



Tap Analysis Programme

PROGRAMME UNDER REVIEW

FIONA LAMONT 19 APRIL 2023



Where it all started:

Original Participants 1998 -2001

- Complainants who showed an interest in water quality
- Samples taken by SWQA:c

Schools 2002

- Schools who had requested information on water quality
- Samples taken by Analytical Services

Rand Water Staff 1998 – 2017

- Staff were invited to join the programme
- Selection based on residential address
- Samples taken by Rand Water staff from taps in their homes.

Municipalities 2005 – 2018

- Invitations extend to municipal areas not on the programme
- Samples taken by municipal staff and dropped at collection points
- Rand Water staff collect and transport to laboratory



The running of TAP

Number of samples taken based on:

- Budget
- Buy in from participants/municipalities
- Location – Area sample represents

Logistics:

- Taking samples
- Transportation to collection points
- Collection and transport to laboratory

Determinands tested for :

- Microbiological : E-coli; Total Coliforms and Heterotrophic Plate count
- Physical and Chemical; Largely based on determinands that are variable
- All analyses are carried out by Rand Water Analytical Services



Usage of TAP Data – Municipalities

- Samples are taken voluntarily by municipal staff and Rand Water staff.
- Results are forwarded to the participating municipalities
- The results obtained from the programme do not form part of Rand Water’s monitoring programme.
 - not used for Blue Drop
- Municipalities are authorized to use the TAP data as part of their water quality monitoring programme.
- Can upload the data onto the DWS Integrated Regulatory Information System – IRIS
- Municipality is responsible for
 - Creating and registering the system on IRIS
 - Uploading the data
 - Interpretation of the data
 - Resampling of non-compliances
- Rand Water is committed to the continuation of the programme – as budget allows
- TAP is not considered a full SANS 241 analysis



Managing non-compliances

Currently

- Non-Compliance Notifications – communicated with participant
- Responsibilities remains with the Local Municipality
- Resampling Non-compliances
- Taking corrective action
- Flushing of lines
- Cleaning of Reservoirs

NOVEMBER 2022				
Sample Date	Sample point Name	HPC (cfu/mL)	Total Coliforms (MPN/100mL)	<i>E. coli</i> (MPN/100mL)
Route ????????				
3-Nov-22	D-T_???	47	11	0
3-Nov-22	D-T_???_???	340	33	0
Resample results				
10-Nov-22	D-T_???	13	0	0
10-Nov-22	D-T_???_???	350	2	0



Reviewing of TAP



Updating Rand Water's internal TAP procedure:

SANS 241- 2023 document sent out for comment in 2022

POSSIBLE IMPACT on TAP

Non-compliances will be dealt with differently

- Acute Health Parameters (*E-coli*) action will remain the same
 - Rand Water notify the municipality
 - Resamples remain responsibility of municipality
 - Rand Water will do the analysis
- Chronic Health Chemical Parameters – IMP will dictate any action required
 - Municipalities IMP will come into play
 - Rand Water will not trigger resampling

Reviewing of TAP



POSSIBLE IMPACT on TAP continued.....

- Operational Parameters – IMP will define the management approach
 - Total Coliforms – investigations and decisions to resamples will be based on
 - Number of samples non-compliant – per event
 - Non-compliant Total Coliforms and Turbidity – same sample
 - Single Total Coliform non-compliance with significant change in water quality
 - Rand Water will not trigger resampling on a reoccurring Total Colifom non-compliance if there is no proof of intervention
 - Heterotrophic Plate Count – Resampling will not be triggered by Rand Water

Reviewing of TAP

Reviewing the current programme

- Currently have a number of ‘dormant’ sample points – various reasons
- Looking at increasing the number of sample points in some areas
- Will be based on –
 - including municipalities not part of TAP
 - logistics
 - covering areas of concern
 - commitment from role players



Usage of TAP Data – Rand Water

- Rand Water's use of TAP data hasn't really changed
- Data gathered through the programme has proven to be a very useful tool when dealing with water quality queries from the public.
- The sample points are monitored closely every month to ensure that they comply to the SANS 241 standard.
- There have been occasions where the results have indicated that certain sample points were taken from a blended water supply
- Only points purely from a Rand Water source are used on the TAP programme.
- Samples from a blended system are removed from the programme after consultation with respective WSAs and alternative samples are identified.
- Indicators of blended system – extraordinary higher or lower results – Alkalinity, Conductivity, Calcium, Magnesium, Hardness, Sulphate and possible Manganese.



Usage of TAP Data – Rand Water

Reference	Date	Alkalinity	Conductivity	Hardness	Calcium	Magnesium	Nitrate	Nitrite	Sulphate
Sample #1	20-Aug-2020	60	24	65	17	7	0.52	1.10	19
Sample #2	20-Aug-2020	60	24	63	16	7	0.69	1.10	19
Sample #3	20-Aug-2020	64	24	65	17	7	0.57	1.20	19
Sample #4	20-Aug-2020	150	40	175	15	39	3.30	<0.03	10
Sample #5	20-Aug-2020	65	22	70	18	7	0.53	0.07	18
UNITS		mg/L	mS/m	mg/L	mg/L Ca	mg/L Mg	mg/L N	mg/L N	mg/L SO4

Reference	Date	Alkalinity	Colour	Conductivity	Turbidity	Hardness	Calcium	Fluoride	Magnesium	Nitrate	Nitrite	Sulphate
Sample #1	14-Mar-2023	63	11	23	0.35	68	17	0.34	8	0.52	0.06	19
Sample #2	14-Mar-2023	68	9	31	0.34	69	17	0.42	8	0.50	0.07	19
Sample #3	14-Mar-2023	63	8	23	0.33	71	17	0.41	8	0.59	0.05	19
Sample #4	14-Mar-2023	63	10	30	0.31	68	17	0.40	8	0.70	0.2	19
Sample #5	14-Mar-2023	48	<5	13	0.65	43	10	<0.25	5	1.10	<0.03	<7
Sample #6	14-Mar-2023	44	<5	12	0.32	43	10	<0.25	5	1.10	<0.03	<7
UNITS		mg/L	mg/L Pt-	mS/m	NTU	mg/L	mg/L Ca	mg/L F	mg/L Mg	mg/L N	mg/L N	mg/L SO4



Usage of TAP Data – Rand Water

The TAP results also high light the possible impact of on-site issues

- Plumbing - Copper and Iron
- Home Renovations - Turbidity – Colour
- Burst Pipe – Turbidity – Colour

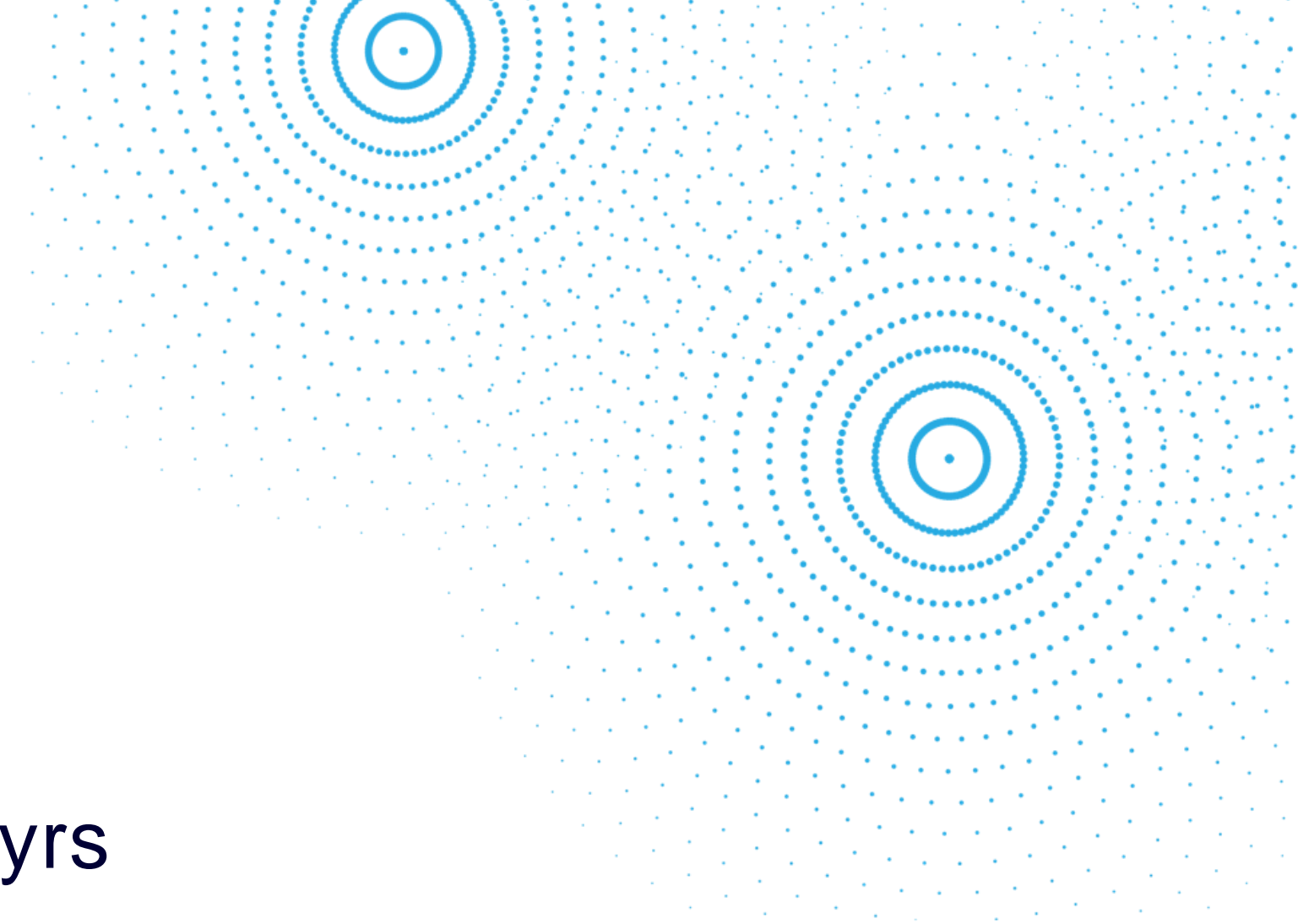
Reference	Date	Conductivity	Turbidity	pH	Cadmium	Lead	Aluminium	Manganese	Copper	Iron	Zinc
Sample #1	17-Jan-2023	28	0.49	7.7	<1.5	<8	<50	<3	195	16	0.030
Sample #2	17-Jan-2023	28	0.36	7.6	<1.5	<8	<50	<3	200	22	0.060
Sample #3	17-Jan-2023	29	0.44	7.6	<1.5	<8	<50	<3	185	<8	0.030
UNITS		mS/m	NTU	pH units	µg/L Cd	µg/L Pb	µg/L Al	µg/L Mn	µg/L Cu	µg/L Fe	mg/L Zn



In Closing

The Tap Analysis Programme has been up and running for 25yrs

Not possible with out the commitment and by in of all participants



Thank you!

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