



RENL
Osse River, Edo State

23/06/2021

CERTIFICATE OF ANALYSIS

Sample Type: Potable Borehole water sample
Sampled by: QALS
Date collected & received: 08/06/2021
Storage: Stored in plastic container

Parameters	Units	Standard Methods	Ikpoba	Abuja	Ikoka	Newland	Edo	Iguobazuwa	Nig. Ind. Std
pH		ASTM D1293B-95	5.10	4.60	4.80	5.10	5.10	5.20	6.5-8.5
Temperature	° C	EPA 79	30.0	30.0	29.9	30.0	30.0	30.0	N/A
Conductivity	µS/cm	ASTM D1125-95	28	25	18	16	23	18	1000
TDS	mg/l	ASTM D868	15	12	9	8	11	9	500
Chloride	mg/l	ASTM 512-89(96)	8.4	7.5	5.4	4.8	6.9	5.4	250
Potassium	mg/l	ASTM D2791-93	1.12	1.05	0.94	0.80	1.19	0.99	N/A
Sodium	mg/l	ASTM D2791-93	2.36	2.25	1.84	1.67	2.38	1.82	200
Calcium	mg/l	ASTM D1126-96B	2.28	1.99	1.28	1.28	1.88	1.28	N/A
Magnesium	mg/l	ASTM D1126-96B	0.86	0.78	0.36	0.36	0.78	0.36	0.2
Hardness	mg/l	ASTM D1126-96B	12.60	12.01	10.60	9.60	12.41	10.80	150
Bicarbonate	mg/l	ASTM D1067-92	12.05	12.10	6.10	6.05	12.10	3.05	N/A
TSS	mg/l	ASTM D1868	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	N/A
Sulphate	mg/l	APHA 427C	0.82	0.88	0.25	0.20	0.70	0.19	100
Nitrate	mg/l	ASTM D3889-90	0.25	0.28	0.18	0.14	0.38	0.15	50
Iron	mg/l	ASTM D1068-96	0.06	0.06	0.03	0.03	0.07	0.03	0.3
Lead	mg/l	ASTM D3559-96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01
Copper	mg/l	ASTM D1688-95	0.01	0.03	0.01	0.02	0.02	0.01	1.0
Nickel	mg/l	ASTM D1886-94	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02
Cadmium	mg/l	ASTM D3557-95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	N/A
Zinc	mg/l	ASTM D1691-95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	3
Chromium	mg/l	ASTM D1687-92	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Manganese	mg/l	ASTM D858-95	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	N/A
Arsenic	mg/l	ASTM D2972-97	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01
Mercury	mg/l	ASTM D3329	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Coliform	MPN/100ml	APHA 124C	0	0	0	0	0	0	0

N/A – Not Available

The results obtained from analysis complied with Nigeria Industrial Standard Limit except those highlighted in Red. However, pH of water aquifer in Niger Delta can be as low as 4.0 due to the acidity of the soil.



Air Quality Measurement for 2nd Quarter, 08/06/2021

Parameters	Units	Ikpoba	Abuja	Ikoka	Newland	Edo	Iguobazuwa	Cup Lumo	Effluent Area	FMEnv 8-hour
Temp	°C	30.2	30.1	30.2	30.2	30.1	30.2	30.2	30.3	35
Noise Gen House	dB	90.5	90.4	89.0	90.2	89.3	89.6	-	-	90
Noise Outside	dB	77.2	74.6	76.8	74.9	76.8	76.5	-	-	90
Noise Nearest Residential	dB	59.7	55.6	56.4	54.8	51.8	52.7	58.8	58.5	90
NO2	ppm	0.007	0.007	0.008	0.006	0.006	0.006	0.009	0.011	0.1
SO2	ppm	0.006	0.006	0.005	0.006	0.005	0.004	0.009	0.010	0.6
H ₂ S	ppm	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.081	0.076	N/A
CO	ppm	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	10
SPM	ppm	5	4	4	5	4	5	4	4	250
CO2	%	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	N/A
O2	%	20.9	21	21	21	20.9	20.9	20.9	20.9	21
VOC	ppm	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.006	0.16
NH4	ppm	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.130	0.138	N/A
Humidity	g/cm ³	54.4	58.6	60.4	52.8	62.7	50.2	62.8	60.2	N/A
Wind Vel	m/s	1.6	1.5	1.5	1.4	1.0	1.0	1.2	1.3	N/A
Radiation	uSv/H	0.018	0.016	0.014	0.018	0.016	0.018	0.020	0.021	6310

N/A – Not Available

Pius Okoruwa
Managing Director
For: Quality Analytical Laboratory Services Limited



RENL,
Osse River, Edo State.

23/06/2021

CERTIFICATE OF ANALYSIS

Sample Type: RAW & Treated Effluent Samples
Sample By: QALS
Date collected & received: 08/06/2021
Storage: Stored in plastic container

PARAMETERS	UNITS	STANDARD METHODS	RAW	TREATED	FMEV
Appearance			Dark grey	Slightly grey	Colourless & Clear
pH		ASTM D1293B-95	7.20	7.80	6.5-9.0
Temperature	°C	EPA 79	30.2	31.0	N/A
Conductivity	µS/cm	ASTM D1125-95	1664	2764	N/A
TDS	mg/l	ASTM D868	832	1382	2000
Turbidity	NTU	ASTM 1889-94	62.80	70.52	N/A
Chloride	mg/l	ASTM 512-89(96)	499.2	829.2	600
Acidity	mg/l	ASTM D1067-92	56.50	85.80	N/A
Alkalinity	mg/l	ASTM D1067-92	454.50	708.60	N/A
Calcium	mg/l	ASTM D1126-96B	20.40	36.70	N/A
Magnesium	mg/l	ASTM D1126-96B	42.34	46.80	N/A
Total Hardness	mg/l	ASTM D1126-96B	118.68	238.92	N/A
TSS	mg/l	ASTM D1868	24.82	31.85	30
Total Solid	mg/l	ASTM D1868	856.82	1413.85	N/A
Sulphate	mg/l	APHA 427C	10.60	14.62	N/A
Phosphate	mg/l	ASTM D515-88	2.82	3.64	N/A
Nitrate	mg/l	ASTM D3889-90	6.14	7.87	N/A
Dissolved Oxygen	mg/l	ASTM D888-92(96)	0	0	N/A
BOD	mg/l	APHA-507	81.8	109.6	80
COD	mg/l	ASTM D1252-95	125.6	136.4	50
Oil and Grease	mg/l	ASTM D3921	9.45	11.20	10
Iron	mg/l	ASTM D1068-96	2.23	2.94	20
Lead	mg/l	ASTM D3559-96	0.120	0.155	<1.0
Copper	mg/l	ASTM D1688-95	0.078	0.094	<1.0
Nickel	mg/l	ASTM D1886-94	0.054	0.058	<1.0
Cadmium	mg/l	ASTM D3557-95	<0.05	<0.05	<1.0
Zinc	mg/l	ASTM D1691-95	0.095	0.114	<1.0
Chromium	mg/l	ASTM D1687-92	0.054	0.056	<1.0
Manganese	mg/l	ASTM D858-95	0.081	0.094	5
Mercury	mg/l	ASTM D3329	<0.001	<0.001	<0.05

The results obtained from analysis complied with Nigeria Industrial Standard Limit except those highlighted in Red

Pius Okoruwa
Managing Director
For: Quality Analytical Laboratory Services Limited



RENL,
Osse River, Edo State.

23/06/2021

CERTIFICATE OF ANALYSIS

Sample Type: Surface Water (OSSE RIVER).

Sample By: QALS

Date collected & received: 08/06/2021

Storage: Stored in plastic container

Parameters	Units	Standard Methods	Upstream	Midstream	Downstream	FMEV
Appearance			Colourless	Colourless	Colourless	Colourless & Clear
pH		ASTM D1293B-95	5.50	5.60	5.60	6.5-9.0
Temperature	°C	EPA 79	29.9	30.0	30.0	N/A
Conductivity	µS/cm	ASTM D1125-95	19	18	19	N/A
TDS	mg/l	ASTM D868	10	9	9	2000
Turbidity	NTU	ASTM 1889-94	4	5	4	N/A
Chloride	mg/l	ASTM 512-89(96)	5.7	5.4	5.4	600
Potassium	mg/l	ASTM D2791-93	0.95	0.93	0.93	N/A
Sodium	mg/l	ASTM D2791-93	1.94	1.92	1.94	N/A
Calcium	mg/l	ASTM D1126-96B	1.82	1.82	1.84	N/A
Magnesium	mg/l	ASTM D1126-96B	0.78	0.68	0.78	N/A
Hardness	mg/l	ASTM D1126-96B	8.20	7.82	8.20	N/A
Bicarbonate	mg/l	ASTM D1067-92	6.10	6.10	6.10	N/A
TSS	mg/l	ASTM D1868	<0.50	<0.50	<0.50	30
Sulphate	mg/l	APHA 427C	0.17	0.54	0.26	N/A
Nitrate	mg/l	ASTM D3889-90	0.19	0.42	0.33	N/A
Dissolved Oxygen	mg/l	ASTM D888-92(96)	6.60	5.80	6.60	N/A
BOD	mg/l	APHA-507	8.80	18.92	8.40	80
COD	mg/l	ASTM D1252-95	14	24	18	50
Oil and Grease		ASTM D3921	<0.05	1.80	1.00	10
Iron	mg/l	ASTM D1068-96	0.07	0.10	0.08	20
Lead	mg/l	ASTM D3559-96	<0.05	<0.05	<0.05	<1.0
Copper	mg/l	ASTM D1688-95	0.03	0.06	0.06	<1.0
Nickel	mg/l	ASTM D1886-94	<0.05	<0.05	<0.05	<1.0
Cadmium	mg/l	ASTM D3557-95	<0.05	<0.05	<0.05	<1.0
Zinc	mg/l	ASTM D1691-95	0.07	0.09	0.09	<1.0
Chromium	mg/l	ASTM D1687-92	<0.05	<0.05	<0.05	<1.0
Manganese	mg/l	ASTM D858-95	0.05	0.07	0.06	<1.0
Arsenic	mg/l	ASTM D2972-97	<0.005	<0.005	<0.005	<1.0
Mercury	mg/l	ASTM D3329	<0.001	<0.001	<0.001	0.05

N/A – Not Available

The results obtained from analysis complied with Federal Ministry Environment Limit except those highlighted in Red



RENL,
Osse River, Edo State.

23/06/2021

CERTIFICATE OF ANALYSIS

Sample Type: Soil samples from Fuel filling area and Power house area
Sample By: QALS
Date collected & received: 08/06/2021
Storage: Stored in Cellophane bags

Parameters	Units	Methods	S1		S2		Min	Max	Mean
			0-15	15-30	0-15	15-30			
PH(H ₂ O)		API-RP45 EPD	5.06	4.83	5.36	4.93	4.83	5.36	5.045
PH(KCL)		API-RP45 EPD	4.54	4.39	4.69	4.54	4.39	4.69	4.54
THC	mg/kg	ASTM D3921-96	18.12	16.22	136.58	118.52	16.22	136.58	72.36
BTEX	mg/kg	GC-Head space	<0.001	<0.001	<0.001	<0.001	0	0	#DIV/0!
PAH	mg/kg	GC FID	<0.001	<0.001	<0.001	<0.001	0	0	#DIV/0!
C	%	ASTM D2579-85B	1.99	1.32	2.16	1.66	1.32	2.16	1.7825
N	%	ASTM D3590-89	0.21	0.13	0.21	0.17	0.13	0.21	0.18
Na	meq/100g	ASTM D1126	0.39	0.31	0.34	0.31	0.31	0.39	0.3375
K	meq/100g	ASTM D1126	0.15	0.1	0.18	0.1	0.1	0.18	0.1325
Ca	meq/100g	ASTM D	2.06	1.22	1.96	1.28	1.22	2.06	1.63
Mg	meq/100g	ASTM D	1.66	1.02	1.32	0.92	0.92	1.66	1.23
EA	meq/100g	ASTM D	0.1	0.22	0.11	0.19	0.1	0.22	0.155
ECEC	meq/100g		4.36	2.87	3.91	2.8	2.8	4.36	3.485
Av. P	ppm	ASTM D	16.36	9.88	15.76	10.88	9.88	16.36	13.22
SO ₄	ppm	ASTM D	10.72	8.16	12.16	8.72	8.16	12.16	9.94
NO ₃	ppm	ASTM D	5.86	3.32	5.56	3.32	3.32	5.86	4.515
Zn	mg/kg	ASTM D2576D	2.08	1.22	1.72	1.36	1.22	2.08	1.595
Cu	mg/kg	ASTM D1688-95	1.71	1.21	1.66	1.16	1.16	1.71	1.435
Cd	mg/kg	ASTM D3557-95	<0.01	<0.01	<0.01	<0.01	0	0	#DIV/0!
Fe	mg/kg	ASTM D1068-96	186.4	314.2	196.3	248.7	186.4	314.2	236.4
Pb	mg/kg	ASTM D3559-96	0.48	0.11	0.36	<0.01	0.11	0.48	0.3166667
Ni	mg/kg	ASTM D1886-94	0.12	<0.01	<0.01	<0.01	0.12	0.12	0.12
Cr	mg/kg	ASTM D5257-57	<0.005	<0.005	0.01	<0.005	0.01	0.01	0.01
V	mg/kg	ASTM D3373-93	<0.001	<0.001	<0.001	<0.001	0	0	#DIV/0!
As	mg/kg	ASTM D2972-97	<0.001	<0.001	<0.001	<0.001	0	0	#DIV/0!
Hg	mg/kg	ASTM D3329	<0.001	<0.001	<0.001	<0.001	0	0	#DIV/0!

S1 – Fuel filling area and S2 – Power house area



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IPAN CERTIFIED

CERT. NO: 0028 (ISO 17025 Quality Laboratory Management)

Pius Okoruwa
Managing Director
For: Quality Analytical Laboratory Services Limited