

GRC India

GRC INDIA TRAINING & ANALYTICAL LABORATORY

(A unit of Grass Roots Research & Creation India (P) Ltd.)

An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 (OH&S) Certified NABL Accredited Laboratory (A Constituent Board of QCI), TC 7501 (Chemical & Biological)

Recognized by Ministry of Environment, Forest & Climate Change (MoEF&CC, GOI), under the E (P) Act, 1986

Head Office: F-375, Sector-63, Noida, Gautam Budh Nagar, U.P - 201 301

Phone No.: 0120 - 4044630, 4044660, 4323120, Fax: 0120 - 2406519, 0120 - 4044675 Website: https://www.grc-india.com, E-mail: lab@grc-india.com; info@grc-india.com

Test Report

Issue Date: 31.03.2023

Analysis Duration: 04.03.2023 to 30.03.2023

Report Code: A20230331-005

Issued To: 'Expansion of Residential Apartment Project

"9 Boulevard" M/s. OU Infraproject Pvt Ltd.

at Mouza-Raghunathpur, Tehsil-Bhubaneshwar,

District- Khurda, Odisha. Sample Description: Ambient Air

RESULTS

(Ambient Air Quality Analysis)

SAMPLING DETAILS

Sampling Location

Project Site

Sample Collected by

Mr. Maan Singh

Sampling Protocol

GRC/LAB/STP/AIR/01: 2018

Weather Condition

Clear Sky

Sampling Duration

24 Hours

Sampling Duration for CO

1 Hour

Sampler Location w.r.t. Height

: 4.0 Meter above Ground Level

Sample Packing & Marking

: Plastic Bottle/ Zip Polybag & OUIP/MAR/A001-A008

| | | Test Parameters | | | | | | | |
|-----------|------------|--|--|--|--|---|--|--|--|
| S. No. | Date | Matter Matte | Particulate Matter (PM _{2.5}); μg/m³ | Sulphur Dioxide (SO ₂); μg/m ³ | Nitrogen Dioxide (NO ₂); μg/m ³ | Carbon Monoxide, (CO) μg/m ³ IS 5182 (Part 10):1999 (RA 2019) | | | |
| | | IS 5182 (Part 23):2006 (RA 2022) | IS 5182 (Part 24):2019 | , | IS 5182 (Part 6):2006 (RA 2022) | | | | |
| 1 | 02.03.2023 | 89.7 | 47.6 | 9.7 | 20.5 | 650 | | | |
| 2 | 06.03.2023 | 81.1 | 42.6 | 10.4 | 17.0 | 510 | | | |
| 3 | 10.03.2023 | 87.2 | 45.1 | 11.1 | 19.6 | 660 | | | |
| 4 | 13.03.2023 | 78.3 | 39.2 | 10.2 | 15.1 | 570 | | | |
| 5 | 17.03.2023 | 86.9 | 46.8 | 9.5 | 18.8 | 660 | | | |
| 6 | 20.03.2023 | 86.7 | 44.9 | 11.3 | 20.3 | 610 | | | |
| 7 | 23.03.2023 | 75.2 | 39.5 | 10.6 | 19.2 | 680 | | | |
| 8 | 27.03.2023 | 83.6 | 43.4 | 11.7 | 20.6 | 620 | | | |

End of Report

Authorized Signatory (Seal & Signature)

GRC-LAB/OF-039

ssue Date: 02 07 20 18

Note: 1 The results indicated only refer to the tested samples and listed parameters and do not endorse any product

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Issue Date: 16.03.2023

Data Received on: 15.03.2023

Test Report

Report Code: N20230316-005

Issued To: Expansion of Residential Apartment Project

"9 Boulevard" M/s. OU Infraproject Pvt Ltd. at Mouza-Raghunathpur, Tehsil- Bhubaneshwar,

District- Khurda, Odisha. **Sample Description:** Ambient Noise

RESULTS

Ambient Noise Level

MONITORING DETAILS

Date of Monitoring

: 13.03.2023

Monitoring Done by

: Mr. Maan Singh

Monitoring Protocol

: IS 9989: 1981, RA 2020

Weather Condition

Monitoring Duration

: Clear Sky : 24 Hours

| S. No. | LOCATION | ZONE | 1 | Noise Pollution n & Control) Leq, dB (A) | Observed Value Leq, dB (A) | |
|-----------|--------------|-------------------------|-----------|--|-------------------------------|--------------|
| | | | Day Time* | Night Time** | Day Time* | Night Time** |
| 1 | Project Site | Residential Area | 55 | 45 | 54.7 | 43.9 |
| | * Day Time | 6.00 a.m. to 10.00 p.m | | | L | 1 |
| | **Night Time | 10.00 p.m. to 6.00 a.m. | | | | |

End of Report

Narender Singh (Sr. Chemist) Authorized Signature (Scal & Signature)

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Rev::00

Issue Date: 02 07 2018

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ized Signatory

de Date: 02 07 2018

Seal & Signature)

Test Report

Report Code: S20230321-005

Issued To: 'Expansion of Residential Apartment Project

"9 Boulevard" M/s. OU Infraproject Pvt Ltd.

at Mouza-Raghunathpur, Tehsil-Bhubaneshwar,

District- Khurda, Odisha.

Sample Description: Soil Sample

Issue Date: 21.03.2023

Sample Received on: 04.03.2023

Analysis Duration: 06.03.2023 to 20.03.2023

RESULTS Soil Quality Analysis

SAMPLING DETAILS

Date of Sampling

Sampling Location

Sample Collected by

Sampling Protocol Weather Condition

Sample Quantity

Sample Packing & Marking

: 02.03.2023

Project Site

: Mr. Maan Singh

: GRC/LAB/STP/SOIL/01; 2018

: Clear Sky

: 5 kg

Zip Polybag; OUIP/MAR/SQ-01

| S. No. | Parameters | Units | Results | Test Method | |
|-----------|---------------------------------------|------------|-----------------|----------------------------------|--|
| 1_{ii} | Texture | - | Sandy Clay Loam | GRC-LAB/STP-SOIL/22; 2018 | |
| 2. | Particle Size Distribution | | | IS 2720 (Part-4): 1985, RA 2020 | |
| | Sand | % | 53.6 | | |
| | Silt | % | 17.8 | | |
| | Clay | % | 28.6 | | |
| 3. | pH (1:2 Suspension) | - | 7.58 | IS 2720 (Part-26): 1987, RA 2021 | |
| 4. | Electrical Conductivity (1:2 | μS/cm | 287 | IS 14767: 2000, RA 2021 | |
| 5. | Moisture Content | % | 10.3 | IS 2720 (Part-2): 1973, RA 2020 | |
| 6. | Cation Exchange Capacity (CEC) | meq/100 gm | 13.7 | IS 2720 (Part-24): 1976, RA 2020 | |
| 7. | Available Potassium (as K) | mg/kg | 44 | GRC-LAB/STP-SOIL/07; 2018 | |
| 8. | Exchangeable Sodium (as Na) | mg/kg | 107 | GRC-LAB/STP-SOIL/07; 2018 | |
| 9. | Exchangeable Calcium (as Ca) | mg/kg | 2076 | GRC-LAB/STP-SOIL/08; 2018 | |
| 10. | Exchangeable Magnesium (as Mg) | mg/kg | 328 | GRC-LAB/STP-SOIL/08; 2018 | |
| 11. | Sodium Absorption Ratio (SAR) | | 0.57 | GRC-LAB/STP-SOIL/19; 2018 | |
| 12. | Organic Matter | % | 0.83 | IS 2720 (Part-22): 1972, RA 2020 | |
| 13, | Total Nitrogen (as N) | mg/kg | 42 | IS 14684: 1999 RA 2019 | |
| 14. | Nitrate (as NO ₃) | mg/kg | 3.8 | IS 14684: 1999 RA 2019 | |
| 15. | Total Phosphate (as PO ₄) | mg/kg | 6.3 | USEPA Method 365.3: 1978 | |
| 16. | Iron (as Fe) | mg/kg | 3.9 | USEPA Method 3051-A: 2007 | |
| 17. | Zinc (as Zn) | mg/kg | 1.2 | USEPA Method 3051-A: 2007 | |

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Issue Date: 21.03.2023

Test Report

Report Code: S20230321-005

| 18. | Copper (as Cu) | mg/kg | 1.4 | USEPA Method 3051-A: 2007 |
|-----|------------------------|-------|------|----------------------------------|
| 19. | Boron (as B) | mg/kg | 1.2 | USEPA Method 3051-A: 2007 |
| 20. | Manganese (as Mn) | mg/kg | 8.7 | USEPA Method 3051-A: 2007 |
| 21. | Water Holding Capacity | % | 33.5 | GRC-LAB/STP-SOIL/13; 2020 |
| 22. | Permeability | cm/hr | 2.3 | IS 2720 (Part-17): 1986, RA 2021 |
| 23. | Porosity | % | 28.7 | GRC-LAB/STP-SOIL/20; 2020 |
| 24. | Bulk Density | gm/cc | 1.33 | GRC-LAB/STP-SOIL/12; 2018 |

End of Report

Narendra Singh
(SW Chemist)
Authorized Signature)

GRC-LAB/OF-039

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Test Report

Report Code: GW20230321-005(A)

Issued To: 'Expansion of Residential Apartment Project

"9 Boulevard" M/s. OU Infraproject Pvt Ltd.

at Mouza-Raghunathpur, Tehsil-Bhubaneshwar,

District- Khurda, Odisha.

Sample Description: Ground Water

Issue Date: 21.03.2023

Sample Received on: 04.03.2023

Analysis Duration: 06.03.2023 to 20.03.2023

RESULTS

Water Quality Analysis

SAMPLING DETAILS

Date of Sampling

: 02.03.2023

Sampling Location

: Project site

Sample Collected by

: Mr. Maan Singh

Sampling Protocol

: IS-17614 (Part-1):2021

Weather Condition

: Clear Sky

Sample Quantity

:5 L

Sample Packing & Mark

Plastic Bottle & OUIP/MAR/GW-01

| S. No. | Dougranton | | Limits (as per IS:10500- 2012) | | | |
|-----------|-----------------------------|-------|-----------------------------------|----------------------|-----------|--------------------------------------|
| | Parameters | Units | Desirable Limit | Permissible Limit | Results | Test Method |
| 1 | Color | Hazen | 5 | 15 | <5 | IS 3025 (Part-4): 2021 |
| 2 | Odour | - 440 | Agreeable | Agreeable | Agreeable | IS 3025 (Part-5): 2018 |
| 3 | Turbidity | NTU | 1 | 5 | <1 | IS 3025 (Part-10): 1984, RA 2017 |
| 4 | pH Value | - | 6.5-8.5 | No Relaxation | 7.67 | IS 3025 (Part-11): 2022 |
| 5 | Total Dissolved Solids | mg/l | 500 | 2000 | 346 | IS 3025 (Part-16): 2023 |
| 6 | Total Hardness (as CaCO3) | mg/l | 200 | 600 | 192 | IS 3025 (Part-21): 2009, RA 2019 |
| 7 | Total Alkalinity (as CaCO3) | mg/I | 200 | 600 | 121 | IS 3025 (Part-23): 1986, RA 2019 |
| 8 | Chlorides (as Cl) | mg/l | 250 | 1000 | 86 | IS 3025 (Part-32): 1988, RA 2019 |
| 9 | Fluoride (as F) | mg/l | 1 | 1.5 | 0.4 | 4500F-D, APHA 24th Ed. 2023 |
| 10 | Calcium (as Ca2+) | mg/l | 75 | 200 | 46 | IS 3025 (Part-40): 1991, RA 2019 |
| 11 | Magnesium (as Mg2+) | mg/l | 30 | 100 | 18 | 1S 3025 (Part-46): 1994, RA 2019 |
| 12 | Sulphate (as SO4) | mg/l | 200 | 400 | 36 | IS 3025 (Part-24/Sec-1): 2022 |
| 13 | Nitrate (as NO3) | mg/l | 45 | No Relaxation | 9 | IS 3025 (Part-34/Sec-3): 2021 |
| 14 | Iron (as Fe) | mg/l | I, | No Relaxation | 0.34 | 3120-B, APHA 24th Ed. 2023 (ICP-OES) |
| 15 | Aluminum (as Al) | mg/l | 0.03 | 0.2 | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICP-OES) |
| 16 | Copper (as Cu) | mg/l | 0.05 | 1.5 | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICP-OES) |

Rahul Singh Sr Chemist) Authorized Signatory (Seal & Signature)

GRC-LAB/OF-039

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Issue Date: 02 07 2018

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Issue Date: 21.03.2023

Test Report

Report Code: GW20230321-005(A)

| _ | | _ (/ | | | | |
|----|--------------------------------|-------|-------|---------------|--------|--------------------------------------|
| 17 | Manganese (as Mn) | mg/l | 0.1 | 0.3 | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 18 | Boron (as B) | mg/l | 0.5 | 1 | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 19 | Zinc (as Zn) | mg/l | 5 | 15 | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 20 | Selenium (as Se) | mg/l | 0.01 | No Relaxation | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 21 | Arsenic (as As) | mg/l | 0.01 | 0.05 | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 22 | Cadmium (as Cd) | mg/l | 0.003 | No Relaxation | <0.001 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 23 | Total Chromium (as Cr3+) | mg/l | 0.05 | No Relaxation | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 24 | Cyanide (as CN) | mg/l | 0.05 | No Relaxation | < 0.01 | IS 3025 (Part-27): 1986, RA 2019 |
| 25 | Lead (as Pb) | mg/l | 0.01 | No Relaxation | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 26 | Mercury (as Hg) | mg/l | 0.001 | No Relaxation | <0.001 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 27 | Nickel (as Ni) | mg/l | 0.02 | No Relaxation | <0.01 | 3120-B, APHA 24th Ed. 2023 (ICF OES) |
| 28 | Phenolic Compounds (as C6H5OH) | mg/l | 0.001 | 0.002 | <0.001 | IS 3025 (Part-43): 2022 |
| 29 | Anionic Detergent (as MBAS) | mg/l | 0.2 | 1 | < 0.01 | IS 3025 (Part-68): 2019 |
| 30 | Silica (as SiO2) | mg/l | : | **: | 4.9 | 4500-SiO2 (C/D), APHA 24th Ed. 2023 |
| 31 | Phosphate (as PO4) | mg/l | | | 1.8 | 4500-P D, APHA 24th Ed. 2023 |
| 32 | Specific Conductivity | μS/cm | | - | 520 | IS 3025 (Part-14): 2013, RA 2019 |

** End of Report **



GRC-LAB/OF-039

Issue Date: 02 07 2018

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Test Report

Report Code: GW20230311-005(B)

Issued To: 'Expansion of Residential Apartment Project

under the E (P) Act, 1986

"9 Boulevard" M/s. OU Infraproject Pvt Ltd.

at Mouza-Raghunathpur, Tehsil- Bhubaneshwar.

District- Khurda, Odisha.

Sample Description: Ground Water

Issue Date: 11.03.2023

Sample Received on: 04.03.2023

Analysis Duration: 06.03.2023 to 11.03.2023

RESULTS

Water Quality Analysis

SAMPLING DETAILS

Date of Sampling

: 02.03.2023

Sampling Location

: Project Site

Sample Collected by

: Mr. Maan Singh

Sampling Protocol

: IS 1622: 1981, RA 2019

Weather Condition

: Clear Sky

Sample Quantity

: 500 ml

Sample Packing & Mark

: Glass Bottle & OUIP/MAR/GW-01

| S. No. | Parameters | Units | Limits (as per IS 10500: 2012) | Results | Test Method |
|-----------|----------------|-----------|--------------------------------|-------------------|-------------------------|
| 1 | Total Coliform | MPN/100ml | shall not be detectable | Not Detected (<2) | IS 1622: 1981, RA 2019 |
| 2 | E. coli | MPN/100ml | shall not be detectable | Absent (<2) | IS 1622: 1981, RA 2019) |

** End of Report **

(Quality Manager) Authorized Signatory (Seal & Signature)

Rev 00

Issue Date: 02 07 2018

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Test Report

Report Code: SW20230321-005(A)

Issued To: 'Expansion of Residential Apartment Project

"9 Boulevard" M/s. OU Infraproject Pvt Ltd. at Mouza-Raghunathpur, Tehsil-Bhubaneshwar,

District- Khurda, Odisha. Sample Description: Surface Water

Issue Date: 21.03.2023

Sample Received on: 04.03.2023 Analysis Duration: 06.03.2023 to 20.03.2023

RESULTS

(Water Quality Analysis)

SAMPLING DETAILS

Date of Sampling 02.03.2023

Sampling Location : Kuakhai River Sample Collected by Mr. Maan Singh

Sampling Protocol : IS 17614 (Part-1):2021

Weather Condition Clear Sky Sample Quantity

5 L Sample Packing & Marking Plastic Bottle & OUIP/MAR/SW-01

| S. No. | Parameters | Units | Results | Test Method |
|--------|---|------------------|---------|--|
| I. | Color | Hazen | <5 | IS 3025 (Part-4): 2021 |
| 2. | Turbidity | NTU | 26 | IS 3025 (Part-5): 2018 |
| 3. | Temperature | °C | 22.3 | IS 3025 (Part-10): 1984, RA 2017 |
| 4. | pH Value | 6 = . | 7.27 | IS 3025 (Part-11): 2022 |
| 5. | Dissolved Oxygen | mg/l | 5.9 | IS 3025 (Part-16): 2023 |
| 6. | Biochemical Oxygen Demand (BOD) 3 Days at 27°C | mg/l | 3.1 | IS 3025 (Part-21): 2009, RA 2019 |
| 7. | Chemical Oxygen Demand | mg/l | 12.4 | IS 3025 (Part-23): 1986, RA 2019 |
| 8. | Total Dissolved Solids | mg/l | 136 | IS 3025 (Part-32): 1988, RA 2019 |
| 9. | Total Hardness (as CaCO ₃) | mg/l | 86 | 4500F-D, APHA 24 th Ed. 2023 |
| 10. | Total Alkalinity (as CaCO ₃) | mg/l | 65 | IS 3025 (Part-40): 1991, RA 2019 |
| П. | Chlorides (as Cl) | mg/l | 28 | IS 3025 (Part-46): 1994, RA 2019 |
| 12. | Fluoride (as F) | mg/l | 0.5 | IS 4500F-D, APHA 24th Ed.2023 |
| 13. | Calcium (as Ca ²⁻) | mg/l | 21 | IS 3025 (Part-34/Sec-3): 2021 |
| 14. | Magnesium (as Mg ²⁺) | mg/l | 8 | 3120-B, APHA 24th Ed. 2023 (ICP- OES) |
| 15. | Sodium (as Na ⁺) | mg/l | 12.8 | 3120-B, APHA 24th Ed. 2023 (ICP- OES) |



GRC-LAB/QF-039

Revi:00

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Test Report

Report Code: SW20230321-005(A)

Issue Date: 21.03.2023

| 16. | Potassium (as K ⁺) | mg/l | 2.4 | 3120-B, APHA 24th Ed. 2023 (ICP-OES) |
|-----------------|--|-------|---------|---|
| 17. | Sulphate (as SO ₄) | mg/l | 8.1 | IS 3025 (Part-24): 1986, RA 2022 |
| 18. | Total Kjeldahl Nitrogen (as N) | mg/l | 0.8 | IS 3025 (Part-34/Sec-2): 2021 |
| 19. | Free Ammonia (as NH ₃) | mg/l | 0.2 | IS 3025 (Part-34/Sec-2): 2021 |
| 20. | Nitrate (as NO ₃) | mg/l | 1.3 | IS 3025 (Part-34/Sec-3): 2021 |
| 21. | Silica (as SiO ₂) | mg/l | 6.4 | 4500-SiO ₂ (C/D), APHA 24 rd Ed. 202. |
| 22. | Phosphate (as PO ₄) | mg/l | 0.2 | 4500-P D, APHA 24th Ed.2023 |
| 23. | Iron (as Fe) | mg/l | 0.96 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 24. | Aluminum (as Al) | mg/l | < 0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 25. | Boron (as B) | mg/l | <0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 26. | Copper (as Cu) | mg/l | <0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 27. | Manganese (as Mn) | mg/l | < 0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 28. | Zinc (as Zn) | mg/l | <0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 29. | Selenium (as Se) | mg/l | <0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 30. | Arsenic (as As) | mg/l | < 0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 31 _± | Cadmium (as Cd) | mg/l | < 0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 32. | Total Chromium (as Cr ³⁺) | mg/l | <0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 33. | Cyanide (as CN) | mg/l | < 0.01 | IS 3025 (Part-27): 1986, RA 2019 |
| 34. | Lead (as Pb) | mg/l | <0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 35. | Mercury (as Hg) | mg/l | <0.001 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 36. | Nickel (as Ni) | mg/l | < 0.01 | 3120-B, APHA 24th Ed.2023 (ICP-OES) |
| 37. | Total Suspended Solids | mg/l | 34.1 | IS 3025 (Part-17): 1984, RA 2017 |
| 38. | Sodium Adsorption Ratio | | 0.4 | IS 11624: 2019 |
| 39. | Phenolic Compounds (as C ₆ H ₅ OH) | mg/l | < 0.001 | IS 3025 (Part-43/Sec-3): 2022 |
| 40. | Anionic Detergent (as MBAS) | mg/l | <0.01 | IS 3025 (Part-68): 2019 |
| 41. | Specific Conductivity | μS/cm | 206 | IS 3025 (Part-14): 1984, RA 2019 |

** End of Report **



GRC-LAB/OF-039

Issue Date: 02.07.2018

Note: 1 The results indicated only refer to the tested samples and listed parameters and do not endorse any product.

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(A unit of Grass Roots Research & Creation India (P) Ltd.)

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Test Report

Report Code: SW20230311-005(B)

Issued To: 'Expansion of Residential Apartment Project

"9 Boulevard" M/s. OU Infraproject Pvt Ltd. at Mouza-Raghunathpur, Tehsil- Bhubaneshwar,

District- Khurda, Odisha.

Sample Description: Surface Water

Issue Date: 11.03.2023

Sample Received on: 04.03.2023

Analysis Duration: 06.03.2023 to 11.03.2023

RESULTS

(Water Quality Analysis)

SAMPLING DETAILS

Date of Sampling **Sampling Location** 02.03.2023

Kuakhai River

Sample Collected by

Mr. Maan Singh

Sampling Protocol

IS 1622:1981, RA 2019

Weather Condition

Clear Sky

Sample Quantity

0.5 L

Sample Packing & Marking

Glass Bottle & OUIP/MAR/SW-01

| S. No. | Parameters | Units | Results | Test Method |
|--------|--------------------------|-----------|---------|------------------------|
| 1. | Total Coliform Organism | MPN/100ml | 410 | IS 1622: 1981, RA 2019 |
| 2. | Faecal Coliform Organism | MPN/100ml | 71 | IS 1622: 1981, RA 2019 |

** End of Report **



GRC-LAB/QF-039

Issue Date: 02.07 201H

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