



**GREATER TZANEEN MUNICIPALITY**  
**WATER SERVICES LABORATORY**  
Tzaneen Central Laboratory  
Portion 7 Dornhoek farm 535 LT  
Tel: +27 15 307 8217/9  
Fax : +27 15 307 8246

Ref no: ALL/ Q4/ 22-23/3/ April- June 2023

Area : Tzaneen, Nkowankowa, Letsitele and Haenertsburg

Date Sampled: Averaged: 4th Quarter 2022/2023

Date analysed: Averaged Quarterly

May-23



Determinants	Tzaneen	Nkowankowa	Letsitele	Haenertsburg	Standard limits
Ph (-logH)	7.78	7.41	6.94	8.40	> 5- ≤ 9.7 Operational
Turbidity (NTU)	0.64	0.55	0.65	0.70	≤ 5 Aesthetic ≤ 1 Operational
Colour (as Pt)	5.82	1.90	5.79	3.00	≤ 15 Aesthetic
Conductivity (mS/m)	6.38	16.70	32.38	4.12	≤ 170 Aesthetic
Temperature °C	24.52	23.39	24.65	22.57	N/A
Total Dissolved Solids (mg/l)	41.47	108.18	210.46	25.78	≤ 1200 Aesthetic
Total Alkalinity (mg/l)	22.00	44.00	106.14	13.00	N/A
Total Hardness (mg/l)	43.25	50.20	141.43	16.00	N/A
Calcium Hardness as CaCO <sub>3</sub> (mg/l)	21.25	26.20	56.86	8.33	N/A
Calcium as Ca (mg/l)	8.51	10.49	22.76	3.34	N/A
Magnesium Hardness as CaCO <sub>3</sub> (mg/l)	22.00	24.00	84.57	11.00	N/A
Magnesium as Mg (mg/l)	5.34	5.83	20.54	2.67	N/A
Sodium as Na (mg/l)	2.90	15.04	26.48	6.11	≤ 200 Aesthetic
Potassium as K (mg/l)	1.79	1.04	0.50	0.47	N/A
Chloride as Cl (mg/l)	9.49	18.72	21.18	8.98	≤ 300 Aesthetic
Fluoride as F (mg/l)	0.60	0.00	0.10	0.00	≤ 1.5 Chronic Health
Sulphate as SO <sub>4</sub> (mg/l)	0.63	0.20	6.43	0.00	≤ 250 Aesthetic ≤ 500 Acute Health-1
Nitrate as N (mg/l)	0.89	0.86	1.57	1.50	≤ 11 Acute health-1
Iron as Fe (µg/l)	34.25	36.00	43.29	49.33	≤ 300 Aesthetic ≤ 2000 Chronic Health
Manganese as Mn (µg/l)	24.38	22.20	8.86	23.67	≤ 100 Aesthetic ≤ 400 Chronic Health
Ammonia as N (mg/l)	0.16	0.15	0.04	0.03	≤ 1.5 Aesthetic
Aluminium as Al (µg/l)	49.63	19.20	29.57	17.00	≤ 300 Operational
Zinc as Zn (mg/l)	0.09	0.02	0.05	0.02	≤ 5 Aesthetic
Langelier Sat. Index	-1.80	-1.15	-1.94	-0.46	N/A
Ryznar Index	10.59	9.89	9.67	10.20	N/A
Corrosivity Ratio	0.53	0.50	0.55	0.50	N/A
Free Res. Chlorine (mg/l)	0.20	0.10	0.08	0.37	≤ 5 Chronic Health
E.Coli (count/100ml)	0.00	0.00	0.00	0.00	0 Acute Health-1
Total Coliform Bacteria (count/100ml)	0.00	0.30	0.22	0.00	≤ 10 Operational
Heterotrophic plate Count (count/ml)	0.00	6.10	3.86	0.00	≤ 1000 Operational

 = Outside limit

Signature : 

Date : 08/06/23



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Ref no:ALL/ Q2/ 22-23/2/ Jan- March 2023

Area : Tzaneen, Nkowankowa, Letsitele and Haenertsburg

Date Sampled: Averaged: 1st Quarter 2022/2023

Date analysed: Averaged Quartely



Determinants	Tzaneen	Nkowankowa	Letsitele	Haenertsburg	Standard limits
Ph (-logH)	7.95	7.68	7.53	7.80	> 5- ≤ 9.7 Operational
Turbidity (NTU)	0.96	0.68	0.66	0.81	≤ 5 Aesthetic ≤ 1 Operational
Colour (as Pt)	2.32	0.07	2.36	1.17	≤ 15 Aesthetic
Conductivity (mS/m)	6.65	19.35	29.59	4.16	≤ 170 Aesthetic
Temperature °C	25.52	26.27	25.97	25.62	N/A
Total Dissolved Solids (mg/l)	43.19	125.76	192.31	26.94	≤ 1200 Aesthetic
Total Alkalinity (mg/l)	31.25	76.80	94.00	19.00	N/A
Total Hardness (mg/l)	42.00	75.00	114.29	14.33	N/A
Calcium Hardness as CaCO <sub>3</sub> (mg/l)	19.38	24.80	63.57	9.33	N/A
Calcium as Ca (mg/l)	7.76	9.93	25.45	3.73	N/A
Magnesium Hardness as CaCO <sub>3</sub> (mg/l)	22.63	50.20	50.71	6.33	N/A
Magnesium as Mg (mg/l)	5.49	12.19	12.31	1.54	N/A
Sodium as (Na) (mg/l)	6.25	11.39	17.56	8.48	≤ 200 Aesthetic
Potassium as K (mg/l)	0.76	0.96	0.71	0.67	N/A
Chloride as Cl (mg/l)	8.26	27.79	18.44	9.22	≤ 300 Aesthetic
Fluoride as F (mg/l)	0.06	0.04	0.01	0.00	≤ 1.5 Chronic Health
Sulphate as SO <sub>4</sub> (mg/l)	0.38	0.60	4.57	0.67	≤ 250 Aesthetic ≤ 500 Acute Health-1
Nitrate as N (mg/l)	1.19	0.66	0.77	1.23	≤ 11 Acute health-1
Iron as Fe (µg/l)	28.63	13.60	48.43	73.00	≤ 300 Aesthetic ≤ 2000 Chronic Health
Manganese as Mn (µg/l)	12.50	8.40	7.57	5.68	≤ 100 Aesthetic ≤ 400 Chronic Health
Ammonia as N (mg/l)	0.01	0.07	0.01	0.01	≤ 1.5 Aesthetic
Aluminium as Al (µg/l)	104.13	23.60	38.86	61.33	≤ 300 Operational
Zinc as Zn (mg/l)	0.02	0.10	0.06	0.04	≤ 5 Aesthetic
Langelier Sat. Index	-0.13	-0.48	-0.47	-1.10	N/A
Ryznar Index	8.82	8.97	8.19	10.60	N/A
Corrosivity Ratio	0.49	0.48	0.51	0.49	N/A
Free Res. Chlorine (mg/l)	0.21	0.19	0.07	0.31	≤ 5 Chronic Health
E.Coli (count/100ml)	0.00	0.00	0.00	0.00	0 Acute Health-1
Total Coliform Bacteria(count/100ml)	0.00	0.00	0.00	0.00	≤ 10 Operational
Heterotrophic plate Count (count/ml)	1.63	13.20	6.07	0.00	≤ 1000 Operational

= Outside limit

Signature : .....

Date : .....





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Ref no:ALL/ Q3/ 22-23/3/ April- June 2023

Area : Tzaneen, Nkowankowa, Letsitele and Haenertsburg

Date Sampled: Averaged: 4th Quarter 2022/2023

Date analysed: Averaged Quartely



Determinants	Tzaneen	Nkowankowa	Letsitele	Haenertsburg	Standard limits
Ph (-logH)	6.99	7.75	7.21	9.51	> 5- ≤ 9.7 Operational
Turbidity (NTU)	0.74	0.77	0.54	0.93	≤ 5 Aesthetic ≤ 1 Operational
Colour (as Pt)	7.25	1.90	1.86	6.00	≤ 15 Aesthetic
Conductivity (mS/m)	6.29	17.62	28.11	4.23	≤ 170 Aesthetic
Temperature °C	24.78	25.72	25.07	22.53	N/A
Total Dissolved Solids (mg/l)	40.88	114.17	182.74	27.55	≤ 1200 Aesthetic
Total Alkalinity (mg/l)	22.00	53.00	94.00	13.00	N/A
Total Hardness (mg/l)	43.25	54.60	114.29	16.00	N/A
Calcium Hardness as CaCO <sub>3</sub> (mg/l)	21.25	26.60	63.57	8.33	N/A
Calcium as Ca (mg/l)	8.51	10.65	25.45	3.34	N/A
Magnesium Hardness as CaCO <sub>3</sub> (mg/l)	22.00	28.00	50.71	11.00	N/A
Magnesium as Mg (mg/l)	5.34	6.80	12.31	2.67	N/A
Sodium as (Na) (mg/l)	2.90	19.36	17.56	6.11	≤200 Aesthetic
Potassium as K (mg/l)	1.79	1.02	0.71	0.47	N/A
Chloride as Cl (mg/l)	9.49	20.84	18.44	8.98	≤ 300 Aesthetic
Fluoride as F (mg/l)	0.60	0.17	0.01	0.00	≤ 1.5 Chronic Health
Sulphate as SO <sub>4</sub> (mg/l)	0.63	0.00	4.57	0.00	≤250 Aesthetic ≤500 Acute Health-1
Nitrate as N (mg/l)	0.89	0.30	0.77	1.50	≤ 11 Acute health-1
Iron as Fe (µg/l)	34.25	17.00	48.43	49.33	≤300 Aesthetic ≤2000 Chronic Health
Manganese as Mn (µg/l)	24.38	6.20	7.57	23.67	≤100 Aesthetic ≤ 400 Chronic Health
Ammonia as N (mg/l)	0.16	0.03	0.01	0.03	≤ 1.5 Aesthetic
Aluminium as Al (µg/l)	49.63	18.20	38.86	17.00	≤300 Operational
Zinc as Zn (mg/l)	0.09	0.05	0.06	0.02	≤ 5 Aesthetic
Langelier Sat. Index	-1.80	-0.30	-0.47	-0.46	N/A
Ryznar Index	10.59	8.89	8.19	10.20	N/A
Corrosivity Ratio	0.53	0.51	0.51	0.50	N/A
Free Res. Chlorine (mg/l)	0.31	0.13	0.08	0.47	≤ 5 Chronic Health
E.Coli (count/100ml)	0.00	0.00	0.00	0.00	0 Acute Health-1
Total Coliform Bacteria(count/100ml)	0.00	0.00	0.22	0.00	≤10 Operational
Heterotrophic plate Count (count/ml)	0.00	5.80	5.36	0.00	≤1000 Operational

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Ref no: ALL/ Q2/ 22-23/1/ Jan- March 2023

Area : Tzaneen, Nkowankowa, Letsitele and Haenertsburg

Date Sampled: Averaged: 1st Quarter 2022/2023

Date analysed: Averaged Quarterly

Jan



Determinants	Tzaneen	Nkowankowa	Letsitele	Haenertsburg	Standard limits
Ph (-logH)	8.55	8.01	8.28	8.39	> 5- ≤ 9.7 Operational
Turbidity (NTU)	0.64	0.63	0.64	0.80	≤ 5 Aesthetic ≤ 1 Operational
Colour (as Pt)	4.00	2.50	3.25	2.33	≤ 15 Aesthetic
Conductivity (mS/m)	7.01	18.67	12.84	4.22	≤ 170 Aesthetic
Temperature °C	25.51	27.69	26.60	25.43	N/A
Total Dissolved Solids (mg/l)	45.57	121.34	83.46	27.41	≤ 1200 Aesthetic
Total Alkalinity (mg/l)	31.25	53.00	42.13	19.00	N/A
Total Hardness (mg/l)	42.00	54.60	48.30	14.33	N/A
Calcium Hardness as CaCO <sub>3</sub> (mg/l)	19.38	26.60	22.99	9.33	N/A
Calcium as Ca (mg/l)	7.76	10.65	9.21	3.73	N/A
Magnesium Hardness as CaCO <sub>3</sub> (mg/l)	22.63	28.00	25.32	6.33	N/A
Magnesium as Mg (mg/l)	5.49	6.80	6.15	1.54	N/A
Sodium as (Na) (mg/l)	6.25	19.36	12.81	8.48	≤ 200 Aesthetic
Potassium as K (mg/l)	0.76	1.02	0.89	0.67	N/A
Chloride as Cl (mg/l)	8.26	20.84	14.55	9.22	≤ 300 Aesthetic
Fluoride as F (mg/l)	0.06	0.17	0.12	0.00	≤ 1.5 Chronic Health
Sulphate as SO <sub>4</sub> (mg/l)	0.38	0.00	0.19	0.67	≤ 250 Aesthetic ≤ 500 Acute Health-1
Nitrate as N (mg/l)	1.19	0.30	0.75	1.23	≤ 11 Acute health-1
Iron as Fe (µg/l)	28.63	17.00	22.82	73.00	≤ 300 Aesthetic ≤ 2000 Chronic Health
Manganese as Mn (µg/l)	12.50	6.20	9.35	5.68	≤ 100 Aesthetic ≤ 400 Chronic Health
Ammonia as N (mg/l)	0.01	0.03	0.02	0.01	≤ 1.5 Aesthetic
Aluminium as Al (µg/l)	104.13	18.20	61.17	61.33	≤ 300 Operational
Zinc as Zn (mg/l)	0.02	0.05	0.04	0.04	≤ 5 Aesthetic
Langelier Sat. Index	-0.13	-0.30	-0.22	-1.10	N/A
Ryznar Index	8.82	8.89	8.86	10.60	N/A
Corrosivity Ratio	0.49	0.51	0.50	0.49	N/A
Free Res. Chlorine (mg/l)	0.18	0.12	0.15	0.28	≤ 5 Chronic Health
E.Coli (count/100ml)	0.00	0.00	0.00	0.00	0 Acute Health-1
Total Coliform Bacteria (count/100ml)	0.00	0.50	0.25	0.00	≤ 10 Operational
Heterotrophic plate Count (count/ml)	0.00	10.20	5.10	0.00	≤ 1000 Operational

= Outside limit

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Ref no: ALL/ Q3/ 22-23/3/ Jan- March 2023

Area : Tzaneen, Nkwankowa, Letsitele and Haenertsburg

Date Sampled: Averaged: 3rd Quarter 2022/2023

Date analysed: Averaged Quarterly

March



Determinants	Tzaneen	Nkwankowa	Letsitele	Haenertsburg	Standard limits
Ph (-logH)	7.78	8.01	7.44	8.14	> 5- ≤ 9.7 Operational
Turbidity (NTU)	0.78	0.67	0.57	0.93	≤ 5 Aesthetic ≤ 1 Operational
Colour (as Pt)	3.00	1.93	1.76	4.55	≤ 15 Aesthetic
Conductivity (mS/m)	6.31	18.60	28.17	3.91	≤ 170 Aesthetic
Temperature °C	25.54	27.15	26.07	26.52	N/A
Total Dissolved Solids (mg/l)	41.00	120.94	248.84	25.40	≤ 1200 Aesthetic
Total Alkalinity (mg/l)	31.25	53.00	94.00	19.00	N/A
Total Hardness (mg/l)	42.00	54.60	114.29	14.33	N/A
Calcium Hardness as CaCO <sub>3</sub> (mg/l)	19.38	26.60	63.57	9.33	N/A
Calcium as Ca (mg/l)	7.76	10.65	25.45	3.73	N/A
Magnesium Hardness as CaCO <sub>3</sub> (mg/l)	22.63	28.00	50.71	6.33	N/A
Magnesium as Mg (mg/l)	5.49	6.80	12.31	1.54	N/A
Sodium as (Na) (mg/l)	6.25	19.36	17.56	8.48	≤ 200 Aesthetic
Potassium as K (mg/l)	0.76	1.02	0.71	0.67	N/A
Chloride as Cl (mg/l)	8.26	20.84	18.44	9.22	≤ 300 Aesthetic
Fluoride as F (mg/l)	0.06	0.17	0.01	0.00	≤ 1.5 Chronic Health
Sulphate as SO <sub>4</sub> (mg/l)	0.38	0.00	4.57	0.67	≤ 250 Aesthetic ≤ 500 Acute Health-1
Nitrate as N (mg/l)	1.19	0.30	0.77	1.23	≤ 11 Acute health-1
Iron as Fe (µg/l)	28.63	17.00	48.43	73.00	≤ 300 Aesthetic ≤ 2000 Chronic Health
Manganese as Mn (µg/l)	12.50	6.20	7.57	5.68	≤ 100 Aesthetic ≤ 400 Chronic Health
Ammonia as N (mg/l)	0.01	0.03	0.01	0.01	≤ 1.5 Aesthetic
Aluminium as Al (µg/l)	104.13	18.20	38.86	61.33	≤ 300 Operational
Zinc as Zn (mg/l)	0.02	0.05	0.06	0.04	≤ 5 Aesthetic
Langelier Sat. Index	-0.13	-0.30	-0.47	-1.10	N/A
Ryznar Index	8.82	8.89	8.19	10.60	N/A
Corrosivity Ratio	0.49	0.51	0.51	0.49	N/A
Free Res. Chlorine (mg/l)	0.22	0.18	0.08	0.26	≤ 5 Chronic Health
E.Coli (count/100ml)	0.00	0.00	0.00	0.00	0 Acute Health-1
Total Coliform Bacteria (count/100ml)	0.00	0.33	0.00	0.44	≤ 10 Operational
Heterotrophic plate Count (count/ml)	1.08	6.80	6.48	0.00	≤ 1000 Operational

= Outside limit

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