75 | 18.99 | 14.67 | 25.62 | 31.3 | 19.56 | 18.58 |
| 13 | Colour | Pt.Co.Scale | 40 | 40 | 30 | 170 | 30 | 30 | 20 | 30 | 40 | 20 | 30 | 30 |
| 14 | Conductivity | micromho/cm | 306.6 | 310.7 | 355.5 | 270.1 | 257.8 | 172 | 161.7 | 218.2 | 240.1 | 239.5 | 275.8 | 281.4 |
| 15 | Copper | mg/l | 0.02 | | | | | | | | | | | |
| 16 | D.D.T. | mg/l | Under Process | | | | | | | | | | | |
| 17 | DDE | µgm/l | Under Process | | | | | | | | | | | |
| 18 | Di-Aldrin | mg/l | Under Process | | | | | | | | | | | |
| 19 | Dissolved Oxygen | mg/l | 5 | 7.7 | 5.4 | 6 | 8.6 | 5.6 | 6.2 | 7.1 | 7.2 | 5.7 | 6.4 | 6.3 |
| 20 | Endosulphar | µgm/l | Under Process | | | | | | | | | | | |
| 21 | Fecal Coliform | MPN/100 ml | 31 | 22 | 3.6 | 3.6 | 6.1 | 21 | 3.7 | 1.8 | 27 | 33 | 1.8 | 3.6 |
| 22 | Fixed Dissolved Solids | mg/l | Instrument out of order | instrument out of order | Instrument not working | Instrument not working | Instrument not working | Instrument out of order | Instrument not working | Instrument not working | Instrument not working | Instrument out of order | Instrument not working | instrument not working |
| 23 | Fluoride | mg/l | 0.24 | 0.13 | BDL | BDL | BDL | 0.11 | BDL | BDL | 0.11 | 0.28 | BDL | BDL |
| 24 | Gamma-BHC | µgm/l | Under Process | | | | | | | | | | | |
| 25 | Iron | mg/l | 0.2 | | | | | | | | | | | |
| 26 | Lead | mg/l | BDL | | | | | | | | | | | |
| 27 | Magnesium | mg/l | 13.59 | 14.57 | 10.68 | 7.28 | 7.77 | 8.74 | 7.77 | 10.68 | 6.79 | 10.19 | 7.28 | 11.17 |
| 28 | Magnesium Hardness as CACO3 | Mg/Lts | 56 | 60 | 44 | 30 | 32 | 36 | 32 | 44 | 28 | 42 | 30 | 46 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | Malathion | µgm/l | Under Process | | | | | | | | | | | |
| 30 | Mangenese | mg/l | 0.09 | | | | | | | | | | | |
| 31 | MERCURY | mg/l | ND | | | | | | | | | | | |
| 32 | Methyl Parathion | µgm/l | Under Process | | | | | | | | | | | |
| 33 | Nickel | mg/l | BDL | | | | | | | | | | | |
| 34 | Nitrate | mg/l | 2.93 | 3.43 | 2.32 | 3.25 | 3.25 | 1.05 | 3.52 | 2.13 | 2.05 | 3.83 | 2.33 | 2.61 |
| 35 | Nitrite | mg/l | BDL | BDL | 0.02 | BDL | 0.04 | BDL | 0.06 | 0.09 | BDL | BDL | BDL | 0.01 |
| 36 | Oil & Grease | mg/l | | | | | | | | NIL | NA | | | |
| 37 | P-Alkanity | -- | Nil | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL | NIL |
| 38 | Ph | pH Units | 7.92 | 8.06 | 7.35 | 7.05 | 7.14 | 7.8 | 7.88 | 7.52 | 7.85 | 8.02 | 7.93 | 7.73 |
| 39 | Phosphate | mg/l | 1.02 | BDL | BDL | 0.19 | BDL | 1.02 | 0.02 | BDL | 0.09 | 1.12 | 2.12 | BDL |
| 40 | Potassium | mg/l | 2.12 | 0.24 | 0.71 | 0.56 | 0.34 | 1.96 | 0.43 | 0.51 | 1.58 | 2.8 | 0.62 | 0.64 |
| 41 | Sodium | mg/l | 5.86 | 5.11 | 2.97 | 5.23 | 5.67 | 6.12 | 5.76 | 5.43 | 7.34 | 6.71 | 5.77 | 4.97 |
| 42 | Sodium Absorption Ratio(SAR) | SAR | 0.21 | 0.18 | 0.12 | 0.21 | 0.23 | 0.26 | 0.23 | 0.21 | 0.22 | 0.29 | 0.24 | 0.2 |
| 43 | ß-BHC | µgm/l | Under Process | | | | | | | | | | | |
| 44 | streptococci | MPN/100 ml | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 | | 1.8 | <1.8 |
| 45 | Sulphate | mg/l | 5.16 | 5.66 | 4.41 | 2.71 | 2.71 | 4.19 | 3.71 | 10.34 | 9.21 | 2.63 | 11.03 | 2.95 |
| 46 | Suspended Solids | mg/l | 26 | 8 | 38 | 36 | 76 | 12 | 28 | 22 | 22 | 8 | 18 | 42 |
| 47 | Temperature | Centigrade | 31 | 31 | 27 | 26 | 24 | 26 | 24 | 17 | 17 | 18 | 22 | 25 |
| 48 | Total coliform | MPN/100 ml | 140 | 280 | 280 | 280 | 120 | 110 | 210 | 280 | 280 | 130 | 350 | 280 |
| 49 | Total Dissolved Solids | mg/l | 224 | 182 | 260 | 198 | 186 | 126 | 118 | 114 | 162 | 166 | 198 | 180 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | Total Hardness as CaCO3 | mg/l | 144 | 140 | 110 | 112 | 114 | 100 | 110 | 120 | 124 | 138 | 102 | 112 |
| 51 | Total Kjeldahl Nitrogen | mg/l | 2.8 | 2.8 | 1.4 | 1.4 | 1.4 | Instrument out of order | Instrument of out of order | 1.4 | 1.4 | 1.4 | BDL | 2.8 |
| 52 | Total Organic Carbon | mg/l | Facility not available | | | | | | | | | | | |
| 53 | Total Solids | mg/l | 250 | 190 | 298 | 234 | 262 | 138 | 146 | 136 | 184 | 174 | 216 | 222 |
| 54 | Turbidity | N.T.U. | 3.4 | 4.8 | 6.6 | 25 | 5.2 | 2.7 | 1.4 | 0.9 | 18.8 | 4.1 | 2.4 | 1.2 |
| 55 | Zinc | mg/l | 0.08 | | | | | | | | | | | |

ANNEXURE- III

Central Pollution Control Board
Regional Directorate (Central)
"Parivesh Bhawan"
Paryavaran Parisar, E-5, Arera Colony, Bhopal
EPA Recognised Lab
Test Report:Fresh Water (PhysicoChemical Parameter)

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MASTER COPY
COPY FOR LAB I/C

F/LAB/06/TR-01

| Project Name | NGT Case No. 82/2022 | Test Report No. | FW/22-23/77 |
|---|---|---|---|
| Sample Description | Cruise Parking Area, Upper Lake, Bhopal | Requisition No. | 55 |
| Date of sample collection | 06.02.2023 | Date | 06.03.2023 |
| Date of sample receipt | 06.02.2023 | Type of sample | Grab |
| Date of analysis | 06.02.2023 to 14.02.2023 | Sample collected by | Sh. Bandewar, Sh. S Kolhatkar, Sh. JJ Ram, Sh. S Sahu |

| S.No. | Parameters | Unit | Result | Method |
|---|---|---|---|---|
| 1 | **Temperature** | °C | **21.8** | - |
| 2 | Odour | - | - | - |
| 3 | Appearance | - | - | - |
| 4 | Colour | Pt-Co Scale | - | APHA, 2120-B |
| 5 | Residual Chlorine | mg/L | - | APHA 4500-Cl-B |
| 6 | **Dissolved Oxygen** | **mg/L** | **7.95** | **APHA 4500-O-C** |
| 7 | **pH** | **pH unit** | **7.9** | **APHA, 4500H+B** |
| 8 | **Specific Conductivity** | **µmho/cm** | **254** | **APHA 2510 B** |
| 9 | **Suspended Solids** | **mg/L** | **6** | **APHA 2540 D** |
| 10 | **Total Dissolved Solids** | **mg/L** | **152** | **APHA 2540 C** |
| 11 | Total Solids | mg/L | - | APHA 2540 B |
| 12 | Fixed Dissolved Solid | mg/L | - | APHA 2540 E |
| 13 | **COD** | **mg/L** | **12.8** | **APHA, 5220 B** |
| 14 | **BOD (3 days, 27°C)** | **mg/L** | **2.91** | **IS 3025, 1993** |
| 15 | **Chloride** | **mg/L** | **14.14** | **APHA, 4500-CL-B** |
| 16 | **Total Alkalinity** | **mg/L** | **128** | **APHA 2320-B** |
| 17 | **T. Hardness (as $CaCO_3$)** | **mg/L** | **227** | **APHA 2340-C** |
| 18 | **Ca Hardness (as $CaCO_3$)** | **mg/L** | **154** | **APHA 3500-Ca-B** |
| 19 | **Mg Hardness (as $CaCO_3$)** | **mg/L** | **73** | **APHA 3500-Mg-B** |
| 20 | **Oil & Grease** | **mg/L** | **0.3** | **APHA 5520-D** |
| 21 | **Total Kjehdal Nitrogen** | **mg/L** | **10** | **APHA 4500-Norg-C** |
| 22 | **Turbidity** | **N.T.U.** | **4.65** | **APHA, 2130-B** |
| 23 | **Phosphate (as P)** | **mg/L** | **0.011** | **APHA 4500-P-D** |
| 24 | **Sulphate (as $SO_4$)** | **mg/L** | **4.94** | **APHA 4500-$SO_4$-E** |
| 25 | **Ammo. Nitrogen (as $NH_3$)** | **mg/L** | **BDL** | **APHA 4500-$NH_3$-F** |
| 26 | **Nitrite Nitrogen (as $NO_2$)** | **mg/L** | **0.01** | **APHA 4500-$NO_2$-B** |
| 27 | **Nitrate Nitrogen (as $NO_3$)** | **mg/L** | **0.19** | **APHA 4500-$NO_3$B** |
| 28 | Fluoride (as F) | mg/L | - | APHA 4500-F-D |
| 29 | **Sodium (as Na)** | **mg/L** | **11.75** | **APHA 3500-Na-B** |
| 30 | **Potassium (as K)** | **mg/L** | **2.72** | **APHA 3500-K-B** |
| 31 | Chromium (as $Cr^{+6}$) | mg/L | - | APHA 3500-Cr B |
| 32 | **Boron (as B)** | **mg/L** | **BDL** | **APHA 4500-B-C** |
| 33 | **Faecal Coliform** | **MPN/100ml** | **6** | **APHA 9221-E** |
| 34 | **Total Coliform** | **MPN/100ml** | **126** | **APHA 9221-B** |
| 35 | **Bioassay Test** | **% Survival** | - | **APHA 8910 A-C** |
| 36 | | | - | |
| 37 | | | - | |

Prepared by:

Milind Kumar Nimje
Laboratory Head
Laboratory Head:

Central Pollution Control Board
Regional Directorate (Central)
"Parivesh Bhawan"
Paryavaran Parisar, E-5, Arera Colony, Bhopal
EPA Recognised Lab
Test Report: Fresh Water (PhysicoChemical Parameter)

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F/LAB/06/TR-01

| Project Name | NGT Case No. 82/2022 | Test Report No. | FW/22-23/80 |
|---|---|---|---|
| Sample Description | Mid Stream, Upper Lake, Bhopal | Requisition No. | 55 |
| Date of sample collection | 06.02.2023 | Date | 06.03.2023 |
| Date of sample receipt | 06.02.2023 | Type of sample | Grab |
| Date of analysis | 06.02.2023 to 14.02.2023 | Sample collected by | Sh. Bandewar, Sh. S Kolhatkar, Sh. JJ Ram, Sh. S Sahu |

| S.No. | Parameters | Unit | Result | Method |
|---|---|---|---|---|
| 1 | **Temperature** | °C | **22.01** | - |
| 2 | Odour | - | - | - |
| 3 | Appearance | - | - | - |
| 4 | Colour | Pt-Co Scale | - | APHA, 2120-B |
| 5 | Residual Chlorine | mg/L | - | APHA 4500-Cl-B |
| 6 | **Dissolved Oxygen** | **mg/L** | **8.32** | **APHA 4500-O-C** |
| 7 | **pH** | **pH unit** | **8.2** | **APHA, 4500H+B** |
| 8 | **Specific Conductivity** | **µmho/cm** | **250** | **APHA 2510 B** |
| 9 | **Suspended Solids** | **mg/L** | **3** | **APHA 2540 D** |
| 10 | **Total Dissolved Solids** | **mg/L** | **140** | **APHA 2540 C** |
| 11 | Total Solids | mg/L | - | APHA 2540 B |
| 12 | Fixed Dissolved Solid | mg/L | - | APHA 2540 E |
| 13 | **COD** | **mg/L** | **13.2** | **APHA, 5220 B** |
| 14 | **BOD (3 days, 27°C)** | **mg/L** | **1.03** | **IS 3025, 1993** |
| 15 | **Chloride** | **mg/L** | **12.25** | **APHA, 4500-CL-B** |
| 16 | **Total Alkalinity** | **mg/L** | **130** | **APHA 2320-B** |
| 17 | **T. Hardness (as $CaCO_3$)** | **mg/L** | **238** | **APHA 2340-C** |
| 18 | **Ca Hardness (as $CaCO_3$)** | **mg/L** | **150** | **APHA 3500-Ca-B** |
| 19 | **Mg Hardness (as $CaCO_3$)** | **mg/L** | **88** | **APHA 3500-Mg-B** |
| 20 | **Oil & Grease** | **mg/L** | **0.4** | **APHA 5520-D** |
| 21 | **Total Kjehdal Nitrogen** | **mg/L** | **2.5** | **APHA 4500-Norg-C** |
| 22 | **Turbidity** | **N.T.U.** | **2.34** | **APHA, 2130-B** |
| 23 | **Phosphate (as P)** | **mg/L** | **0.014** | **APHA 4500-P-D** |
| 24 | **Sulphate (as $SO_4$)** | **mg/L** | **4.28** | **APHA 4500-$SO_4$-E** |
| 25 | **Ammo. Nitrogen (as $NH_3$)** | **mg/L** | **BDL** | **APHA 4500-$NH_3$-F** |
| 26 | **Nitrite Nitrogen (as $NO_2$)** | **mg/L** | **BDL** | **APHA 4500-$NO_2$-B** |
| 27 | **Nitrate Nitrogen (as $NO_3$)** | **mg/L** | **0.71** | **APHA 4500-$NO_3$B** |
| 28 | Fluoride (as F) | mg/L | - | APHA 4500-F-D |
| 29 | **Sodium (as Na)** | **mg/L** | **11.73** | **APHA 3500-Na-B** |
| 30 | **Potassium (as K)** | **mg/L** | **2.69** | **APHA 3500-K-B** |
| 31 | Chromium (as $Cr^{+6}$) | mg/L | - | APHA 3500-Cr B |
| 32 | **Boron (as B)** | **mg/L** | **BDL** | **APHA 4500-B-C** |
| 33 | **Faecal Coliform** | **MPN/100ml** | **4.5** | **APHA 9221-E** |
| 34 | **Total Coliform** | **MPN/100ml** | **115** | **APHA 9221-B** |
| 35 | Bioassay Test | % Survival | - | APHA 8910 A-C |
| 36 | | | - | |
| 37 | | | - | |

Prepared by:

Milind Kumar Nimje
Laboratory Head

Central Pollution Control Board
Regional Directorate (Central)
"Parivesh Bhawan"
Paryavaran Parisar, E-5, Arera Colony, Bhopal
EPA Recognised Lab
Test Report: Fresh Water (PhysicoChemical Parameter)

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F/LAB/06/TR-01

| Project Name | NGT Case No. 82/2022 | Test Report No. | FW/22-23/81 |
|---|---|---|---|
| Sample Description | Yatch Club- Intake Well Point, Upper Lake, Bhopal | Requisition No. | 56 |
| Date of sample collection | 07.02.2023 | Date | 06.03.2023 |
| Date of sample receipt | 07.02.2023 | Type of sample | Grab |
| Date of analysis | 07.02.2023 to 14.02.2023 | Sample collected by | Sh. Bandewar, Sh. S Kolhatkar, Sh. S Sahu |

| S.No. | Parameters | Unit | Result | Method |
|---|---|---|---|---|
| 1 | **Temperature** | **°C** | **22.8** | - |
| 2 | Odour | - | - | - |
| 3 | Appearance | - | - | - |
| 4 | Colour | Pt-Co Scale | - | APHA, 2120-B |
| 5 | Residual Chlorine | mg/L | - | APHA 4500-Cl-B |
| 6 | **Dissolved Oxygen** | **mg/L** | **6.92** | **APHA 4500-O-C** |
| 7 | **pH** | **pH unit** | **8.4** | **APHA, 4500H+B** |
| 8 | **Specific Conductivity** | **µmho/cm** | **245** | **APHA 2510 B** |
| 9 | **Suspended Solids** | **mg/L** | **9** | **APHA 2540 D** |
| 10 | **Total Dissolved Solids** | **mg/L** | **126** | **APHA 2540 C** |
| 11 | Total Solids | mg/L | - | APHA 2540 B |
| 12 | Fixed Dissolved Solid | mg/L | - | APHA 2540 E |
| 13 | **COD** | **mg/L** | **13.6** | **APHA, 5220 B** |
| 14 | **BOD (3 days, 27°C)** | **mg/L** | **1.32** | **IS 3025, 1993** |
| 15 | **Chloride** | **mg/L** | **13.2** | **APHA, 4500-CL-B** |
| 16 | **Total Alkalinity** | **mg/L** | **127** | **APHA 2320-B** |
| 17 | **T. Hardness (as $CaCO_3$)** | **mg/L** | **261** | **APHA 2340-C** |
| 18 | **Ca Hardness (as $CaCO_3$)** | **mg/L** | **181** | **APHA 3500-Ca-B** |
| 19 | **Mg Hardness (as $CaCO_3$)** | **mg/L** | **80** | **APHA 3500-Mg-B** |
| 20 | **Oil & Grease** | **mg/L** | **BDL** | **APHA 5520-D** |
| 21 | **Total Kjehdal Nitrogen** | **mg/L** | **1.9** | **APHA 4500-Norg-C** |
| 22 | **Turbidity** | **N.T.U.** | **3.23** | **APHA, 2130-B** |
| 23 | **Phosphate (as P)** | **mg/L** | **0.014** | **APHA 4500-P-D** |
| 24 | **Sulphate (as $SO_4$)** | **mg/L** | **4.39** | **APHA 4500-$SO_4$-E** |
| 25 | **Ammo. Nitrogen (as $NH_3$)** | **mg/L** | **BDL** | **APHA 4500-$NH_3$-F** |
| 26 | **Nitrite Nitrogen (as $NO_2$)** | **mg/L** | **BDL** | **APHA 4500-$NO_2$-B** |
| 27 | **Nitrate Nitrogen (as $NO_3$)** | **mg/L** | **0.34** | **APHA 4500-$NO_3$B** |
| 28 | Fluoride (as F) | mg/L | - | APHA 4500-F-D |
| 29 | **Sodium (as Na)** | **mg/L** | **11.48** | **APHA 3500-Na-B** |
| 30 | **Potassium (as K)** | **mg/L** | **2.66** | **APHA 3500-K-B** |
| 31 | Chromium (as $Cr^{+6}$) | mg/L | - | APHA 3500-Cr B |
| 32 | **Boron (as B)** | **mg/L** | **BDL** | **APHA 4500-B-C** |
| 33 | **Faecal Coliform** | **MPN/100ml** | **8.1** | **APHA 9221-E** |
| 34 | **Total Coliform** | **MPN/100ml** | **108** | **APHA 9221-B** |
| 35 | Bioassay Test | % Survival | - | APHA 8910 A-C |
| 36 | | | - | |
| 37 | | | - | |

Prepared by:

Milind Kumar Nimje
Laboratory Head
Laboratory Head:

Central Pollution Control Board
Regional Directorate (Central)
"Parivesh Bhawan"
Paryavaran Parisar, E-5, Arera Colony, Bhopal
EPA Recognised Lab

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Test Report:Fresh Water (PhysicoChemical Parameter) F/LAB/06/TR-01

| Project Name | NGT Case No. 82/2022 | Test Report No. | FW/22-23/82 |
|---|---|---|---|
| Sample Description | Kamla Park- Intake Well Point, Upper Lake, Bhopal | Requisition No. | 56 |
| Date of sample collection | 07.02.2023 | Date | 06.03.2023 |
| Date of sample receipt | 07.02.2023 | Type of sample | Grab |
| Date of analysis | 07.02.2023 to 14.02.2023 | Sample collected by | Sh. Bandewar, Sh. S Kolhatkar, Sh. S Sahu |

| S.No. | Parameters | Unit | Result | Method |
|---|---|---|---|---|
| 1 | **Temperature** | **°C** | **21.9** | - |
| 2 | Odour | - | - | - |
| 3 | Appearance | - | - | - |
| 4 | Colour | Pt-Co Scale | - | APHA, 2120-B |
| 5 | Residual Chlorine | mg/L | - | APHA 4500-Cl-B |
| 6 | **Dissolved Oxygen** | **mg/L** | **6.35** | **APHA 4500-O-C** |
| 7 | **pH** | **pH unit** | **7.8** | **APHA, 4500H+B** |
| 8 | **Specific Conductivity** | **µmho/cm** | **289** | **APHA 2510 B** |
| 9 | **Suspended Solids** | **mg/L** | **9** | **APHA 2540 D** |
| 10 | **Total Dissolved Solids** | **mg/L** | **128** | **APHA 2540 C** |
| 11 | Total Solids | mg/L | - | APHA 2540 B |
| 12 | Fixed Dissolved Solid | mg/L | - | APHA 2540 E |
| 13 | **COD** | **mg/L** | **13.6** | **APHA, 5220 B** |
| 14 | **BOD (3 days, 27°C)** | **mg/L** | **1.06** | **IS 3025, 1993** |
| 15 | **Chloride** | **mg/L** | **17.91** | **APHA, 4500-CL-B** |
| 16 | **Total Alkalinity** | **mg/L** | **124** | **APHA 2320-B** |
| 17 | **T. Hardness (as $CaCO_3$)** | **mg/L** | **188** | **APHA 2340-C** |
| 18 | **Ca Hardness (as $CaCO_3$)** | **mg/L** | **138** | **APHA 3500-Ca-B** |
| 19 | **Mg Hardness (as $CaCO_3$)** | **mg/L** | **50** | **APHA 3500-Mg-B** |
| 20 | **Oil & Grease** | **mg/L** | **0.4** | **APHA 5520-D** |
| 21 | **Total Kjehdal Nitrogen** | **mg/L** | **3.4** | **APHA 4500-Norg-C** |
| 22 | **Turbidity** | **N.T.U.** | **4.01** | **APHA, 2130-B** |
| 23 | **Phosphate (as P)** | **mg/L** | **0.012** | **APHA 4500-P-D** |
| 24 | **Sulphate (as $SO_4$)** | **mg/L** | **3.84** | **APHA 4500-$SO_4$-E** |
| 25 | **Ammo. Nitrogen (as $NH_3$)** | **mg/L** | **BDL** | **APHA 4500-$NH_3$-F** |
| 26 | **Nitrite Nitrogen (as $NO_2$)** | **mg/L** | **BDL** | **APHA 4500-$NO_2$-B** |
| 27 | **Nitrate Nitrogen (as $NO_3$)** | **mg/L** | **0.03** | **APHA 4500-$NO_3$B** |
| 28 | Fluoride (as F) | mg/L | - | APHA 4500-F-D |
| 29 | **Sodium (as Na)** | **mg/L** | **11.92** | **APHA 3500-Na-B** |
| 30 | **Potassium (as K)** | **mg/L** | **2.72** | **APHA 3500-K-B** |
| 31 | Chromium (as $Cr^{+6}$) | mg/L | - | APHA 3500-Cr B |
| 32 | **Boron (as B)** | **mg/L** | **BDL** | **APHA 4500-B-C** |
| 33 | **Faecal Coliform** | **MPN/100ml** | **<1.8** | **APHA 9221-E** |
| 34 | **Total Coliform** | **MPN/100ml** | **168** | **APHA 9221-B** |
| 35 | Bioassay Test | % Survival | - | APHA 8910 A-C |
| 36 | | | - | |
| 37 | | | - | |

Prepared by:

Milind Kumar Nimje
Laboratory Head
Laboratory Head:

Central Pollution Control Board
Regional Directorate (Central)
"Parivesh Bhawan"
Paryavaran Parisar, E-5, Arera Colony, Bhopal
EPA Recognised Lab
Test Report:Fresh Water (PhysicoChemical Parameter)

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F/LAB/06/TR-01

| Project Name | NGT Case No. 82/2022 | Test Report No. | FW/22-23/83 |
|---|---|---|---|
| Sample Description | Karbala- Intake Well Point, Upper Lake, Bhopal | Requisition No. | 56 |
| Date of sample collection | 07.02.2023 | Date | 06.03.2023 |
| Date of sample receipt | 07.02.2023 | Type of sample | Grab |
| Date of analysis | 07.02.2023 to 14.02.2023 | Sample collected by | Sh. Bandewar, Sh. S Kolhatkar, Sh. S Sahu |

| S.No. | Parameters | Unit | Result | Method |
|---|---|---|---|---|
| 1 | **Temperature** | **°C** | **22.8** | - |
| 2 | Odour | - | - | - |
| 3 | Appearance | - | - | - |
| 4 | Colour | Pt-Co Scale | - | APHA, 2120-B |
| 5 | Residual Chlorine | mg/L | - | APHA 4500-Cl-B |
| 6 | **Dissolved Oxygen** | **mg/L** | **8.6** | **APHA 4500-O-C** |
| 7 | **pH** | **pH unit** | **8.3** | **APHA, 4500H+B** |
| 8 | **Specific Conductivity** | **µmho/cm** | **247** | **APHA 2510 B** |
| 9 | **Suspended Solids** | **mg/L** | **4** | **APHA 2540 D** |
| 10 | **Total Dissolved Solids** | **mg/L** | **127** | **APHA 2540 C** |
| 11 | Total Solids | mg/L | - | APHA 2540 B |
| 12 | Fixed Dissolved Solid | mg/L | - | APHA 2540 E |
| 13 | **COD** | **mg/L** | **12** | **APHA, 5220 B** |
| 14 | **BOD (3 days, 27°C)** | **mg/L** | **1.44** | **IS 3025, 1993** |
| 15 | **Chloride** | **mg/L** | **18.48** | **APHA, 4500-CL-B** |
| 16 | **Total Alkalinity** | **mg/L** | **126** | **APHA 2320-B** |
| 17 | **T. Hardness (as $CaCO_3$)** | **mg/L** | **219** | **APHA 2340-C** |
| 18 | **Ca Hardness (as $CaCO_3$)** | **mg/L** | **157** | **APHA 3500-Ca-B** |
| 19 | **Mg Hardness (as $CaCO_3$)** | **mg/L** | **61** | **APHA 3500-Mg-B** |
| 20 | **Oil & Grease** | **mg/L** | **0.4** | **APHA 5520-D** |
| 21 | **Total Kjehdal Nitrogen** | **mg/L** | **2.8** | **APHA 4500-Norg-C** |
| 22 | **Turbidity** | **N.T.U.** | **4.33** | **APHA, 2130-B** |
| 23 | **Phosphate (as P)** | **mg/L** | **0.008** | **APHA 4500-P-D** |
| 24 | **Sulphate (as $SO_4$)** | **mg/L** | **3.62** | **APHA 4500-$SO_4$-E** |
| 25 | **Ammo. Nitrogen (as $NH_3$)** | **mg/L** | **BDL** | **APHA 4500-$NH_3$-F** |
| 26 | **Nitrite Nitrogen (as $NO_2$)** | **mg/L** | **BDL** | **APHA 4500-$NO_2$-B** |
| 27 | **Nitrate Nitrogen (as $NO_3$)** | **mg/L** | **0.05** | **APHA 4500-$NO_3$B** |
| 28 | Fluoride (as F) | mg/L | - | APHA 4500-F-D |
| 29 | **Sodium (as Na)** | **mg/L** | **12.05** | **APHA 3500-Na-B** |
| 30 | **Potassium (as K)** | **mg/L** | **2.77** | **APHA 3500-K-B** |
| 31 | Chromium (as $Cr^{+6}$) | mg/L | - | APHA 3500-Cr B |
| 32 | **Boron (as B)** | **mg/L** | **BDL** | **APHA 4500-B-C** |
| 33 | **Faecal Coliform** | **MPN/100ml** | **4** | **APHA 9221-E** |
| 34 | **Total Coliform** | **MPN/100ml** | **125** | **APHA 9221-B** |
| 35 | Bioassay Test | % Survival | - | APHA 8910 A-C |
| 36 | | | - | |
| 37 | | | - | |

Prepared by:

Milind Kumar Nimje
Laboratory Head

Central Pollution Control Board
Regional Directorate (Central)
"Parivesh Bhawan"
Paryavaran Parisar, E-5, Arera Colony, Bhopal
EPA Recognised Lab
Test Report: Fresh Water (PhysicoChemical Parameter)

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| Project Name | NGT Case No. 82/2022 | Test Report No. | FW/22-23/84 |
|---|---|---|---|
| Sample Description | Bairagarh- Intake Well Point, Upper Lake, Bhopal | Requisition No. | 56 |
| Date of sample collection | 07.02.2023 | Date | 06.03.2023 |
| Date of sample receipt | 07.02.2023 | Type of sample | Grab |
| Date of analysis | 07.02.2023 to 14.02.2023 | Sample collected by | Sh. Bandewar, Sh. S Kolhatkar, Sh. S Sahu |

| S.No. | Parameters | Unit | Result | Method |
|---|---|---|---|---|
| 1 | **Temperature** | **°C** | **22.4** | - |
| 2 | Odour | - | - | - |
| 3 | Appearance | - | - | - |
| 4 | Colour | Pt-Co Scale | - | APHA, 2120-B |
| 5 | Residual Chlorine | mg/L | - | APHA 4500-Cl-B |
| 6 | **Dissolved Oxygen** | **mg/L** | **8** | **APHA 4500-O-C** |
| 7 | **pH** | **pH unit** | **8.4** | **APHA, 4500H+B** |
| 8 | **Specific Conductivity** | **µmho/cm** | **288** | **APHA 2510 B** |
| 9 | **Suspended Solids** | **mg/L** | **4** | **APHA 2540 D** |
| 10 | **Total Dissolved Solids** | **mg/L** | **175** | **APHA 2540 C** |
| 11 | Total Solids | mg/L | - | APHA 2540 B |
| 12 | Fixed Dissolved Solid | mg/L | - | APHA 2540 E |
| 13 | **COD** | **mg/L** | **14.4** | **APHA, 5220 B** |
| 14 | **BOD (3 days, 27°C)** | **mg/L** | **1.76** | **IS 3025, 1993** |
| 15 | **Chloride** | **mg/L** | **12.25** | **APHA, 4500-CL-B** |
| 16 | **Total Alkalinity** | **mg/L** | **127** | **APHA 2320-B** |
| 17 | **T. Hardness (as $CaCO_3$)** | **mg/L** | **204** | **APHA 2340-C** |
| 18 | **Ca Hardness (as $CaCO_3$)** | **mg/L** | **127** | **APHA 3500-Ca-B** |
| 19 | **Mg Hardness (as $CaCO_3$)** | **mg/L** | **77** | **APHA 3500-Mg-B** |
| 20 | **Oil & Grease** | **mg/L** | **BDL** | **APHA 5520-D** |
| 21 | **Total Kjehdal Nitrogen** | **mg/L** | **3.4** | **APHA 4500-Norg-C** |
| 22 | **Turbidity** | **N.T.U.** | **2.89** | **APHA, 2130-B** |
| 23 | **Phosphate (as P)** | **mg/L** | **0.011** | **APHA 4500-P-D** |
| 24 | **Sulphate (as $SO_4$)** | **mg/L** | **4.61** | **APHA 4500-$SO_4$-E** |
| 25 | **Ammo. Nitrogen (as $NH_3$)** | **mg/L** | **BDL** | **APHA 4500-$NH_3$-F** |
| 26 | **Nitrite Nitrogen (as $NO_2$)** | **mg/L** | **BDL** | **APHA 4500-$NO_2$-B** |
| 27 | **Nitrate Nitrogen (as $NO_3$)** | **mg/L** | **0.04** | **APHA 4500-$NO_3$B** |
| 28 | Fluoride (as F) | mg/L | - | APHA 4500-F-D |
| 29 | **Sodium (as Na)** | **mg/L** | **12.38** | **APHA 3500-Na-B** |
| 30 | **Potassium (as K)** | **mg/L** | **2.51** | **APHA 3500-K-B** |
| 31 | Chromium (as $Cr^{+6}$) | mg/L | - | APHA 3500-Cr B |
| 32 | **Boron (as B)** | **mg/L** | **BDL** | **APHA 4500-B-C** |
| 33 | **Faecal Coliform** | **MPN/100ml** | **3.7** | **APHA 9221-E** |
| 34 | **Total Coliform** | **MPN/100ml** | **121** | **APHA 9221-B** |
| 35 | Bioassay Test | % Survival | - | APHA 8910 A-C |
| 36 | | | - | |
| 37 | | | - | |

Prepared by:

Milind Kumar Nimje
Laboratory Head
Laboratory Head:

CENTRAL POLLUTION CONTROL BOARD
**Parivesh Bhawan, East Arjun Nagar, Delhi-110032**
**INSTRUMENTATION LABORATORY**
**Metal Analysis Report**

TC-7723

| | | | |
|---|---|---|---|
| 1. | Place of Analysis | : | Instrumentation Laboratory |
| 2. | Report No. & Issue Date | : | IL/HM/ICP-MS/1320; 03.03.2023 |
| 3. | Report sent to (Name, Mobile no. & Address of Indenter) | : | CPCB R.D BHOPAL |
| 4. | Test Method Reference | : | APHA, 3125-B, 23rd Ed. 2017 |
| 5. | Sample condition (please describe, if not as per procedure) | : | As per procedure |
| 6. | Sample Matrix | : | Freshwater |
| 7. | Date & Time of Sample Collection | : | 10.02.2023 01:00 PM |
| 8. | Samples Collected by | : | Dr. P. C. Patil |
| 9. | Date & Time of Sample Receipt | : | 14.02.2023 10:30AM |
| 10. | Sample Registration No. & Date | : | IL/SR-277/HM-07/2223; 14.02.2023 |
| 11. | Date of Sample Analysis | : | 15.02.2023 |
| 12. | Sampling Plan Reference | : | NGT Matter No-82/2022 |

| S. No. | Sample Code | As (mg/L) | Cd (mg/L) | Co (mg/L) | Cr (mg/L) | Cu (mg/L) | Fe (mg/L) | Mn (mg/L) | Ni (mg/L) | Pb (mg/L) | Sb (mg/L) | Zn (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | B-01 | BDL | BDL | BDL | BDL | BDL | 0.05 | BDL | BDL | BDL | BDL | BDL |
| 2. | FW/22-23/77 | BDL | BDL | BDL | 0.02 | BDL | 0.02 | 0.12 | BDL | BDL | BDL | BDL |
| 3. | FW/22-23/80 | BDL | BDL | BDL | BDL | BDL | 0.19 | 0.06 | BDL | 0.01 | BDL | 0.01 |
| 4. | FW/22-23/81 | BDL | BDL | BDL | BDL | BDL | 0.15 | 0.05 | BDL | BDL | BDL | BDL |
| 5. | FW/22-23/82 | BDL | BDL | BDL | BDL | BDL | 0.14 | 0.05 | BDL | BDL | BDL | BDL |
| 6. | FW/22-23/83 | BDL | BDL | BDL | BDL | BDL | 0.03 | 0.09 | BDL | BDL | BDL | 0.01 |
| 7. | FW/22-23/84 | BDL | BDL | BDL | BDL | BDL | 0.18 | 0.07 | BDL | BDL | BDL | BDL |

BDL: Below Detection Limit

Detection Limit - (µg/L)-: As-0.49, Cd-0.42, Co-0.35, Cr-0.56, Cu-0.35, Fe-0.67, Mn-0.43, Ni-0.54, Pb-0.31, Sb- 0.35& Zn-0.59.

**Statement:**

1. The Results related only to the samples tested as received.
2. The report shall not be reproduced except in full, without the written approval of the Laboratory.
3. The parameter is under the scope of NABL accreditation, ISO-17025:2017 (Certificate No.TC-7723).
4. Samples will be retained for 30 days from the date of issue of Test Report.

Nitin Kumar 03.03.2023
**Dr. N. K. SHARMA**
**Analyst**

03.03.2023
**B. K. JENA**
**Supervisor & Reviewer**

3/3/23
**Dr. K. RANGANATHAN**
**D H Instrumentation Lab**

Central Pollution Control Board
Regional Directorate (Central)
"Parivesh Bhawan"
Paryavaran Parisar, E-5, Arera Colony, Bhopal
EPA Recognised Lab
Test Report: Fresh Water (PhysicoChemical Parameter)

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F/LAB/06/TR-01

| Project Name | NGT Case No. 82/2022 | Test Report No. | FW/22-23/78 |
|---|---|---|---|
| Sample Description | Cruise Parking Backside, Generator Discharge, Upper Lake, Bhopal | Requisition No. | 55 |
| Date of sample collection | 06.02.2023 | Date | 06.03.2023 |
| Date of sample receipt | 06.02.2023 | Type of sample | Grab |
| Date of analysis | 06.02.2023 to 14.02.2023 | Sample collected by | Sh. Bandewar, Sh. S Kolhatkar, Sh. JJ Ram, Sh. S Sahu |

| S.No. | Parameters | Unit | Result | Method |
|---|---|---|---|---|
| 1 | **Temperature** | **°C** | **25.6** | - |
| 2 | Odour | - | - | - |
| 3 | Appearance | - | - | - |
| 4 | Colour | Pt-Co Scale | - | APHA, 2120-B |
| 5 | Residual Chlorine | mg/L | - | APHA 4500-Cl-B |
| 6 | Dissolved Oxygen | mg/L | - | APHA 4500-O-C |
| 7 | **pH** | **pH unit** | **7.5** | **APHA, 4500H+B** |
| 8 | **Specific Conductivity** | **µmho/cm** | **263** | **APHA 2510 B** |
| 9 | **Suspended Solids** | **mg/L** | **8** | **APHA 2540 D** |
| 10 | **Total Dissolved Solids** | **mg/L** | **131** | **APHA 2540 C** |
| 11 | Total Solids | mg/L | - | APHA 2540 B |
| 12 | Fixed Dissolved Solid | mg/L | - | APHA 2540 E |
| 13 | **COD** | **mg/L** | **14.8** | **APHA, 5220 B** |
| 14 | **BOD (3 days, 27°C)** | **mg/L** | **1.98** | **IS 3025, 1993** |
| 15 | **Chloride** | **mg/L** | **11.31** | **APHA, 4500-CL-B** |
| 16 | Total Alkalinity | mg/L | - | APHA 2320-B |
| 17 | T. Hardness (as $CaCO_3$) | mg/L | - | APHA 2340-C |
| 18 | Ca Hardness (as $CaCO_3$) | mg/L | - | APHA 3500-Ca-B |
| 19 | Mg Hardness (as $CaCO_3$) | mg/L | - | APHA 3500-Mg-B |
| 20 | **Oil & Grease** | **mg/L** | **0.4** | **APHA 5520-D** |
| 21 | **Total Kjehdal Nitrogen** | **mg/L** | - | **APHA 4500-Norg-C** |
| 22 | **Turbidity** | **N.T.U.** | **3.02** | **APHA, 2130-B** |
| 23 | **Phosphate (as P)** | **mg/L** | **0.011** | **APHA 4500-P-D** |
| 24 | **Sulphate (as $SO_4$)** | **mg/L** | **4.72** | **APHA 4500-$SO_4$-E** |
| 25 | **Ammo. Nitrogen (as $NH_3$)** | **mg/L** | **BDL** | **APHA 4500-$NH_3$-F** |
| 26 | **Nitrite Nitrogen (as $NO_2$)** | **mg/L** | **0.02** | **APHA 4500-$NO_2$-B** |
| 27 | **Nitrate Nitrogen (as $NO_3$)** | **mg/L** | **0.07** | **APHA 4500-$NO_3$B** |
| 28 | Fluoride (as F) | mg/L | - | APHA 4500-F-D |
| 29 | **Sodium (as Na)** | **mg/L** | **10.86** | **APHA 3500-Na-B** |
| 30 | **Potassium (as K)** | **mg/L** | **2.67** | **APHA 3500-K-B** |
| 31 | Chromium (as $Cr^{+6}$) | mg/L | - | APHA 3500-Cr B |
| 32 | **Boron (as B)** | **mg/L** | **BDL** | **APHA 4500-B-C** |
| 33 | Faecal Coliform | MPN/100ml | - | APHA 9221-E |
| 34 | Total Coliform | MPN/100ml | - | APHA 9221-B |
| 35 | Bioassay Test | % Survival | - | APHA 8910 A-C |
| 36 | | | - | |
| 37 | | | - | |

Prepared by:

Milind Kumar Nimje
Laboratory Head

Laboratory Head:

Central Pollution Control Board
Regional Directorate (Central)
"Parivesh Bhawan"
Paryavaran Parisar, E-5, Arera Colony, Bhopal
EPA Recognised Lab

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Test Report: Fresh Water (PhysicoChemical Parameter) F/LAB/06/TR-01

| Project Name | NGT Case No. 82/2022 | Test Report No. | FW/22-23/79 |
|---|---|---|---|
| Sample Description | Cruise Engine Discharge, Upper Lake, Bhopal | Requisition No. | 55 |
| Date of sample collection | 06.02.2023 | Date | 06.03.2023 |
| Date of sample receipt | 06.02.2023 | Type of sample | Grab |
| Date of analysis | 06.02.2023 to 14.02.2023 | Sample collected by | Sh. Bandewar, Sh. S Kolhatkar, Sh. JJ Ram, Sh. S Sahu |

| S.No. | Parameters | Unit | Result | Method |
|---|---|---|---|---|
| 1 | **Temperature** | °C | **24.7** | - |
| 2 | Odour | - | - | - |
| 3 | Appearance | - | - | - |
| 4 | Colour | Pt-Co Scale | - | APHA, 2120-B |
| 5 | Residual Chlorine | mg/L | - | APHA 4500-Cl-B |
| 6 | Dissolved Oxygen | mg/L | - | APHA 4500-O-C |
| 7 | **pH** | **pH unit** | **7.6** | **APHA, 4500H+B** |
| 8 | **Specific Conductivity** | **µmho/cm** | **256** | **APHA 2510 B** |
| 9 | **Suspended Solids** | **mg/L** | **12** | **APHA 2540 D** |
| 10 | **Total Dissolved Solids** | **mg/L** | **135** | **APHA 2540 C** |
| 11 | Total Solids | mg/L | - | APHA 2540 B |
| 12 | Fixed Dissolved Solid | mg/L | - | APHA 2540 E |
| 13 | **COD** | **mg/L** | **16** | **APHA, 5220 B** |
| 14 | **BOD (3 days, 27°C)** | **mg/L** | **2.16** | **IS 3025, 1993** |
| 15 | **Chloride** | **mg/L** | **12.25** | **APHA, 4500-CL-B** |
| 16 | Total Alkalinity | mg/L | - | APHA 2320-B |
| 17 | T. Hardness (as $CaCO_3$) | mg/L | - | APHA 2340-C |
| 18 | Ca Hardness (as $CaCO_3$) | mg/L | - | APHA 3500-Ca-B |
| 19 | Mg Hardness (as $CaCO_3$) | mg/L | - | APHA 3500-Mg-B |
| 20 | **Oil & Grease** | **mg/L** | **0.6** | **APHA 5520-D** |
| 21 | **Total Kjehdal Nitrogen** | **mg/L** | - | **APHA 4500-Norg-C** |
| 22 | **Turbidity** | **N.T.U.** | **2.83** | **APHA, 2130-B** |
| 23 | **Phosphate (as P)** | **mg/L** | **0.048** | **APHA 4500-P-D** |
| 24 | **Sulphate (as $SO_4$)** | **mg/L** | **3.95** | **APHA 4500-$SO_4$-E** |
| 25 | **Ammo. Nitrogen (as $NH_3$)** | **mg/L** | **BDL** | **APHA 4500-$NH_3$-F** |
| 26 | **Nitrite Nitrogen (as $NO_2$)** | **mg/L** | **0.02** | **APHA 4500-$NO_2$-B** |
| 27 | **Nitrate Nitrogen (as $NO_3$)** | **mg/L** | **0.08** | **APHA 4500-$NO_3$B** |
| 28 | Fluoride (as F) | mg/L | - | APHA 4500-F-D |
| 29 | **Sodium (as Na)** | **mg/L** | **11.53** | **APHA 3500-Na-B** |
| 30 | **Potassium (as K)** | **mg/L** | **2.62** | **APHA 3500-K-B** |
| 31 | Chromium (as $Cr^{+6}$) | mg/L | - | APHA 3500-Cr B |
| 32 | **Boron (as B)** | **mg/L** | **BDL** | **APHA 4500-B-C** |
| 33 | Faecal Coliform | MPN/100ml | - | APHA 9221-E |
| 34 | Total Coliform | MPN/100ml | - | APHA 9221-B |
| 35 | Bioassay Test | % Survival | - | APHA 8910 A-C |
| 36 | | | - | |
| 37 | | | - | |

Prepared by:

Milind Kumar Nimje
Laboratory Head

Laboratory Head

Regional Directorate (Central)
**Central Pollution Control Board**
"Parivesh Bhawan", Paryavaran Parisar, E-5, Arera Colony ,
Bhopal – 462016
Tel: 0755-2775385/86, Fax: 0755-2775587

*EPA Recognized Lab-2015*

***TEST REPORT***

## Ambient / Fugitive Air Analysis Report

F/LAB/06/TR-03

| | | | | | |
|---|---|---|---|---|---|
| **Sample from:** | **Upper Lake, NGT Case Sampling** | | | **Req. No: 073** | **Test report No: AAQM/22-23/118** |
| **Sample Description:** | **Cruze Boat parking area** Cruze front of upper side | | | **Registration No:.** | **AAQM/22-23/118** |
| **Date of collection:** | 06 -02. .2023 | **Type of sample:** grab/**composite** | | **Date:** | **14.02.2023** |
| **Date of receipt :** | 06.02.2023 | **Sample collected By** | | **Dr. P.C. Patil with Team CPCB RD Bhopal** | |
| **Date of analysis :** | 10.02.2023 | | | | |

| S. No. | Parameters | Unit | Result | Method |
|---|---|---|---|---|
| 1. | Suspended Particulate Matter (SPM) / $PM_{10}$ | $\mu g/M^3$ | 21 | ISC Method No. 501, Page no. 427 – 439, 3rd ED. 1989<br>IS Method No. 5182, (Part -4), 1999 |
| 2. | Particulate Matter PM- 2.5 | $\mu g/M^3$ | -- | ISC Method No. 501, Page no. 427 – 439, 3rd ED. 1989 |
| 3. | **Nitrogen Dioxide ( Nox)** | $\mu g/M^3$ | 12 | IS Method No. 5182, (Part -6), 2006 |
| 4. | **Sulphur Dioxide ( Sox)** | $\mu g/M^3$ | 02 | IS Method No. 5182, (Part -2), 2001 |
| 5. | Fluoride | $\mu g/M^3$ | | AS 3580- 13.2- 1991/ 3580.13.3 – 1993 ,Sodium Acetate method |
| 6. | Ammonia | $\mu g/M^3$ | | EPA -401 3rd Edition 2000<br>Indo -phenol method |
| 7. | Other Specific Parameters | $\mu g/M^3$ | - | |

Prepared By:

Lab Head
Authorised Signatory
मिलिन्द कुमार निमजे / Milind Kumar Nimje
वैज्ञानिक - 'ग', लैब प्रमुख एवं सरकारी विश्लेषक
Scientist - 'C', Lab Head & Government Analyst
क्षेत्रीय निदेशालय / Regional Directorate
केंद्रीय प्रदूषण नियंत्रण बोर्ड, भोपाल (म.प्र.)
Central Pollution Control Board, Bhopal (M.P.)

**CENTRAL POLLUTION CONTROL BOARD, BHOPAL**
**Regional Directorate (Central)**
**Ambient Noise of Parivesh Bhawan, Pryavaran Parisar, E-5, Arera Colony, Bhopal**
**Data sheet for Ambient Noise Monitoring**

ANNEXURE- V

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Location: Upper Lake, Bhopal (M.P.)** | | | | | | Date: 07.02.2023<br>Time : *Day Time* | |
| Noise Level Meter : *CPCB/ZOB/LAB/SLM/2014/03* | | | | | | | |
| Make | : | | *DELTA OHM* | | | | |
| Model | : | | *HD2110L* | | | | |
| Serial No. | : | | *14022833447* | | | | |
| | Calibration Result of Noise Level Meter | | | | | | |
| Calibration | | | 94 dB at 1000 Hz | | | 114 dB at 1000 Hz | |
| Initial | | | 94.0 | | | 114 | |
| Final | | | 93.9 | | | 113.9 | |
| Sampling rate | | | 1Sec. | | | | |

| S. No | Time duration 10Minuts | File No. | L equivalent dB(A) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Leq. | $L_{50}$ | $L_{90}$ | Lmin | Lmax | Remarks |
| 1. | Cruise Parking area without Music | 0001 | **68.9** | 67.0 | 65.1 | **64.1** | **80.7** | -- |
| 2. | Cruise Parking area Music On Condition | 0002 | **86.0** | 80.5 | 69.3 | **65.0** | **96.7** | **On Music Box in Cruise** |
| 3. | Near Bout Club Main Gate without Music | 0003 | **65.7** | 61.1 | 56.0 | **52.4** | **78.2** | **Motor cycle and car Horn** |
| 4. | Near Bout Club Main Gate with Music | 0004 | **78.5** | 71.2 | 65.2 | **58.7** | **91.4** | **Motor cycle, car Horn and Loudspeaker** |
| 5. | Near Van Vihar Main Gate without Music | 0005 | **63.7** | 55.3 | 48.1 | **44.5** | **80.4** | **Motor cycle** |
| 6. | Near Van Vihar Main Gate with Music | 0006 | **65.8** | 56.7 | 50.8 | **46.1** | **84.2** | **Motor cycle and car Horn** |
| Average L equivalent dB(A) | | | -- | | | | | |
| Monitoring team & signature | | | | | | | | |

Notes: (1) The method for calculation of average Leq: To convert average of dB(A), each value is to be divided by 10, followed by antilog and finally calculate arithmetic mean. The final value is converted in logarithm followed by multiplication with 10. (2) monitoring must be carried for 75% of the prescribed day time and night time for legal compliance, (3) $L_{max}$ and $L_{min}$ are to reported hourly basis and (4) $L_{50}$ & $L_{90}$ also recorded to understand the intensity of the noise for further course of action.

(Monitored by)
Signatory

(Checked by)
Signatory

Authorized
Signatory
Milind Kumar Nimje
Laboratory Head

**CENTRAL POLLUTION CONTROL BOARD, BHOPAL**
**Regional Directorate (Central)**
**Parivesh Bhawan, Pryavaran Parisar,**
**E-5, Arera Colony, Bhopal**
**Data sheet for Source Monitoring with Flue gas Analyzer**

| S. No. | Parameter | Unit | Cruise Engine Vent Pipe | Cruise Engine and DG Set Vent Pipe |
|---|---|---|---|---|
| 01. | CO | PPM | 1 | 3 |
| 02. | $NO_x$ | PPM | 0.1 | 1 |
| 03. | NO | PPM | 0 | 1 |
| 04. | $NO_2$ | PPM | 0.1 | 0 |
| 05. | $CO_2$ | % | 0.03 | 0.05 |
| 06. | $SO_2$ | PPM | 0 | 0 |
| 07. | O2 | % | 3 | 3 |
| 08. | Flue gas Temperature | $^0C$ | 27.2 | 27.0 |
| 09. | Ambient Temperature | $^0C$ | 30.5 | 31.4 |

Note: Monitoring of Source emission carried by using MPPCB, Bhopal Flue gas Analyzer.

(Monitored by)
Signatory

(Authorized)
Signatory
Milind Kumar Nimje
Laboratory Head

CPCB

**Central Pollution Control Board**
**Regional Directorate (Central)**
**Parivesh Bhawan, Paryavaran Pariosar, Arera Colony, Bhopal**

| | |
|---|---|
| Water Body | Upper Lake |
| Location | Composite |
| Date of sampling | 07.02.2023 |
| Starting date of sampling | 1:00 pm |
| Ending of sampling | 4:15 pm |
| Sampling team | Dr. P C Patil, R. Bandewar, S. Kolhatkar, S. K. Bhatia |

Milind Kumar Nimje
Laboratory Head

Signature of Team Leader

This method involves a quantitative inventory of the presence of macro-invertebrate benthic fauna upto family level of taxonomic precision. All possible families having saprobic indicator value are classified on a score scale of 1 to 10 according to their preference for saprobic water quality. The families which are most sensitive to pollution are on the top of the list (Table 1) and are getting a score of 10 while the most pollution tolerant families are getting a scope of 1 and 2. The other intermediately sensitive families are placed in between the scoring scale of 10 to 1.

ENTER DIFFERENT SPECIES WITHIN ONE FAMILY SEPARATELY, AND INDICATE ABUNDANCYAS:

Abundance scale:

| | | |
|---|---|---|
| A | = | single (one individual) |
| B | = | scarce (2-10 individuals) |
| C | = | common (10-50 individuals) |
| D | = | abundant (50-100 individuals) |
| E | = | excessive (more than 100 individuals or only one species) |

TABLE - 1

| TAXONOMICAL ~~GROUP~~ ORDER | TAXONOMICAL FAMILIES | MARK ENCOUNTERED FAMILIES AND IF POSSIBLE SPECIES WITHIN FAMILIES ALSO MARK ABUNDANCY AS - 1A, 1B, 1C, 1D, 1E | TOTAL FAMILIES/ SPECIES ENCOUNTERED | BMWP SCORE | MULTI-PLIED SCORE |
|---|---|---|---|---|---|
| Ephemeroptera | Siphonuridae | | | | |
| | Heptageniidae | | | | |
| | Leptophlebiidae | | | | |
| | Ephemerellidae | | | | |
| | Potharninthidae | | | | |
| | Ephemeridae | | | | |
| Plecoptera | Taeniopterygidae | | | | |
| | Leuctridae | | | | |
| | Capniidae | | | | |
| | Perlodidae | | | | |
| | Perlidae | | | | |
| Hemiptera | Aphelocheiridae | | | | |
| Trichoptera | Leptoceridae | | | | |
| | Goeridae | | | | |
| | Lepidostomatidae | | | | |
| | Brachycentridae | | | | |
| | Sericostomatidae | | | | |
| TOTAL FAMILIES ENCOUNTERED & TOTAL MULTIPLIED SCORE | | | | X 10 | |

Milind Kumar Nimje
Laboratory Head

Signature of Team Leader

| TAXONOMICAL GROUP | TAXONOMICAL FAMILIES | MARK ENCOUNTERED FAMILIES AND IF POSSIBLE SPECIES WITHIN FAMILIES ALSO MARK ABUNDANCY AS - 1A, 1B, 1C, 1D, 1E | TOTAL FAMILIES/ SPECIES ENCOUNTERED | BMWP SCORE | MULTI-PLIED SCORE |
|---|---|---|---|---|---|
| Odonata | Euphaeidae | | | | |
| | Lestidae | 1D | | | |
| | Plathycnemididae | | | | |
| | Gomphidae | 1C | | | |
| | ~~Cordulegasteridae~~ Macromidae | | | | |
| | Aeschnidae | | | | |
| | Corduliidae | | | | |
| | Libellulidae | 1B | | | |
| Trichoptera | Psychomyiidae | | | | |
| | Philopotamidae | | | | |
| TOTAL FAMILIES ENCOUNTERED & TOTAL MULTIPLIED SCORE | | | 3 | X 8 | 24 |
| Ephemeroptera | Caenidae | | | | |
| Plecoptera | Nemouridae | | | | |
| Trichoptera | Rhyacophilidae | | | | |
| | Polycentropodidae | | | | |
| | Limnephilidae | | | | |
| TOTAL FAMILIES ENCOUNTERED & TOTAL MULTIPLIED SCORE | | | | X 7 | — |
| Mollusca | Neritidae | | | | |
| | Viviparidae | 1D | | | |
| | Hydrobiidae | | | | |
| | Thiaridae | 1C | | | |
| | Bithynidae | 1D | | | |
| | Ancylidae | | | | |
| | Unionidae | 1C | | | |
| Trichoptera | Hydroptilidae | | | | |
| Crustacea | Atydae | 1C | | | |
| | Gammaridae | | | | |
| | Paleamonidae | 1B | | | |
| Polychaeta | Nereidae | | | | |
| | Nephthyidae | | | | |
| Odonata | Agriidae | | | | |
| | Coenagriidae | | | | |
| TOTAL FAMILIES ENCOUNTERED & TOTAL MULTIPLIED SCORE | | | 6 | X 6 | 36 |

Milind Kumar Nimje
Laboratory Head

Signature of Team Leader

| TAXONOMICAL GROUP | TAXONOMICAL FAMILIES | MARK ENCOUNTERED FAMILIES AND IF POSSIBLE SPECIES WITHIN FAMILIES ALSO MARK ABUNDANCY AS - 1A, 1B, 1C, 1D, 1E | TOTAL FAMILIES/ SPECIES ENCOUNTERED | BMWP SCORE | MULTI-PLIED SCORE |
|---|---|---|---|---|---|
| Hemiptera | Mesovelidae | | | | |
| | Hydrometridae | | | | |
| | Gerridae | | | | |
| | Nepidae | | | | |
| | Naucoridae | | | | |
| | Notonectidae | | | | |
| | Pleidae | | | | |
| | Veliidae | | | | |
| | Hebridae | | | | |
| | Belastomatidae | 1C | | | |
| | Corixidae | 1B | | | |
| Coleoptera | Haliplidae | | | | |
| | Hygrobidae | | | | |
| | Dytiscidae | | | | |
| | Gyrinidae | | | | |
| | Hydrophilidae | | | | |
| | Dryopidae | | | | |
| | Elminthidae | | | | |
| | Noteridae | | | | |
| | Psephenidae | | | | |
| Trichoptera | Hydropsychidae | | | | |
| Diptera | Tipulidae | | | | |
| | Culicidae | | | | |
| | Blepharoceridae | | | | |
| | Simulidae | | | | |
| Planaria | Planariidae | | | | |
| | Dendrocoelidae | | | | |
| TOTAL FAMILIES ENCOUNTERED & TOTAL MULTIPLIED SCORE | | | 2 | X 5 | 10 |
| Ephemeroptera | Baetidae | | | | |
| Megaloptera | Sialidae | | | | |
| Hirudinea | Piscicolidae | | | | |
| TOTAL FAMILIES ENCOUNTERED & TOTAL MULTIPLIED SCORE | | | | X 4 | |

Milind Kumar Nimje
Laboratory Head

Signature of Team Leader

| TAXONOMICAL GROUP | TAXONOMICAL FAMILIES | MARK ENCOUNTERED FAMILIES AND IF POSSIBLE SPECIES WITHIN FAMILIES ALSO MARK ABUNDANCY AS - 1A, 1B, 1C, 1D, 1E | TOTAL FAMILIES/ SPECIES ENCOUNTERED | BMWP SCORE | MULTI-PLIED SCORE |
|---|---|---|---|---|---|
| Mollusca | Lymnaeidae | | | | |
| | Physidae | 1A | | | |
| | Planorbidae | 1E | | | |
| | ~~Sphaeridae~~ Assamiidae | 1B | | | |
| Hirudinea | Glossiphonidae | | | | |
| | Hirudidae | | | | |
| | Erpobdellidae | | | | |
| Planaria | Dugesiidae | | | | |
| Crustacea | Asellidae | | | | |
| TOTAL FAMILIES ENCOUNTERED & TOTAL MULTIPLIED SCORE | | | 3 | X 3 | 9 |
| Diptera | Syrphidae | | | | |
| | Chironomidae | 1C | | | |
| | Ephydridae | | | | |
| TOTAL FAMILIES ENCOUNTERED & TOTAL MULTIPLIED SCORE | | | 1 | X 2 | 2 |
| Oligochaeta | All families | | | | |
| TOTAL FAMILIES ENCOUNTERED & TOTAL MULTIPLIED SCORE | | | | X 1 | |
| GRAND TOTAL FAMILIES ENCOUNTERED & GRAND TOTAL MULTIPLIED SCORE | | | | | |

Saprobic score: $\frac{\text{GRAND TOTAL MULTIPLIED SCORE}}{\text{GRAND TOTAL NUMBER OF FAMILIES ENCOUNTERED}}$ $\frac{81}{15}$

SAPROBIC SCORE: 5.4

REMARKS:

Milind Kumar Nimje
Laboratory Head

Signature of Team Leader

DIVERSITY SCORE (SEQUENTIAL COMPARISION):

The evaluation of the benthic fauna diversity level can easily be done utilizing the same animals collected for estimating the saprobity score. Take photograph of the living animals in the field for evidence.

Since the method only involves a pair-wise comparison of sequentially encountered individuals, and the differences of two specimen can easily be observed up to the species level, no taxonomic skill is required.

First observed animal is always different and scored as 1 run. When the next observed animal is different from the last, a new run starts. The encounter of an individual which cannot be discerned from the last does not increment the number of runs. Size differences only do NOT change the run.

SAME RUN IS 0 (organism is the same as the previous)
NEXT RUN IS I (organism is different from the previous)

When a row is full, continue on next row. Enter the number of runs over all rows (sum of I's).

| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Total Runs | Total Org. | Diversity Score |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 9 | 15 | |
| 2. | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 8 | 30 | |
| 3. | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 9 | 45 | |
| 4 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 10 | 60 | |
| 5. | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 9 | 75 | |
| 6. | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 8 | 90 | |
| 7. | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 8 | 105 | |
| 8. | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 120 | |
| 9. | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 8 | 135 | |
| 10 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 8 | 150 | |
| 11. | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 9 | 165 | |
| 12. | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 7 | 180 | |
| 13. | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 8 | 195 | |
| 14. | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 7 | 210 | |
| 15. | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 225 | |
| 16. | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 8 | 240 | |
| 17. | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 8 | 255 | |
| 18. | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 8 | 270 | |
| 19. | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 6 | 285 | |
| 20. | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 9 | 300 | |

141 / 300

DIVERSITY SCORE : $\frac{\text{Number of Runs}}{\text{Number of Organisms}} = \frac{141}{300}$

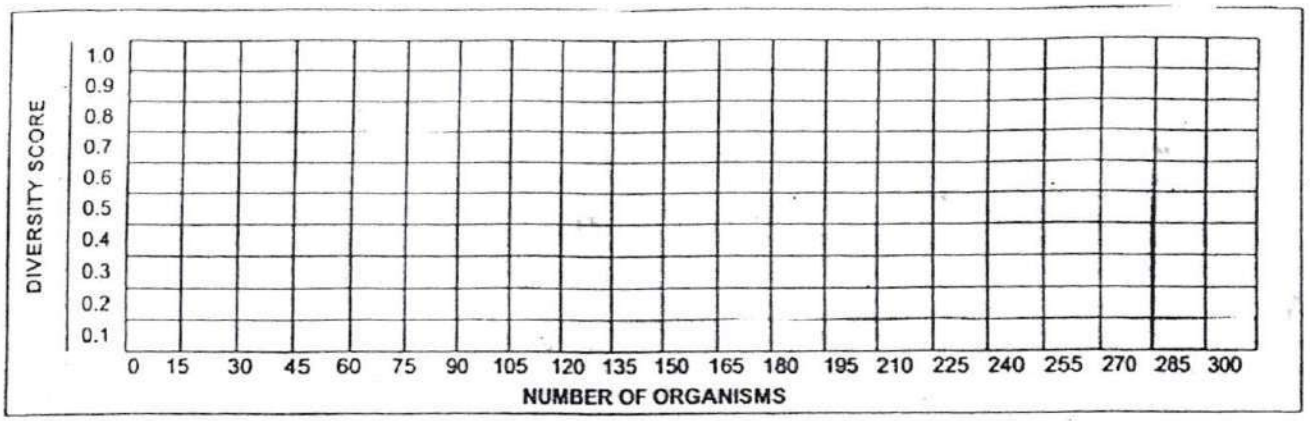
DIVERSITY SCORE : 0.47 ≃ 0.5

Milind Kumar Nimje
Laboratory

Signature of Team Lea

Page 10 o

Make a graph of Diversity score Vs Number of Organisms for selection of appropriate Diversity score at a linear range.




**Note:** If, there is no linearity in the graph, then take the average value of Diversity Score.

## BIOLOGICAL WATER QUALITY CRITERIA (BWQC)

To assess the actual health of water bodies, CPCB has derived a Biological Water Quality Criteria (BWQC) for water quality evaluation. This system is based on the range of saprobic values and diversity of the benthic macro-invertebrate families with respect to water quality. The system has been developed after extensive field trials and calibration on the saprobity and diversity information of different taxonomic groups of benthic animals collected from artificial substratum and natural substratum of various water bodies. To indicate changes in water quality to different grades of pollution level, the entire taxonomic groups, with their range of saprobic score from 1 to 10, in combination with the range of diversity score from 0 to 1 has been classified into five different classes of water quality (Table 2). The abnormal combination of saprobic score and diversity score indicates sudden change in environmental conditions.

**Table - 2**

| Range of Saprobic Score | Range of Diversity Score | Water Quality | Water Quality Class | Indicator Colour |
|---|---|---|---|---|
| 7 and more | 0.2 – 1.0 | Clean | A | Blue |
| 6 – 7 | 0.5 – 1.0 | Slight Pollution | B | Light Blue |
| 3 – 6 | 0.3 – 0.9 | Moderate Pollution | C | Green |
| 2 – 5 | 0.4 – less | Heavy Pollution | D | Orange |
| 0 – 2 | 0 – 0.2 | Severe Pollution | E | Red |

## CRITERIA FOR BIOLOGICAL WATER QUALITY EVALUATION

The biological water quality evaluation using benthic fauna, can easily be done by combining the observed saprobic score and diversity score and the biological water quality class can be determined through comparing the results with the ranges of Saprobic and Diversity score prescribed in Biological Water Quality Criteria (BWQC).

| | Range of Saprobic Score (0 – 10) | Range of Diversity Score (0 – 1.0) | Water Quality | Water Quality Class | Indicator Colour |
|---|---|---|---|---|---|
| Results : | 0·5 | 5·4 | Moderate Pollution | C | Green |

Signature of Team Leader

Milind Kumar Nimje
Laboratory Head

**ENVIRONMENTAL PLANNING & COORDINATION ORGANIZATION**
(Urban Development & Environment Department, Govt. of M.P.)
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Phone: +91 755 2460038, 2466859
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Website: www.epco.mp.gov.in
Email: contactepco@mp.gov.in

No. 8257 /EPCO/2023
Date 7/3/23

प्रति,
श्री पी. जगन
क्षेत्रीय निदेशक
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
**पर्यावरण परिसर ई–5 अरेरा कालोनी, भोपाल**

**विषयः–** NGT OA No- 82/2022 (cz) Dr. Subhash C. Pandey Vs- State of Madhya Pradesh & ors- **के संबंध में बड़े तालाब के जलीय जीव संबंधी आकड़े उपलब्ध कराने बावत्।**

**संदर्भः–** क्षे.नि.भो./एन.जी.टी. ओ.ए.–82/2022(CZ)/1861 **दिनांक 01 मार्च 2023**

**महोदयः–** विषयान्तर्गत संदर्भित पत्र के माध्यम से चाही गयी जानकारी कार्यपालन संचालक एप्को के अनुमोदन उपरांत आवश्यक कार्यवाही हेतु संलग्न प्रेषित है।

संलग्नः उपरोक्तनुसार

(डॉ. आर. के. जैन)
वरिष्ठ वैज्ञानिक अधिकारी
एवं प्रयोगशाला प्रभारी

जगन
Dr PCP, SB

| S. No | Biological Status of Upper Lake | |
|---|---|---|
| 1 | Phytoplankton Species | 52 |
| 2 | Zooplankton species | 20 |
| 3 | Macrophyte species | 25 |
| 4 | Macrobenthos species | 85 |
| | Total | 182 |

Dr. R. K. Jain
Senior Scientific Officer &
Project Coordinator
EPCO, Bhopal (M.P.)

| Phytoplankton Species recorded in Upper lake during January - December, 2022 | |
|---|---|
| **S.No** | **Name of Species** |
| 1 | *Anabaena spiroides* |
| 2 | *Anabaenopsis sp.* |
| 3 | *Ankistrodesmus hantzchii* |
| 4 | *Arthrospira sp.* |
| 5 | *Asterionella sp.* |
| 10 | *Closteriopsis sp.* |
| 11 | *Closterium longissima* |
| 12 | *Closterium sp.* |
| 13 | *Coelastrum microporum* |
| 14 | *Coelastrum recticulatum* |
| 15 | *Cosmarium quinarium* |
| 16 | *Crucigenia crucifera* |
| 17 | *Crucigenia elegans* |
| 18 | *Cyclotella sp* |
| 19 | *Cymbella sp.* |
| 20 | *Diatoma sp.* |
| 21 | *Diatomella sp.* |
| 22 | *Diatomella sp.* |
| 23 | *E. viridis* |
| 24 | *Elkatothrix sp.* |
| 25 | *Eudorina elegans* |
| 26 | *Euglena acus* |
| 27 | *Euglena oxyuris* |
| 28 | *Eunotia sp.* |
| 29 | *Fragillaria sp* |
| 30 | *Frustulia sp.* |
| 31 | *Gloeotrichia sp.* |
| 32 | *Gomphonema sp* |
| 33 | *K. lunaris* |
| 34 | *Kirchneriella sp.* |
| 35 | *Lyngbya sp.* |
| 36 | *Merismopedia pseudofilamentasa* |
| 37 | *Melosira granulata* |
| 38 | *Merismopodia sp* |
| 39 | *Microcystis aeruginosa* |
| 40 | *Mougeotia sp.* |
| 41 | *Navicula sp.* |
| 42 | *Nitzschia sp.* |
| 43 | *Oocystis crassa* |
| 44 | *Phormidium sp.* |
| 45 | *Pinnularia sp* |
| 46 | *Scendesmus armata* |
| 47 | Spirogyra sp |
| 48 | Spirulina major |
| 49 | Spirulina sp |
| 50 | Stauratrum sp |
| 51 | Tabellaria sp |
| 52 | Tetradon sp |
| **Total** | **52** |

Dr. R. K. Jain
Senior Scientific Officer &
Project Coordinator
EPCO, Bhopal (M.P.)

6/3/23

| Zooplankton Species recorded in Upper Lake during January - December 2022 | |
|---|---|
| **S.No** | **Name of Species** |
| 1 | *Arcella vulgaris* |
| 2 | *Asplancha sp* |
| 3 | *Bosmina sp* |
| 4 | *Brachionus bidentata* |
| 5 | *Brachionus calyciflorus* |
| 6 | *Brachionus falcatus* |
| 7 | *Brachionus patalus* |
| 8 | *Centrocypris sp* |
| 9 | *Centropyxis aculeata* |
| 10 | *Ceriodaphnia sp* |
| 11 | *Chydorus sp.* |
| 12 | *Cypris sp* |
| 13 | *Daphnia sp* |
| 14 | *Diaptomus sp* |
| 15 | *Keratella tropica* |
| 16 | *Lecane sp* |
| 17 | *Mesocyclops* |
| 18 | *Moina sp* |
| 19 | *Mytilina sp* |
| 20 | *Paramecium sp* |
| **Total** | **20** |

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| Macrophyte species recorded in Upper lake during January - December , 2022 | |
|---|---|
| **S. No** | **Name of Species** |
| 1 | *Azolla pinnata* |
| 2 | *Ceratophyllum demersum* |
| 3 | *Cyperus rotundus* |
| 4 | *Eichhornia crassipes* |
| 5 | *Hydrilla verticillta* |
| 6 | *Hydrocharis dubia* |
| 7 | *Ipoemia fistulosa* |
| 8 | *Ipomoea aquatica* |
| 9 | *Lemna minor* |
| 10 | *Limnanthium cristatum* |
| 11 | *Lymnophylla heterophylla* |
| 12 | *Myriophyllum spathulatum* |
| 13 | *Najas minor* |
| 14 | *Nelumbo nucifera* |
| 15 | *Ottelia sp* |
| 16 | *Phragmitis so* |
| 17 | *Plygonum glabrum* |
| 18 | *Potamogeton crispus* |
| 19 | *Potamogeton natans* |
| 20 | *Potamogeton pectinatus* |
| 21 | *Potamogeton spiralis* |
| 22 | *Potmogeton nodosus* |
| 23 | *Spirodella polyrhiza* |
| 24 | *Sylvania molestata* |
| 25 | *Vallisneria spiralis* |
| **Total** | **25** |

Dr. R. K. Jain
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EPCO, Bhopal (M.P.)

| Macrobenthos species recorded in Upper Lake during January - December, 2022 | | | |
|---|---|---|---|
| | Name of species | | |
| S. No | Annelida | Arthropoda | Mollusca |
| 1 | Batracobdella hardingi | Abedus herberti | Gyrulus sp |
| 2 | Branchura sp. | Neoporus sp. | Bellamya bengalensis |
| 3 | Chaetogaster sp. | Paracymus sp. | Bellamya colairensis |
| 4 | Dero sp. | Cybister lateralimarginalisis | Bellamya crassa |
| 5 | Glossiphonia complanata | Psephenus herricki | Bellamya dissimilis |
| 6 | Hemiclepsis viridis | Hydrovatus cuspidatus | Bellamya mandiensis |
| 7 | Hirudineria sp. | Laccophilus sp. | Bithnyia forcarti |
| 8 | Limnodrilus sp. | Agabus sp. | Bithynia pulchella |
| 9 | Lumbriculus variegatus | Bezzia sp. | Bithynia tenticulata |
| 10 | Poecilobdella granulosa | Enochrus sp. | Filopaludina sumatrensis |
| 11 | Stylaria lacustris | Chironomus sp | Gibbia alticola |
| 12 | Tubifex albicola | Haliplus sp. | Gyraulus convexiusculus |
| 13 | Tubifex tubifex | Tropisternus sp. | Gyraulus gilberti |
| 14 | Nias cumunis | Gammarus pulex | Indoplanrobis exustus |
| 15 | | Anax junix | Lamellidens consorbinus |
| 16 | | Anisops breddire | Lymnaea acuminate |
| 17 | | Baetis sp. | Lymnaea auricularia |
| 18 | | Berosus sp. | Lymnaea biacuminata |
| 19 | | Caenis sp. | Lymnaea ovate |
| 20 | | Chaoborus sp. | Parreysia occata |
| 21 | | Cordulegaster sp. | Physella acuta |
| 22 | | Culex sp. | Pila globosa |
| 23 | | Cyprimus sp | Thiara granifera |
| 24 | | Ephemera sp. | Thiara scabra |
| 25 | | Ephemerella sp. | Thiara tuberculata |
| 26 | | Gerris sp | Unio tigridis |
| 27 | | Gomphus sp. | Viviparus contectus |
| 28 | | Hegenius sp. | Viviparus mamillatus |
| 29 | | Helopicus sp. | Viviparus viviparus |
| 30 | | Laccotrephes sp. | |
| 31 | | Lepidostoma sp. | |
| 32 | | Micronecta minutissima | |
| 33 | | Micronecta quale | |
| 34 | | Micronecta scholtzi | |
| 35 | | Nepa sp. | |
| 36 | | Notonecta sp. | |
| 37 | | Palaemonidae | |
| 38 | | Polycentropodinae sp. | |
| 39 | | Progomphus sp. | |
| 40 | | Ranatra sp. | |
| 41 | | Sigara mekinstryi | |
| 42 | | Tipula abdominalis | |
| Total | 14 | 42 | 29 |

Total No 85

Dr. R. K. Ja...
Senior Scientific ...
Project Coordi...
EPCO, Bhopal

# नगर पालिक निगम, भोपाल

सदर मंजिल, भोपाल (म.प्र.)

**MUNICIPAL CORPORATION, BHOPAL**

Sadar Manzil, Bhopal (M.P.)

कार्या. : दूरभाष : 2542070, 2542245

फैक्स : 0755-2539806

E-mail : bmcbpl@sancharnet.in


पत्रक्रमांक ....27....

भोपाल, दिनांक ...31/12/05....

प्रति,

प्रबंध निदेशक,
म0प्र0 पर्यटन विकास निगम,
भोपाल।

विषयः— क्रूज मेग्नाइज्ड वोट के लिए लीज़रेट/किराया निर्धारण एवं संचालन अनुमति के संबंध में।

विषयान्तर्गत पर्यटन विकास निगम द्वारा बडी झील में संचालित की जाने वाली क्रूज मेग्नाईज्ड वोट के संचालन अनुमति संबंध में झील संरक्षण प्राधिकरण म0प्र0 से राय प्राप्त की गई। अभिमत अनुसार, क्रूज का संचालन सुनिश्चित करना आवश्यक होगा। (झील संरक्षण प्राधिकरण के पत्र क्रं. 1782 दिनांक 29.12.2005 की छायाप्रति संलग्न)

(2) वोट संचालन हेतु दर (किराया) के संबंध में प्रस्ताव विचाराधीन है निर्णय उपरांत जो दर नियत की जावेगी वह पर्यटन विकास निगम से वसूली योग्य होगी।

(3) क्रूज का संचालन आरम्भ होने पर प्रदूषण के संबंध में जॉच की जा सकेगी तथा अधिक प्रदूषण होने की स्थिति में अनुमति निरस्त की जा सकेगी।

( आयुक्त महो. के आदेशानुसार)

उपायुक्त(राजस्व)
नगर निगम,भोपाल

345

# LAKE CONSERVATION AUTHORITY OF MADHYA PRADESH

Paryavaran Parisar, E/5 Arera Colony, Bhopal

## NOTE ON OPERATING CRUISE IN THE UPPER LAKE OF BHOPAL

M. P State Tourism Development Corporation is likely to operate Cruise boat in the Upper Lake of Bhopal. After interior and required fittings of the cruise in couple of days, it is likely to come in operation. Regarding the operation of cruise in the Upper Lake, a discussion held with Commander Rajendra Nigam, Advisor for the Development of Water Sports & Adventure Tourism to the MP Tourism Corporation on 25.12.05 at the Boat Club. Commander Nigam explained the technological aspect of the cruise related to control of emission and oil spillage from the John Deere engine fitted in the cruise and provided relevant literature for the same.

### BACKGROUND

While implementing the Bhoj Wetland Project, under financial assistance of the JBIC, Japan, the following incompatible activities had been controlled/ restricted;

1. Cultivation of Trapa, water based crop in the Upper Lake
2. Catching of under sized fish (Below 2 kg)
3. Immersion of Idol and Tazias in the Upper Lake
4. Motorized boat operation in the Upper Lake
5. No construction Zone in the fringe area up to 50 meters above FTL

### THE THEN ALTERNATE PLAN

Prempura Ghat and the spillway of the Upper Lake have been identified and developed as alternate sites for the water based recreational activities and idol immersion. The idol immersion activity has shifted to the new immersion site but boating has remained operative in the Boat club area of the Upper Lake. Earlier MPT and other private parties were doing motorized boat operation in the lake but now it is with only MPT. The reason for not developing Prempura as tourist spot could be attraction of the people towards Upper Lake.

(41) 3.4.8

## TECHNOLOGICAL ADVANCEMENT

1. The muscle power driven rowing boats and paddleboats changed to Motorized boats for easy and fast moving.
2. The canoeing and other means of boating remain limited to sports and events
3. The motorized boats started with out boat fitted engines deals with small boats that are still in operation at many places
4. The shipping technology developed for the Ocean/ Sea and large water bodies remain operative there only
5. In between Shipping and Motorized boating various technological advances attract people for water sports and recreation that opens new avenue for tourism, which are as follows;
    - Out boat engine (Petrol Based)
    - Out boat engine (Diesel Based)
    - Inside placed Engines with extended propeller

The motorized boating in sweet water lakes and to the shallow lakes restricts use of out boat engines because of oil spillage risk. Although, precautions taken for controlling and avoiding of oil spillage can be taken in petrol engines, but to ensure Zero oil spillage in long run is difficult as engine start getting old. However, in operating motorized boats in fresh water shallow lakes, following precautions may take care of the environmental problems;

1. The horizontal or upward direction of cruise propeller shall avoid the sediment disturbances in the lake.
2. Proper maintenance of the cruise will take care of the leakage & seepage of the oil in long run
3. The use of motorized boats with use of oil driven engines requires extra precaution in case of potable water source, as in case of Upper Lake
4. The use of John Deere engine in the cruise have control the emission

ANNEXURE- X

# कार्यालय कलेक्टर एवं जिला मजिस्ट्रेट, जिला भोपाल (म. प्र.)

क्रं0/815/अजिद/2019 भोपाल दिनांक 6/12/2019

## // अनुमति पत्र //

कार्यालयीन पत्र कमांक/684/अजिद/2019 भोपाल,दिनॉक 04.11.2019 के द्वारा दण्ड प्रकिया संहिता 1973 की धारा 144 अंतर्गत प्रदत्त शक्तियों का उपयोग करते हुए भोपाल नगर निगम सीमा अंतर्गत समस्त झीलो में बोटो के संचालन करने संबंधी निर्देश जारी किये गये थे । उन्ही मे से बिंदु क. 10 के अनुसार सूर्यास्त होने या सायंकाल 07.00 बजे तक जो भी पहले हो इसके बाद वोट का संचालन नही किया जावेगा ।

इसी कम में प्रबंध संचालक,मध्यप्रदेश राज्य पर्यटन विकास निगम लिमिटेड,पर्यटन भवन भोपाल के द्वारा पत्र कमांक/14810/वाटर स्पो/पविनि/2019 भोपाल,दिनॉक 04 नवम्बर 2019 के माध्यम से अवगत कराया गया है कि वर्ष 2005 में भोपाल अपरलेक में कूज वोट का संचालन शुरू किया गया था तब से अभी तक कूज वोट भोपाल के लिये एक लैंडमार्क बन गई है तथा पर्यटको में अत्यधिक आकर्षण का केन्द्र है । पिछले चौदह वर्षो से आज तक एक भी अप्रिय घटना नही हुई है । भारत के अन्य स्थानो जैसे गोवा,बाम्बे,केरला में हाउस वोट,कूज वोट का संचालन सबसे ज्यादा रात्रि में ही किया जाता है एवं यह प्रकिया पूरे विश्व में प्रचलित है । कूज की विशेषता एवं इसका मुख्य आकर्षण नाइट कूजिग के लिए होता है ।

अतएव अनुरोध किया गया है कि उक्त आदेश पर पुनः विचार कर सिर्फ कूज वोट को पूर्वानुसार रात्रि में 10.00 बजे तक संचालित करने की अनुमति चाही गई है ।

उपरोक्त तथ्यो को दृष्टिगत रखते हुए मध्यप्रदेश राज्य पर्यटन विकास निगम लिमिटेड भोपाल को वोट क्लब भोपाल पर सिर्फ कूज बोट को पूर्वानुसार रात्रि में 10.00 बजे तक संचालित करने की अनुमति प्रदान की जाती है । यह अनुमति सशर्त दी जा रही है कि समस्त सुरक्षा के मापदण्डों का पालन करेंगे ।

(कलेक्टर महो0 द्वारा अनुमोदित )

06/12/19
अपर जिला मजिस्ट्रेट
जिला भोपाल
भोपाल,दिनॉक 6/12/2019

ष्ठांकन कमांक/816/अजिद/2019

तिलिपि :-

- स्टाफ आफिसर,मुख्य सचिव,मंत्रालय भोपाल की ओर सूचनार्थ । कृपया मुख्य सचिव महोदय को अवगत कराने का कष्ट करे ।
- प्रमुख सचिव,मध्यप्रदेश शासन,सामान्य प्रशासन विभाग/गृह विभाग मंत्रालय भोपाल की ओर सूचनार्थ ।
- आयुक्त,भोपाल सीाग भोपाल की ओर सूचनार्थ ।
- पुलिस महानिरीक्षक,भोपाल रेंज भोपाल की ओर सूचनार्थ ।
- पुलिस उप महानिरीक्षक,शहर रेंज भोपाल की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु ।
- पुलिस अधीक्षक,मुख्यालय/नार्थ/साऊथ भोपाल की ओर सूचनार्थ ।
- प्रबंध संचालक,मध्यप्रदेश टूरिज्म एवं डवलपमेंट कार्पोरेशन भोपाल
- आयुक्त,नगर निगम भोपाल की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु ।
- समस्त एस डी एम/समस्त नगर पुलिस अधीक्षक/अनुविभागीय अधिकारी,पुलिस भोपाल की ओर सूचनार्थ
- केन्द्र निदेशक,आकाशवाणी/दूरदर्शन भोपाल की ओर सूचनार्थ ।
- उप संचालक,संभागीय जनसंपर्क भोपाल की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु ।
- प्रभारी अधिकारी,पुलिस नियंत्रण कक्ष,जहॉगीराबाद भोपाल की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु ।

अपर जिला मजिस्ट्रेट
जिला भोपाल

# CRUISE BOAT RATE LIST

| | | |
|---|---|---|
| TEA | - | 20 |
| COFFEE | - | 25 |
| CHIPS | - | 25 |
| RED BULL | - | 230 |
| K.F.ULTRA | - | 543 |
| K.F.LAGER | - | 389 |
| RED WINE | - | 472 |
| SOFT DRINK | - | 25 |
| COLD COFFEE LATTE | - | 70 |
| MINERAL WATER | - | 30 |
| CUP NOODLES | - | 70 |

Wind n Waves

# BANQUET MENU

- ☐ Lehar Bar
- ☐ Lehar Lounge
- ☐ Lehar Restaurant
- ☐ Lehar Taal
- ☐ Lehar 'C'
- ☐ Lehar 'D'
- ☐ Cruise Boat

## SOUP-VEG.

(ANY TWO or)

Tomato Soup / Cream of Veg. Soup / Sweet Corn Soup / Hot & Sour Soup/ Cream of Mushroom Soup / Lemon Coriander Soup / Tomato Shorba / Minestrone Soup Spinach Soup / Carrot Ginger Soup / Spinach Mushroom Soup .

## SOUP-NON-VEG.

(ANY TWO)

Cream of Chicken Soup / S/c Chicken Soup / H/s Chicken Soup / H/s Mutton Soup / Mutton Shorba.

## NON-VEG. ITEMS

(ANY ONE)

| | | |
|---|---|---|
| Murgh Makhani | Murg Saagwala | Rogan-e-Gosht |
| Kadai Chicken | Murg Do Piaza | Bhuna Gosht |
| Chicken Curry | Murg Tikka Masala | Mutton Do Piaza |
| Murgh Methi | Murg Makhani | Mutton Roast |
| Chicken Biryani | Garlic Chicken | Mutton Biryani |
| Murgh Masala | Achari Gosht | Keema Matar |
| Chilly Chicken | Chicken Razalla | Mutton Nihari |

## VEG. ITEMS PANEER

(ANY ONE)

| | | |
|---|---|---|
| Paneer Makhni | Paneer Hyderabadi | Paneer Pasanda |
| Paneer Corn Masala | Methi Matar Malai | Palak Paneer |
| Matar Paneer | Matar Mushroom Curry | Paneer Achari |
| Shahi Paneer Korma | Kadai Paneer | Chilly Paneer |
| Paneer Lababdar | | |

## VEGETARIAN

(ANY TWO)

| | | |
|---|---|---|
| Aloo Jeera | Arbi Masala | Veg. Noodles |
| Aloo Gobhi Matar | Gobhi Masala | Chilly Gobhi Matar |
| Aloo Palak | Angoori Kofta | Green Peas Masala |
| Aloo Gobhi | Punjabi Chole | Baked Veg. |
| Aloo Palak/Methi | Pindi Chole | Palak Corn |
| Aloo Capsicum | Bhindi Masala | Seasonal Veg. |
| Bhindi Kurkuri | Palak Kofta | Rajma Masala |
| Handi Kofta | Kadhi Pakora | Veg. Manchurian |

## DAL

(ANY ONE)

| | | |
|---|---|---|
| Dal Fry | Dal Urad | Dal Makhani |
| Dal Masaledar | Sambhar | Dal Moong |
| Panchmel Dal | | |

## CURD ITEMS

(ANY ONE)

| | | |
|---|---|---|
| Boondi Raita | Jeera Raita | Kheera Raita |
| Veg. Raita | Fruit Raita | Pineapple Raita |
| Pl. Curd | Dahi Vada | Burani Raita |
| Papdi Chat | | |

## RICE

(ANY ONE)

| | | |
|---|---|---|
| Jeera Pulao | Veg. Dum Biryani | Laung Rice |
| Peas Pulao | Lemon Rice | Plain Rice |
| Veg. Pulao. | | |

## INDIAN BREAD

(ANY TWO)

Roti / Nan / Parantha / Puri / Methi Puri / Missi Roti.

(P.T.O.)

**ACCOMPANIMENTS** Achar / Salad / Papad / Chutney

**DESSERT** (ANY TWO) Rice Kheer / Ice Cream / Vanilla / Strawberry / Plain Pista / Mango
Fresh Fruit with Cream / Gulab Jamun / Fruit Custard / Gulab Kheer / Kala Jamun

## -: BANQUET BOOKING :-

Name of Party : .....

Adress : .....

Phones No. : Mobile : ..... Office : ..... Residence : .....

Menu : ☐ Vegetarian ☐ Non-Vegetarian ☐ Cocktails

Special Remarks : .....

Type of Function : .....

☐ Packets Lunch / Dinner ☐ Lunch ☐ Dinner

☐ Kitty

Number of Persons : Guranteed ..... Expected : .....

Date of Function : ..... Day of Function : .....

Venue : ..... Time : ..... to .....

Rate (Per Person) @ INR ..... Taxes : .....

Advance @ INR ..... ☐ By Cash .....

Money Receipt No. : ..... Date : ..... ☐ By Credit Card .....

Venue : **Lehar Lounge / Lehar Restaurant / Lehar 'C' / Lehar 'D' / Lehar Taal / Lehar Bar / Cruise Boat**

Others : .....

## -: SPECIAL ARRANGEMENTS :-

Audio Visual : ..... Charges : INR .....

Lighting Decoration : ..... Charges : INR .....

Flowers Decoration : ..... Charges : INR .....

B' Day Decorations : ..... Charges : INR .....
(Balloons + Paper Ribbon)

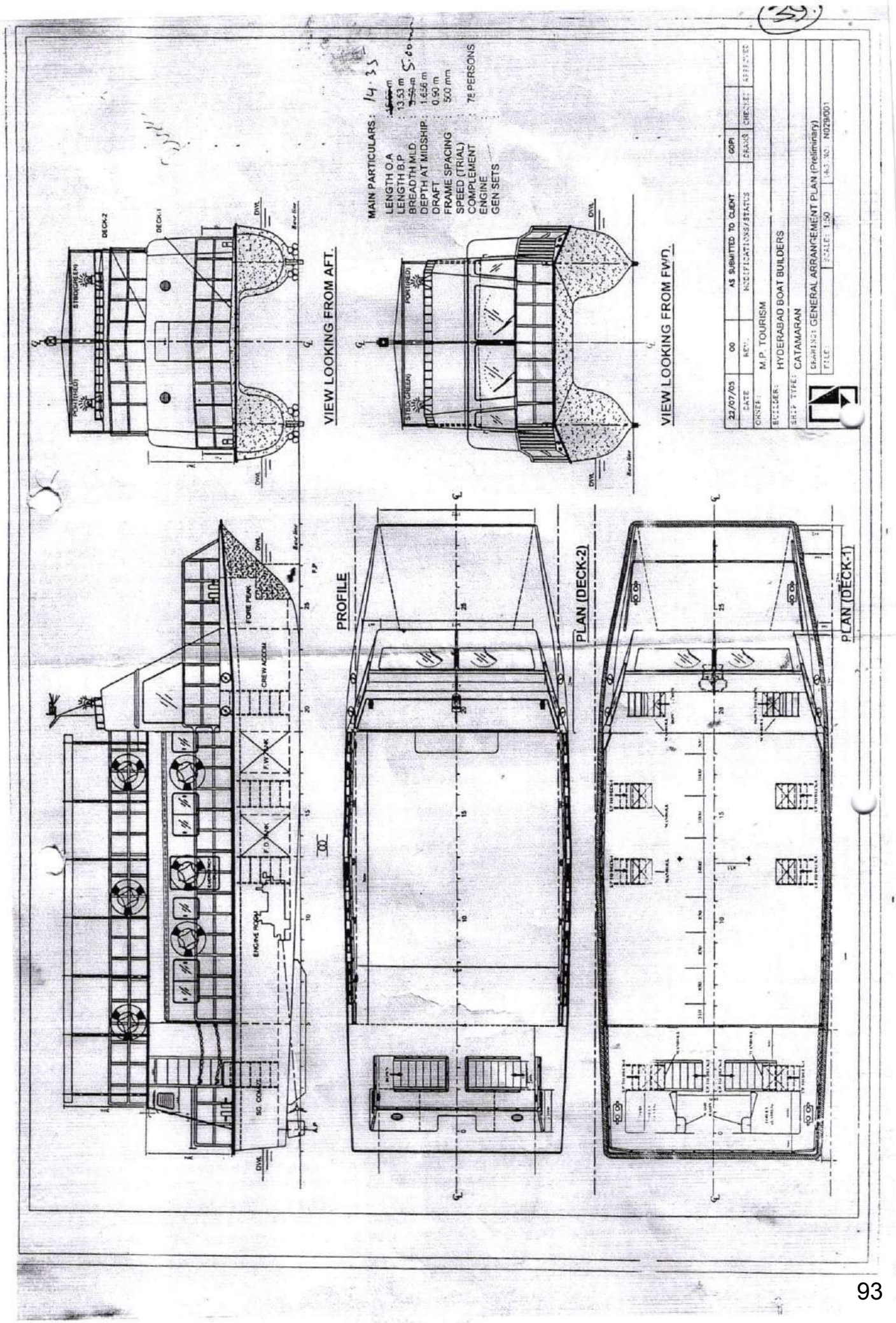
Misc : ..... Charges : INR .....

**Note : Starter Item with above item will be Charge Extra Veg. Rs. 50/- Paneer Rs. 100/- & Non. Veg. Rs. 150/-Per Item.**

Signature with Date ..... Booked By : ..... **Signature of Guest**

**Wind & Waves** Mr. Date : .....

**Mobile : 9424796775, 9424796764 - 65**
**Phone : (0755) 2661523**


MAIN PARTICULARS:
LENGTH O.A
LENGTH B.P
BREADTH MLD
DEPTH AT MIDSHIP
DRAFT
FRAME SPACING
SPEED (TRIAL)
COMPLEMENT
ENGINE
GEN SETS
13.53 m
1.656 m
0.90 m
500 mm
78 PERSONS
VIEW LOOKING FROM AFT.
VIEW LOOKING FROM FWD.
PROFILE
PLAN (DECK-2)
PLAN (DECK-1)
23/07/05
00
AS SUBMITTED TO CLIENT
M.P. TOURISM
HYDERABAD BOAT BUILDERS
CATAMARAN
GENERAL ARRANGEMENT PLAN (Preliminary)

CRUISE BOAT LAKE PRINCESS BOAT CLUB BHOPAL

ROUND ---------- DATE ----- Time.....

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 |
| 55 | 56 | 57 | 58 | 59 | 60 | | | | | | | | | | | | |

**LOWER DECK A/C**

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | | | | | | | | | | | | | | | | |

1. UPPER DECK/OPEN DECK----------
2.LOWER DECK A/C----------

MAXIMUM TICKETS INCLUDING
COMPLEMENTRY TO BE ISSUED 80

3. TOTAL TICKETS ISSUED.....

CHART MAKER"S SIGNATURE----------

CHART HANDOVER TO SKIPPER

MANAGER boat club bhopal

ANNEXURE- XIII

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Balance B/F 160 Ltrs } 325 Ltrs
Fuel Received ..... 165 Ltrs ..... Date ..... 2-1-23 ..... | Per trip approx fuel consumption.....

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 1 | 1-1-23 | 1200 | 1245 | — | 45 | | | |
| 2 | | 1330 | 1415 | — | 45 | | | |
| 3 | | 1500 | 1545 | — | 45 | | | |
| 4 | | 1615 | 1700 | — | 45 | 54 Ltrs | 14 Ltrs | |
| 5 | | 1730 | 1815 | — | 45 | | | |
| 6 | | 1830 | 1915 | — | 45 | | | |
| 7 | | 1930 | 2015 | — | 45 | | | |
| 8 | | 2030 | 2115 | — | 45 | | | |
| 9 | | 2130 | 2215 | — | 45 | | | |
| 10 | | 2215 | 2300 | — | 45 | | | |
| 11 | | 2300 | 2345 | — | 45 | | | |
| 12 | 2-1-23 | 1530 | 1615 | — | 45 | 25 Ltrs | 5 Ltrs | |
| 13 | | 1700 | 1745 | — | 45 | | | |
| TOTAL 14 | | 1800 | 1845 | — | 45 | | | |
| 15 | | 1900 | 1945 | — | 45 | 79 Ltrs | 19 Ltrs | C/F |

C/F 11 hrs 15 mnts

SKIPPER'S SIGNATURE

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received ..... | Date..... | Per trip approx fuel consumption.....

B/F Balance 15 mnts 19 Ltrs

| S.No/Trip | Date | Trip Timing | | 11 hrs Total Time | | 79 Ltrs Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 16 | 3-1-23 | 1600 | 1645 | — | 45 | 17 | 04 | |
| 17 | | 1700 | 1745 | — | 45 | | | |
| 18 | | 1800 | 1845 | — | 45 | | | |
| 19 | 4-1-23 | 1700 | 1745 | — | 45 | 14 | 03 | |
| 20 | | 1800 | 1845 | — | 45 | | | |
| 21 | 5-1-23 | 1700 | 1745 | — | 45 | 12 | 03 | |
| 22 | | 1800 | 1845 | — | 45 | | | |
| 23 | | 1900 | 1945 | — | 45 | | | |
| 24 | 6-1-23 | 1630 | 1715 | — | 45 | 14 | 03 | |
| 25 | | 1730 | 1815 | — | 45 | | | |
| 26 | | 1830 | 1915 | — | 45 | | | |
| 27 | 7-1-23 | 1030 | 1115 | — | 45 | 43 | 08 | |
| 28 | | 1115 | 1200 | — | 45 | | | |
| TOTAL 29 | - | 1230 | 1330 | — | 45 | | | |
| 30 | - | 1530 | 1630 | 1 | — | | | |

22 hrs 45 Min. 179 | 40

SKIPPER'S SIGNATURE

C/F

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received ..... 150 Ltrs ..... | Date ..... 08-01-23 ..... | Per trip approx fuel consumption .....

B/F - 22 HRS 45 Min. 179 Ltrs 40 Ltrs

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 31 | 07-1-23 | 1700 | 1745 | — | 45 | | | 7/1/23 1330 To 1530 |
| 32 | | 1800 | 1845 | — | 45 | | Diving | carried out Fishing |
| 33 | 08-1-23 | 1600 | 1645 | — | 45 | | net | removed from Both |
| 34 | | 1700 | 1745 | — | 45 | | shafts, | strainer cleaned. |
| 35 | | 1800 | 1845 | — | 45 | | | |
| 36 | | 1900 | 1945 | — | 45 | 28 Ltrs | 5 Ltrs | 9-1-23 12 To 1.30 |
| 37 | 09-1-23 | 1330 | 1630 | 3 | — | | Diving | carried out Fishing |
| 38 | | 1730 | 1815 | — | 45 | | nets | removed from Both safts. |
| 39 | | 1830 | 1915 | — | 45 | 21 Ltrs | 7 Ltrs | |
| 40 | | 1930 | 2015 | — | 45 | | | |
| 41 | 10-1-23 | 1730 | 1815 | — | 45 | 10 | 02 | |
| 42 | | 1830 | 1915 | — | 45 | | | 11-1-23 1200 To 1300 hrs |
| 42 | 11-1-23 | 1700 | 1745 | — | 45 | | Diving | carried out for shaft |
| TOTAL 43 | | 1800 | 1845 | — | 45 | | Taken out & | Fishing net Washer |
| 44 | | 1900 | 1945 | — | 45 | | removed | |
| | | | | | | 15 Ltrs | 4 Ltrs | SKIPPER'S SIGNATURE |

36 hrs 15 min. 253 58 Ltrs c/F

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received ...150 Ltrs..... | Date....14-1-23..... | Per trip approx fuel consumption.....

B/F - 36 Hrs 15 Min 253 Hrs 58 Hrs

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 45 | 12-1-23 | 1700 | 1745 | — | 45 | 20 | 03 | |
| 46 | | 1800 | 1845 | — | 45 | | | |
| 47 | | 1900 | 1945 | — | 45 | | | |
| 48 | 13-01-23 | 1130 | 1215 | — | 45 | | | |
| 49 | | 1715 | 1800 | — | 45 | | | |
| 50 | | 1815 | 1900 | — | 45 | | | |
| 51 | | 1915 | 2000 | — | 45 | 23 | 5 | |
| 52 | 14-1-23 | 1700 | 1745 | — | 45 | | | |
| 53 | | 1800 | 1845 | — | 45 | 18 | 4 | |
| 54 | | 1900 | 1945 | — | 45 | | | |
| 55 | 15-1-23 | 1500 | 1545 | — | 45 | | | |
| 56 | | 1600 | 1645 | — | 45 | | | |
| 57 | | 1700 | 1745 | — | 45 | | | |
| TOTAL 58 | | 1745 | 1830 | — | 45 | 31 Hrs | 07 Hrs | |
| 59 | | 1845 | 1930 | — | 45 | | | |

47 Hrs 30 Min 345 Hrs 77 Hrs

SKIPPER'S SIGNATURE

C/F

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received ..... | Date..... | Per trip approx fuel consumption.....

B/F. 47 hrs 30 Min 345 Ltrs 77

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 60 | 16-01-23 | 1215 | 1300 | — | 45 | 14 Ltrs | 03 Ltrs | KHELO INDIA KHELO |
| 61 | | 1700 | 1745 | — | 45 | | | |
| 62 | | 1800 | 1845 | — | 45 | | | |
| 63 | 17-01-23 | 1630 | 1715 | — | 45 | 15 | 03 | |
| 64 | | 1730 | 1815 | — | 45 | | | |
| 65 | | 1830 | 1915 | — | 45 | | | |
| 66 | 18-01-23 | 1200 | 1230 | — | 30 | 18 | 04 | G-20 Summit |
| 67 | | 1430 | 1515 | — | 45 | | | |
| 68 | | 1715 | 1800 | — | 45 | | | |
| 69 | | 1815 | 1900 | — | 45 | | | |
| 70 | 19-01-23 | 1730 | 1815 | — | 45 | 13 Ltrs | 2 Ltrs | |
| 71 | | 1830 | 1915 | — | 45 | | | |
| 72 | 20-01-23 | 1200 | 1400 | 02 | — | 35 | 04 | |
| TOTAL | | | | 58 hrs | 15 Min | 440 | 93 Ltrs | C/F |

SKIPPER'S SIGNATURE

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received ..... 140 Ltrs ..... | Date ..... 20-01-23 ..... | Per trip approx fuel consumption .....

B/F - 58 hrs 15 Min. 440 93 Ltrs

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 73 | 20-1-23 | 1730 | 1815 | — | 45 | | | |
| 74 | | 1845 | 1930 | — | 45 | | | |
| 75 | 21-1-23 | 1230 | 1430 | 02 | — | 32 | 8 | |
| 76 | | 1615 | 1700 | — | 45 | | | |
| 77 | | 1730 | 1815 | — | 45 | | | |
| 78 | | 1830 | 1915 | — | 45 | | | |
| 79 | | 1930 | 2015 | — | 45 | | | |
| 80 | 22-1-23 | 1600 | 1645 | — | 45 | 22 | 5 | |
| 81 | | 1645 | 1730 | — | 45 | | | |
| 82 | | 1730 | 1815 | — | 45 | | | |
| 83 | | 1830 | 1915 | — | 45 | | | |
| 84 | | 1930 | 2015 | — | 45 | | | |
| 85 | 23-01-23 | 1230 | 1430 | 02 | — | | | |
| TOTAL | | | | 70 hrs | 30 Min. | 494 | 106 Ltrs | c/F |

SKIPPER'S SIGNATURE

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received ....150 Ltrs.....| Date.....25-01-23.....| Per trip approx fuel consumption.....

B/F 70 Hrs 30 Min. 494 Ltrs 106 Ltrs

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 86 | 23-01-23 | 1745 | 1830 | — | 45 | 24 Ltrs | 06 Ltrs | |
| 87 | | 1845 | 1930 | — | 45 | | | |
| 88 | | 1945 | 2030 | — | 45 | | | |
| 89 | 24-01-23 | 1730 | 1815 | — | 45 | 9 Ltrs | 2 Ltrs | |
| 90 | | 1845 | 1930 | — | 45 | | | |
| 91 | 25-1-23 | 0845 | 0930 | — | 45 | YOG GURU RAMDEV BABA | | |
| 92 | | 1530 | 1615 | — | 45 | 26 Ltrs | 08 Ltrs | |
| 93 | | 1645 | 1730 | — | 45 | | | |
| 94 | | 1745 | 1830 | — | 45 | | | |
| 95 | | 1845 | 1930 | — | 45 | | | |
| 96 | 26-1-23 | 1300 | 1345 | — | 45 | 36 | 13 | |
| 97 | | 1400 | 1445 | — | 45 | | | |
| 98 | | 1500 | 1545 | — | 45 | | | |
| TOTAL | | | | 84 HRS | 15 Min. | 589 | 135 Ltrs | C/F |

SKIPPER'S SIGNATURE

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received 150 Ltrs | Date 28/01/23 | Per trip approx fuel consumption.....

B/F 84 hrs 15 Min. 589 Ltrs 135 Ltrs

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 99 | 26-01-23 | 1630 | 1715 | — | 45 | 27-01-23 → | | DOGA RACE competition |
| 100 | | 1730 | 1815 | — | 45 | conducted By water sports G.M. | | |
| 101 | | 1815 | 1930 | — | 45 | | | |
| 102 | 27-01-23 | 1745 | 1830 | — | 45 | 12 Ltrs | 06 Ltrs | |
| 103 | | 1900 | 2200 | 03 | — | 28-1-23 → | | 1230 TO 1430 HRS |
| 104 | 28-01-23 | 1600 | 1645 | — | 45 | Diving carried out Fishing net | | |
| 105 | | 1700 | 1745 | — | 45 | removal from Both shafts | | |
| 106 | | 1800 | 1845 | — | 45 | 20 Ltrs | 04 Ltrs | |
| 107 | | 1900 | 1945 | — | 45 | | | |
| 108 | 29-01-23 | 1400 | 1600 | 02 | — | | | |
| 109 | | 1700 | 1745 | — | 45 | 30 Ltrs | 07 Ltrs | |
| 110 | | 1800 | 1845 | — | 45 | | | |
| 111 | | 1900 | 1945 | — | 45 | | | |
| TOTAL 112 | | 1945 | 2030 | — | 45 | | | |
| | | | | 98 hrs | 15 Min. | 651 Ltrs | 152 Ltrs | C/F |

SKIPPER'S SIGNATURE

TOTAL FUEL RECIEVED =
= 1065 Ltrs
CONSUMPTION IN BOTH ENGINES
= 697 Ltrs
CONSUMPTION IN GEN SET =
= 160 Ltrs
TOTAL = 697+160 = 857 Ltrs
1065 - 857 = 208 Ltrs

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received .....| Date.....| Per trip approx fuel consumption.....

BIF 98 Hrs 15 Min 651 152

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 113 | 30-1-23 | 1630 | 1730 | 01 | — | 24 Ltrs | 04 Ltrs | 208 Ltrs C/F FOR NEXT MONTH |
| 114 | | 1745 | 1830 | — | 45 | | | |
| 115 | | 1845 | 1930 | — | 45 | | | |
| 116 | 31-1-23 | 1400 | 1445 | — | 45 | 22 | 4 | |
| 117 | | 1715 | 1800 | — | 45 | | | |
| 118 | | 1815 | 1900 | — | 45 | | | |
| 119 | | 1915 | 2000 | — | 45 | | | |
| | | | | 103 Hrs | 45 Min | 697 Ltrs | 160 Ltrs | |
| | | | | | | | | |
| | | | | The log Book is closed For the month | | | | |
| | | | | Ending on 31 Jan 2023. Total diesel | | | | |
| | | | | Consumption in Both engines are 697 Ltrs | | | | |
| | | | | | | | | |
| TOTAL | | | | | | | | |

SKIPPER'S SIGNATURE

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received B/F - 208 Ltrs Date 1-2-23 | Per trip approx fuel consumption.....
150 Ltrs 5-2-23

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 1 | 1-2-23 | 1730 | 1815 | — | 45 | 11 Ltrs | 2 Ltrs | |
| 2 | | 1845 | 1930 | — | 45 | | | |
| 3 | 2-2-23 | 1615 | 1700 | | 45 | | | |
| 4 | | 1730 | 1815 | — | 45 | | | |
| 5 | | 1845 | 1930 | — | 45 | 16 Ltrs | 4 Ltrs | ✓ 3/2/23 1100 To 1230 |
| 6 | 3-2-23 | 1730 | 1815 | — | 45 | 11 Ltrs | 3 Ltrs Diving | carried out Fishing |
| 7 | | 1845 | 1930 | — | 45 | | net removed from | both |
| 8 | 4-2-23 | 1330 | 1400 | — | 30 | | shafts. | |
| 9 | | 1700 | 1745 | — | 45 | 31 Ltrs | 5 Ltrs | |
| 10 | | 1800 | 1845 | — | 45 | | | |
| 11 | | 1900 | 1945 | — | 45 | | | |
| 12 | 5-2-23 | 1630 | 1715 | — | 45 | 23 Ltrs | 6 Ltrs | |
| 13 | | 1730 | 1815 | — | 45 | | | |
| TOTAL 14 | | 1830 | 1915 | — | 45 | | | |
| 15 | | 1930 | 2015 | — | 45 | | | |

SKIPPER'S SIGNATURE

11 hrs — 92 Ltrs 20 Ltrs C/F

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received .....| Date.....| Per trip approx fuel consumption.....

B/F 11 Hrs 92 Ltrs 20 Ltrs

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 16 | 6-2-23 | 1630 | 1730 | 1 | — | | | Center Pollution |
| 17 | | 1815 | 1900 | — | 45 | 17 Ltrs | 06 Ltrs | control Board Team |
| 18 | | 1915 | 2000 | — | 45 | | | |
| 19 | 7-2-23 | 1730 | 1815 | — | 45 | 11 Ltrs | 04 Ltrs | |
| 20 | | 1900 | 1945 | — | 45 | | | |
| 21 | 8-2-23 | 1730 | 1815 | — | 45 | 12 Ltrs | 02 Ltrs | |
| 22 | | 1900 | 1945 | — | 45 | | | |
| 23 | 9-2-23 | 1745 | 1830 | — | 45 | 08 Ltrs | 04 Ltrs | |
| 24 | | 1900 | 1945 | — | 45 | | | |
| 25 | 10-2-23 | 1700 | 1745 | — | 45 | 16 Ltrs | 04 Ltrs | |
| 26 | | 1800 | 1845 | — | 45 | | | |
| 27 | | 1945 | 2045 | 01 | — | | | 11-02-23, 1230-1430 HRS |
| | Cheif Minister Sir arrived KHELO INDIA | | | | | Diving carried fishing net removed | | |
| TOTAL | KHELO PROGRAME on 11-02-23 | | | | | | from both shafts | |
| | | | | 20 Hrs 30 Min | | 156 | 40 Ltrs | |

SKIPPER'S SIGNATURE

C/F

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received ..150 Ltrs..... | Date..13/02/23..... | Per trip approx fuel consumption.....

20 hrs 30 Min. 156 Ltrs 140 Ltrs

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 28 | 12-2-23 | 1100 | 1145 | – | 45 | 26 Ltrs | 06 Ltrs | |
| 29 | | 1630 | 1715 | – | 45 | | | |
| 30 | | 1730 | 1815 | – | 45 | | | |
| 31 | | 1830 | 1915 | – | 45 | | | |
| 32 | | 1930 | 2015 | – | 45 | | | |
| 33 | 13-2-23 | 1745 | 1830 | – | 45 | 17 Ltrs | 04 Ltrs | |
| 34 | | 1930 | 2130 | 02 | – | | | |
| 35 | 14-2-23 | 1715 | 1800 | – | 45 | | | |
| 36 | | 1815 | 1900 | – | 45 | | | |
| 37 | | 1915 | 2000 | – | 45 | 18 Ltrs | 4 Ltrs | |
| 38 | 15-2-23 | 1730 | 1815 | – | 45 | | | |
| 39 | | 1830 | 1915 | – | 45 | | | |
| 40 | | 1930 | 2015 | – | 45 | 18 Ltrs | 3 Ltrs | |
| TOTAL 41 | 16-2-23 | 1600 | 1645 | – | 45 | | | |
| 42 | | 1700 | 1745 | – | 45 | | | |
| 43 | | 1830 | 1915 | – | 45 | 17 Ltrs | 04 Ltrs | |

SKIPPER'S SIGNATURE

33 HRS 45 MIN 252 Ltrs 61 Ltrs C/F

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received 150 Ltrs | Date 19-2-23 | Per trip approx fuel consumption.....

B/F 33 hrs 45 Min. 252 Ltrs 61 Ltrs

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 44 | 17. 2. 23 | 1100 | 1300 | 02 | — | 25 Ltrs | 5 Ltrs | |
| 45 | | 1715 | 1800 | — | 45 | | | |
| 46 | | 1815 | 1900 | — | 45 | | | |
| 47 | | 1915 | 2015 | 01 | — | | | |
| 48 | 18-2-23 | 1430 | 1515 | — | 45 | 27 Ltrs | 7 Ltrs | |
| 49 | | 1600 | 1645 | — | 45 | | | |
| 50 | | 1715 | 1800 | — | 45 | | | |
| 51 | | 1830 | 1915 | — | 45 | | | |
| 52 | | 1930 | 2015 | — | 45 | | | |
| 53 | 19-2-23 | 1445 | 1530 | — | 45 | 34 Ltrs | 15 Ltrs | |
| 54 | | 1600 | 1645 | — | 45 | | | |
| 55 | | 1730 | 1815 | — | 45 | | | |
| 56 | | 1900 | 2200 | 03 | — | 20-2-23 | | |
| TOTAL 57 | 20-2-23 | 1130 | 1215 | — | 45 | | | |
| 58 | | 1730 | 1815 | — | 45 | 24 Ltrs | 05 Ltrs | |
| 59 | | 1830 | 1915 | — | 45 | | | SKIPPER'S SIGNATURE |
| 60 | | 1930 | 2015 | — | 45 | | | |

50 hrs 25 Min. 364 193 Ltrs C/F

# MADHYA PRADESH STATE TOURISMDEV.CORP
# BOAT CLUB BHOPAL

Log book to be closed weekly, Please enter repair &maintenance and non operational records

Name of boat - CRUISE BOAT LAKE PRINCESS Engine - JOHN DEERE Engine No. - 4045TFM-50STBD-CD4045C007130

Fuel Received ..150 Ltrs..... | Date..25-2-23..... | Per trip approx fuel consumption.....

B/F - 50 hrs 25 min 364 9.3 Ltrs

| S.No/Trip | Date | Trip Timing | | Total Time | | Fuel Consumption | | Remark |
|---|---|---|---|---|---|---|---|---|
| | | From | To | Hours | Minutes | Engine | Generator | |
| 61 | 21-2-23 | 1730 | 1815 | — | 45 | 16 Ltrs | 03 | 21-2-23 1200-1330 hrs |
| 62 | | 1830 | 1915 | — | 45 | | | Diving Carried out Fishing |
| 63 | | 1930 | 2015 | — | 45 | | | net removed from both side |
| 64 | 22-2-23 | 1730 | 1815 | — | 45 | 13 Ltrs | 03 Ltrs | |
| 65 | | 1845 | 1930 | — | 45 | | | |
| 66 | 23-2-23 | 1700 | 1800 | 01 | — | 18 Ltrs | 04 Ltrs | |
| 67 | | 1815 | 1900 | — | 45 | | | |
| 68 | | 1915 | 2000 | — | 45 | | | |
| 69 | 24-2-23 | 1700 | 1745 | — | 45 | 10 Ltrs | 05 Ltrs | |
| 70 | | 1800 | 2000 | 02 | — | | | |
| 71 | 25-2-23 | 1530 | 1615 | — | 45 | 39 Ltrs | 09 Ltrs | |
| 72 | | 1630 | 1715 | — | 45 | | | |
| 73 | | 1730 | 1815 | — | 45 | | | |
| 74 | | 1830 | 1915 | — | 45 | | | |
| TOTAL 75 | | 1915 | 2000 | — | 45 | | | |
| 76 | | 2000 | 2045 | — | 45 | | | |
| 77 | 26-2-23 | 1600 | 1645 | — | 45 | 10 Ltrs | 04 Ltrs | SKIPPER'S SIGNATURE |
| 78 | | 1700 | 1745 | — | 45 | | | |
| 79 | | 1815 | 1900 | — | 45 | | | |
| 80 | | 1915 | 2000 | — | 45 | | | |
| | | | | 66 hrs | 55 min | 480 | 121 Ltrs | C/F |

C/F - 66 hrs 55 min 480 Ltrs 121 Ltrs

FEB 2023

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 81 | 27-2-23 | 1700 | 1745 | — | 45 | 15 Ltrs | 4 Ltrs | TOTAL FUEL RECIEVED = |
| 82 | | 1800 | 1845 | — | 45 | | | = 808 LTRS |
| 83 | | 1900 | 1945 | — | 45 | | | CONSUMPTION IN BOTH ENGINES |
| 84 | 28-2-23 | 1745 | 1830 | — | 45 | 17 Ltrs | 4 Ltrs | = 512 LTRS |
| 85 | | 1845 | 1930 | — | 45 | | | CONSUMPTION IN GEN SET |
| 86 | | 1930 | 2015 | — | 45 | | | = 129 LTRS |
| | | | | | | | | 808 − 641 = 167 Ltrs |

71 hrs 25 min. 512 129 Ltrs

= 167 C/F FOR NEXT MONTH

The Log book is closed for the month ending on 28-02-2023. Total diesel consumption in both engines are = 512 Ltrs.

# Municipal Corporation Bhopal

Cash Receipt

**REMOVAL & COLLECTION OF SOLID WASTE**

*Citizen Copy*

**Receipt No :** 132200031555 **Receipt Date :** Nov 23, 2022

| | | | | | |
|---|---|---|---|---|---|
| **Zone No** | 0999 | | | **Ward No** | 0999 |
| **Name** | Boad club | | | **Mobile No** | 9993941943 |
| **Father/Husband Name** | - | | | **Receipt Amount** | 1,000.00 |
| **Address** | boad club shaymla hills bhopal | | | | |
| **Description** | SEWAGE MACHINE 2000LITER AMOUNT 1000/- | | | | |

| Particulars | Description | Amount |
|---|---|---|
| SEPTIC TANK CLEANING CHARGES | SEWAGE MACHINE 2000LITER AMOUNT 1000/- | 1,000.00 |
| Grand Total | | 1,000.00 |

**Amount in Words** ONE THOUSAND Rupees only

नागरिक सुविधा केन्द्र 23/11/2022
जोन क्र.-07 *Authorised Signatory*

# Municipal Corporation Bhopal

*Citizen Copy*

**Cash Receipt**

**REMOVAL & COLLECTION OF SOLID WASTE**

**Receipt No :** 132200035752

**Receipt Date :** Dec 30, 2022

| | | | | | |
|---|---|---|---|---|---|
| **Zone No** | 0999 | | | **Ward No** | 0999 |
| **Name** | boat club bhopal | | | **Mobile No** | 9993941943 |
| **Father/Husband Name** | - | | | **Receipt Amount** | 1,000.00 |
| ***Address*** | c.m house | | | | |
| ***Description*** | SEWAGE SERVICE 1TRIP | | | | |

| Particulars | Description | Amount |
|---|---|---|
| SEPTIC TANK CLEANING CHARGES | | 1,000.00 |
| Grand Total | | 1,000.00 |

**Amount in Words** ONE THOUSAND Rupees only

E.O. नगर पालिक निगम भोपाल

30/12/22

Authorised Sign

क्षेत्रीय निदेशालय (मध्य), भोपाल
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)

क्षे.नि.भो./एन.जी.टी. ओ.ए.– 82/2022(CZ)/1868 दिनांक: 03 मार्च, 2023

प्रति,

सदस्य सचिव
मध्यप्रदेश प्रदूषण नियंत्रण बोर्ड
पर्यावरण परिसर, ई–5 अरेरा कालोनी
भोपाल – 462 016

विषय: NGT OA No. 82/2022(CZ) "Dr. Subhash C. Pandey Vs. State of Madhya Pradesh & Ors." के संबंध में जानकारी बाबत्।

महोदय,

उपरोक्त विषयांतर्गत एनजीटी ओए नं.–82/2022 "Dr. Subhash C. Pandey Vs. State of Madhya Pradesh & Ors." के मूल नस्ती में संलग्न मध्य प्रदेश टूरिज्म डेवलपमेंट कॉर्पोरेशन द्वारा दिनांक 21/02/2022 को प्रकाशित (Expression of Intrest for Organizing Cruise at various water Bodies in MP) से अवगत हुआ है कि बडे तालाब के न्यय प्रदेश के अन्य 12 जलाशयों में भी कूज़ शिप का प्रचलन शुरू किया जायेगा (सूची संलगन) है।

उपरोक्त के संदर्भ में आपसे अनुरोध है कि कृपया इस संबंध में वास्तविक स्थिति से इस कार्यालय को अवगत कराने का कष्ट करें तथा इन जलाशयों में आपके संस्था द्वारा प्रबोधन कार्य यदि किया जाता हो तो उक्त संबंधित आंकड़ों से भी इस कार्यालय को अवगत करायें।

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

संलग्नक– उपरोक्तानुसार।

MPTB has identified following water bodies, river(s), lake(s) and reservoirs for organizing cruises.

| S.No. | Name of Water Bodies | Place |
|---|---|---|
| 1. | Water body of Indira Sagar Dam (including Narmada and other tributaries) | Khandwa |
| 2. | Water body of Omkareshwar Dam (Narmada and other tributaries) | Mandhata, Khandwa |
| 3. | From Barwani Point to Sardar Sarovar Dam – Statue of Unity (River Narmada) | Barwani |
| 4. | Water body of Tawa Dam (including Tawa, Denawa and other tributaries) | Hoshangabad |
| 5. | Water body of Bargi Dam (including Narmada and other tributaries) | Jabalpur |
| 6. | Water body of Ban Sagar Dam (including Soun and other tributaries) | Shehdol |
| 7. | Water body of Gandhi Sagar Dam (including Chambal and other tributaries) | Mandsour |
| 8. | Water body of Manikheda Dam (including Sindh and other tributaries) | Shivpuri |
| 9. | Water body of Halali Dam (including Halali and other tributaries) | Raisen |
| 10. | Water body of Chandpatha Dam (Distrirct Shivpuri) | Shivpuri |
| 11. | Water body of Chaural Dam (including Chaural and other tributaries) | Mhow, Indore |
| 12. | Water body of Barna Dam (including Barna and other tributaries) | Raisen |