

## **ANNEXURE E: WATER QUALITY RESULTS**

- Water Services Laboratory results
- Honey sucker report for 2009/10
- Tzaneen Dam water treatment plant operational report
- Georges Valley water treatment plant operational report
- Letsitele water treatment plant operational report



**GREATER TZANEEN MUNICIPALITY  
WATER SERVICES LABORATORY**



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*Tropical Paradise*

Ref no:

Area : Tzaneen, Nkowankowa, Letsitele and Haenertsburg

Date Sampled: Averaged: Annually

Date analysed: Averaged Annually



**blue drop**  
CERTIFICATION  
drinking water quality  
REGULATION

Determinants	Tzaneen	Nkowankowa	Letsitele	Haenertsburg	Recommended-Class1
Ph (-logH)	6.69	8.7	7.88	9.29	5.0-9.5
Turbidity (NTU)	0.244	0.35	0.77	0.71	<1
Colour (as Pt)	<5	<5	<5	9	<20
Conductivity (mS/m)	8.41	8.31	9.12	6.87	<150
Temperature °C	21.4	23.2	23.4	23.3	
Total Dissolved Solids (mg/l)	42.7	40.6	39.7	33.4	<1000
Total Alkalinity (mg/l)	30	30	33	28	
Total Hardness (mg/l)	30	28	30	18	
Calcium Hardness as CaCO <sub>3</sub> (mg/l)	26.92	24.96	27.01	14.72	
Calcium as Ca (mg/l)	10.78	10	10.4	5.89	<150
Magnesium Hardness as CaCO <sub>3</sub> (mg/l)	3.08	3.03	4.11	3.28	
Magnesium as Mg (mg/l)	0.74	0.73	0.76	0.82	<70
Sodium as (Na) (mg/l)	2.88	3.38	2.88	7.05	<200
Potassium as K (mg/l)	0.07	1.4	0.9	0.8	<50
Chloride as Cl (mg/l)	10.5	7	9.7	6	<200
Fluoride as F (mg/l)	0.17	0.19	0.2	0.02	<1
Sulphate as SO <sub>4</sub> (mg/l)	0	0	2	0	<400
Nitrate as N (mg/l)	0.03	0.26	0.14	0.01	<10
Iron as Fe (mg/l)	0.32	0.2	0.31	0.06	<0.2
Manganese as Mn (mg/l)	0.01	0.02	0.08	0.06	<0.1
Ammonia as N (mg/l)	0.04	0.02	0.07	0.04	<1.0
Aluminium as Al (mg/l)	0.066	0.05	0.029	0.06	<300
Zinc as Zn (mg/l)	0.06	0.06	0.31	0.06	<5.0
Langelier Sat. Index	-2.33	-1.68	-1.99	-0.21	
Ryznar Index	11.35	10.52	10.88	9.71	
Corrosivity Ratio	0.59	0.6	0.29	0.3	
CaCO <sub>3</sub> Precipitation potential (mg/l)					
Free Res. Chlorine (mg/l)	0.85	0.47	0.32	0.41	
E.Coli (count/100ml)	NIL	NIL	NIL	NIL	0
Total Coliform Bacteria(count/100ml)	NIL	NIL	NIL	NIL	10

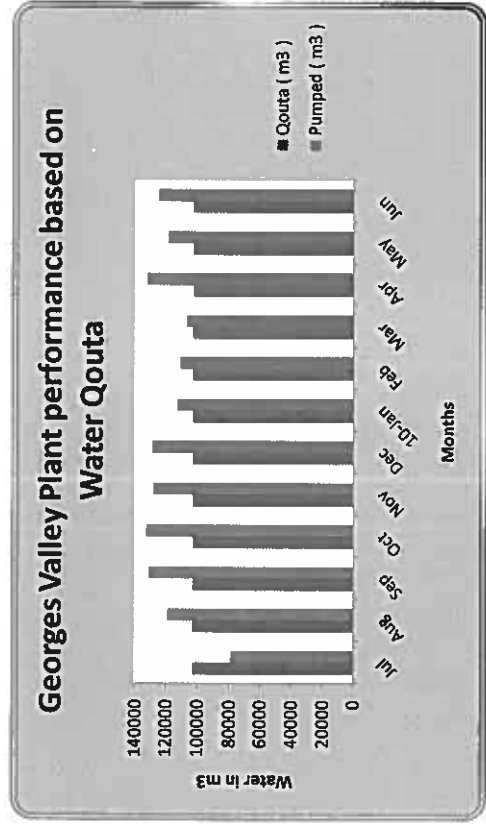
## HONEY SUCKER REPORT FOR 2009/2010 FINANCIAL YEAR

MONTH	LOADS IN m <sup>3</sup>	J/CARDS	Revenue @ R90/m <sup>3</sup>	TIME in Hrs	DISTANCE in km
JUL	790.69	72	R 71,162.10	102	1988
AUG	684.85	63	R 61,636.50	100	2133
SEP	852.615	70	R 76,735.35	110	2543
OCT	744.75	66	R 67,027.50	101.3	2233
NOV	1126	66	R 101,340.00	105.1	2177
DEC	872.5	51	R 78,525.00	104.2	2220
JAN	513	44	R 46,170.00	106,7	2209
FEB	821	53	R 73,890.00	100.22	1935
MAR	562	48	R 50,580.00	109.55	2372
APR	643.5	51	R 57,915.00	100.7	2701
MAY	556	58	R 50,040.00	118.3	2931
JUN	587.1	52	R 52,839.00	109.5	2668
<b>TOTAL</b>	<b>8754.005</b>	<b>694</b>	<b>R 787,860.45</b>	<b>1160.87</b>	<b>28110</b>

**GREATER TZANEEN MUNICIPALITY**  
TZANEEN DAM WATER TREATMENT PLANT  
2009/2010 OPERATIONAL REPORT

Month	Qouta (m³)	Pumped (m³)		Flocculant		Chlorine gas (kg)	Cost Rands	Lime		Cost Rands	Activated Carbon (kg)	Cost Rands	Total Cost	R/m³
		Qouta	Pumped	(kg)	(R/kg)			(kg)	(R/kg)					
Jul	102500	78790	118502	242	12.91	R 85	R 3,124.43	600	2.23	R 1,338.00	40.0	R 598.00	R 6,187.95	R 0.08
Aug	102500	118502	130681	339	12.91	R 106	R 4,376.62	750	2.23	R 1,672.50	40.0	R 598.00	R 8,495.00	R 0.07
Sep	102500	130681	132294	374	12.91	R 110	R 4,822.14	650	2.23	R 1,449.50	40.0	R 598.00	R 8,790.60	R 0.07
Oct	102500	132294	127502	418	12.91	R 117	R 5,398.70	900	2.23	R 2,007.00	40.0	R 598.00	R 10,032.54	R 0.08
Nov	102500	127502	128418	412	12.9	R 102	R 5,320.08	375	2.54	R 952.50	40.0	R 598.00	R 9,363.00	R 0.07
Dec	102500	128418	112426	381	12.9	R 102	R 4,915.10	925	2.54	R 2,349.50	40.0	R 598.00	R 10,234.66	R 0.08
10-Jan	102500	112426	110684	347	11.9	R 88	R 4,116.96	850	2.54	R 2,159.00	30.0	R 448.50	R 8,776.23	R 0.08
Feb	102500	110684	106839	300	11.9	R 23	R 3,563.22	800	2.71	R 2,168.00	50.0	R 747.50	R 7,019.51	R 0.06
Mar	102500	106839	131729	233	12.9	R 89	R 3,013.84	1225	2.71	R 3,319.75	40.0	R 598.00	R 8,997.28	R 0.08
Apr	102500	131729	118677	242	12.9	R 115	R 3,125.90	1150	2.70	R 3,105.00	40.0	R 598.00	R 9,493.41	R 0.07
May	102500	118677	124499	298	12.9	R 110	R 3,847.18	1325	2.70	R 3,577.50	20.0	R 299.00	R 10,414.76	R 0.09
Jun	102500	124499	1421041	441	12.9	R 122	R 5,686.98	1100	2.70	R 2,970.00	20.0	R 299.00	R 11,925.46	R 0.10
<b>Total</b>	<b>1230000</b>	<b>1421041</b>	<b>1421041</b>	<b>4027</b>	<b>152.8</b>	<b>R 1,150</b>	<b>R 51,311.15</b>	<b>10650</b>	<b>30.06</b>	<b>R 27,068.25</b>	<b>440.0</b>	<b>R 6,578.00</b>	<b>R 109,730.39</b>	<b>R 0.08</b>

Abstract (m³)	R/(m³) Abstraction	cost (m³)	Pumped (m³)	Cost of chemicals R/(m³)	R/(m³) pumped	Total R	Plant Cap	Exp Perf	Act Perf	Loss in %	Loss in m³	Months
1440947	R 0.22	R 317,008.34	1421041	R 109,730.39	R 0.08	R 0.30	6000	180000	1421041	1.20%	415.06	12



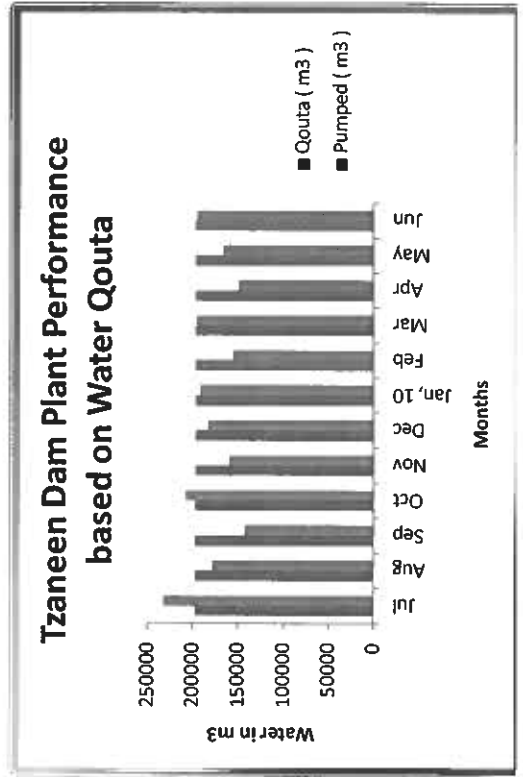
# GREATER TZANEEN MUNICIPALITY

GEORGES VALLEY WATER TREATMENT PLANT

## 2009/2010 OPERATIONAL REPORT

	Quota (m <sup>3</sup> )	Pumped (m <sup>3</sup> )	Flocculant		Cost Rands	Chlorine gas		Cost Rands	Lime		Cost Rands	Total Cost Rands	R/m <sup>3</sup> Rands
			(kg)	(R/kg)		(kg)	(R/kg)		(kg)	(R/kg)			
Jul	197500	233154	2838	11.01	R 31,246.38	288	17.4	R 5,004.24	1598	2.23	R 3,563.54	R 39,814.16	R 0.17
Aug	197500	178584	1056	11.01	R 11,626.56	202	17.4	R 3,511.32	1725	2.23	R 3,846.75	R 18,984.63	R 0.11
Sep	197500	143090	1014	11.01	R 11,164.14	200	17.4	R 3,474.78	1715	2.23	R 3,824.45	R 18,463.37	R 0.13
Oct	197500	208266	920	11.01	R 10,129.20	257	24.3	R 6,260.25	1850	2.54	R 4,699.00	R 21,088.45	R 0.10
Nov	197500	160159	1842	11.0	R 20,280.42	296	24.3	R 7,204.64	2275	2.5	R 5,778.50	R 33,263.56	R 0.21
Dec	197500	183714	2712	11.0	R 29,859.12	279	23.2	R 6,480.23	2400	2.5	R 6,096.00	R 42,435.35	R 0.23
Jan, 10	197500	192211	2406	8.8	R 21,244.98	381	23.2	R 8,847.65	2850	2.5	R 7,239.00	R 37,331.63	R 0.19
Feb	197500	156992	2610	8.8	R 23,046.30	337	23.2	R 7,812.49	3525	2.7	R 9,552.75	R 40,411.54	R 0.26
Mar	197500	159915	1704	8.8	R 15,046.32	325	23.2	R 7,533.97	2425	2.7	R 6,571.75	R 29,152.04	R 0.15
Apr	197500	150483	2382	8.8	R 21,033.06	195	23.2	R 4,525.95	4000	2.7	R 10,800.00	R 36,359.01	R 0.24
May	197500	166757	2388	8.8	R 21,086.04	232	24.4	R 5,670.32	625	2.7	R 1,687.50	R 28,443.86	R 0.17
Jun	197500	195762	1908	9.0	R 17,210.16	245	24.4	R 5,982.90	800	2.7	R 2,160.00	R 25,353.06	R 0.13
<b>Total</b>	<b>2370000</b>	<b>2165087</b>	<b>23780</b>	<b>119.2</b>	<b>R 232,972.68</b>	<b>3236</b>	<b>265.8</b>	<b>R 72,308.74</b>	<b>25788</b>	<b>30.4</b>	<b>R 65,819.24</b>	<b>R 371,100.66</b>	<b>R 0.17</b>

Abstract (m <sup>3</sup> )	R/(m <sup>3</sup> ) Abstraction	cost (m <sup>3</sup> )	Pumped (m <sup>3</sup> )	Cost of chemicals	R/(m <sup>3</sup> ) pumped	R/(m <sup>3</sup> ) Total	Plant Cap	Exp Perf/day	Act Perf	loss in %	Loss in m <sup>3</sup>	Months
2554175	R 0.22	R 561,918.50	2165087	R 371,100.66	R 0.17	R 0.39	9000	270000	2165087	15.23%	389088	12



**GREATER TZANEEN MUNICIPALITY**  
**LETSITELE WATER TREATMENT PLANT**  
**2009/2010 OPERATIONAL COST**

Month	Pumped (m <sup>3</sup> )	Flocculant		Cost Rands	Chlorine gas		Cost Rands	Soda Ash		Cost Rands	Sodium Hypo		Cost Rands	Activated Carbon		Cost Rands	R/m <sup>3</sup>
		(kg)	(R/Kg)		(kg)	(R/Kg)		(kg)	(R/Kg)		(kg)	(R/Kg)		(kg)	(R/Kg)		
Jul	20539	112	12.91	1448.89	24	24.3	575.641	350	10.00	3500	20.0	5.3	106.2	5.00	14.95	74.75	1.34
Aug	21701	131	12.91	1687.21	28	24.3	679.086	451	10.00	4505	20.0	5.3	106.2	5.00	14.95	74.75	1.31
Sep	23446	182	12.91	2343.42	29	24.3	708.781	483	10.00	4825	20.0	5.3	106.2	5.00	14.95	74.75	1.41
Oct	21387	139	12.91	1799.65	23	24.3	558.603	388	10.00	3875	40.0	5.3	212.4	5.00	14.95	74.75	1.38
Nov	19052	144	12.9	1856.46	19	24.3	468.99	313	10.00	3125	70.0	5.31	371.7	5.00	14.95	74.75	1.46
Dec	17920	182	12.9	2346.25	20	24.3	493.29	163	10.00	1625	40.0	5.31	212.4	4.00	14.95	59.8	1.98
Jan	15578	133	8.8	1178.19	23	23.2	544.275	100	10.00	1000	30.0	5.31	159.3	4.00	14.95	59.8	1.67
Feb	18124	181	8.8	1601.5	23	23.2	532.67	213	10.00	2125	30.0	5.31	159.3	4.00	14.95	59.8	1.56
Mar	18617	144	8.8	1264.21	24	23.2	565.164	188	10.00	1875	30.0	5.31	159.3	20.00	14.95	299	1.44
Apr	10285	107	8.8	941.631	17	23.3	386.946	75	10.00	750	40.0	5.31	212.4	20.00	14.95	299	1.57
May	14832	126	8.8	1114.88	21	24.4	518.925	113	10.00	1125	30.0	5.31	159.3	5.00	14.95	74.75	1.59
Jun	14996	102	8.8	899.424	23	24.4	558.76	75	10.00	750	20.0	5.31	106.2	0.00	14.95	0	1.64
<b>Total</b>	<b>216477</b>	<b>1683</b>	<b>130.4</b>	<b>18481.7</b>	<b>275</b>	<b>287.7</b>	<b>6591.13</b>	<b>2908</b>	<b>120.0</b>	<b>29080</b>	<b>390.0</b>	<b>63.7</b>	<b>2070.9</b>	<b>82.00</b>	<b>179.40</b>	<b>1225.9</b>	<b>1.47</b>

Abstract (m <sup>3</sup> )	R/(m <sup>3</sup> )	Pumped (m <sup>3</sup> )	Cost of chemicals	R/(m <sup>3</sup> ) pumped	R/(m <sup>3</sup> ) Total	Plant		Exp Perf	Act Perf	Loss in m <sup>3</sup>	loss in %	Month
						Cap	Perf					
260406	R 0.22	R 57,289.32	R 57,449.64	R 0.22	R 0.44	1400	42000	216477	43929	16.9%	12	

