

# eTHEKWINI WATER SUPPLY DISRUPTION

## Causes and Action Plan



28 August 2024

WATER IS LIFE - SANITATION IS DIGNITY



**water & sanitation**

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

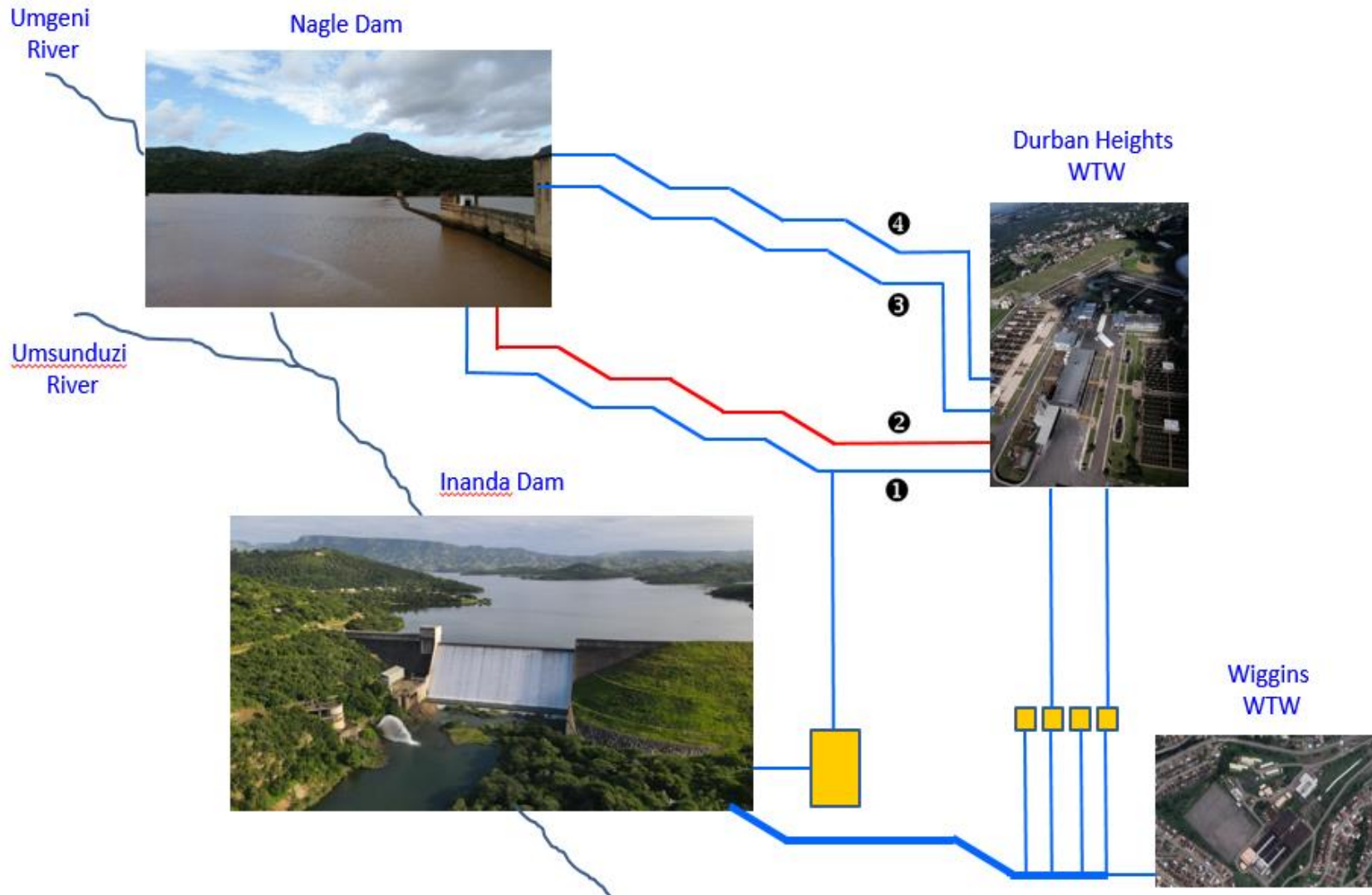


# 1. THE PROBLEM

- eThekweni receives approximately 55% of its treated water from the Durban Heights Water Treatment Works (DHWTW) which is managed by uMngeni-uThukela Water Board (UUW)
- The DHWTW sources its raw water from the Albert Falls and Nagle dams which are part of the uMgeni River System, including the Duzi River
- Water supply from the DHWTW started to reduce on 16 August, due to the presence of two unusual algae (Anabaena and Cylindrospermopsis) in the raw water abstracted by UUW at Nagle Dam
- The Mayor visited the DHWTW on 16 August to determine the cause of the drop in supply
- On 21 August, there was a spike in the presence of the algae
- On 23 August there was another meeting between UUW and the Mayor. UUW informed the Mayor about the deterioration in the situation
- The algae originates from the raw water source – i.e. from the uMgeni River System
- These types of algae can reproduce and multiply very rapidly, under certain conditions (described in following slide)
- The algae blocked the water treatment filters in the DHWTW
- These filters are part of the process of cleaning raw water so that it is safe to drink
- The blocked filters resulted in a situation where UUW would not have been able to provide safe drinking water to the City if it did not remove and clean the filters as they become blocked

- The required cleaning of the filters resulted in reduced production of treated water between 16 August and 27 August
- This loss of production of treated water was caused by lost production time while the filters were being cleaned as well as water losses due to the need to backwash the filters
- The reduced production of water resulted in a gradual reduction in the level of water in the storage reservoirs at DHWTW (from which water is pumped to the City's reservoirs)
- By 27 August, the level of water in the DHWTW had fallen to a critical level and UUW was forced to shut the supply line to the City's Northern Aqueduct which supplies the Northern areas of eThekweni with water
- This resulted in widespread water supply disruptions in the Northern areas – the affected areas are in Annexure A

# Overview of Bulk Supply



## 2. THE CAUSES OF THE PROBLEM

- Currently the full causes of the algae surge are not known
- However, it is known that these types of algae surges can occur in the following conditions:
  - Uncommon high winter temperatures
  - Pollution of the water source (e.g. sewage pollution, pollution from land use, or industrial activities)
  - Low dam levels which result in high levels of algae growth
- DWS is carrying out an urgent investigation into the possible causes of the surge in algae:
  - The investigators will be taking water samples at Nagle and Albert Falls dams and further upstream if necessary
  - The investigation is starting today and the results should be available by 31 August

### 3. ADDRESSING THE SITUATION

- From 24 August, UUW increased the frequency of sampling and testing of water from the Nagle Dam (from fortnightly to daily sampling and testing)
- The sampling indicated that the algae levels started to gradually reduce from 25 August, resulting in the filters being able to be cleaned less frequently, thus enabling more production of treated water
- The reduction in algae levels was not a result of any actions taken by UUW – the algae levels in the raw water sources reduced on their own – which is an indication that the spike in algae might have been caused by pollution event, such as a sewage leak into the water source
- However, the water level in the storage reservoirs at DHWTW continued to drop, resulting in the need to shut down the supply line to the City's Northern Aqueduct on 27 August
- The shut down of the supply line enabled the storage reservoir levels to recover within 6 hours, and the line was then reopened later on 27 August
- In the meantime the algae levels in the water source are continuing to gradually reduce, and this, combined with the optimised filter cleaning, has resulted in a situation where the system is currently stable, and the level of water in the in the storage reservoirs at DHWTW is no longer dropping

- However, it will take between five and seven days for the City's distribution system to fully recover from the shut down of the supply line to the City's Northern Aqueduct
- As a result, many areas in the north of the city will continue to experience water supply disruptions over the next week
- To address this, the City is deploying water tankers to the affected areas (the tanker deployment plan is provided in Annexure B)
- U UW is assisting the City with 30 additional tankers which are included in the deployment plan
- As indicated above, the supply line is no longer shut down, so there is water available to fill the tankers
- The City will also be able to fill tankers at various U UW filling points

## 4. MANAGEMENT OF RISKS

- Although it appears the algae levels are currently reducing, there is a risk that the spike in algae may reoccur
- The DWS investigation is aimed at determining the cause of the spike to enable the risk of a reoccurrence of the spike to be reduced
- As long as there is no reoccurrence of the algae spike, the situation should continue to normalize
- The risk will also be reduced by the commissioning of pumps at Inanda Dam - which is a larger dam, with a lower concentration of algae – so that the water abstracted from Nagle Dam can be diluted with water from Inanda Dam, thus reducing the overall algae levels in the inlet to the WTW
  - On a fast-tracked schedule, the pumps at Inanda Dam can be commissioned by mid-October
- In the meantime, UUW will be urgently investigating other possible ways to reduce the risk, including using ultra sound and aeration technologies at the inlet to the WTW to reduce the algae content – however, it will not be possible to implement such alternative technologies immediately
- The key risk period is between now and when the pumps at Inanda Dam come on line. For this reason, the DWS investigation of the of the cause of the spike in algae is being fast-tracked



## 5. COMMUNICATION STRATEGY

Implementation of the communications strategy will start immediately, and will be managed jointly by DWS, UuW, and eThekweni.

### **Focus of Strategy / Main Message to Public**

- To update the media, public and stakeholders on the status of treated water volumes being supplied to eThekweni.
- To explain the cause of the reduced production and drop in reservoir levels.
- To reassure the public and stakeholders that the system is currently stable, although still under strain.
- To make the customers in the Northern area aware, that the system is under strain and water must be used sparingly to allow the recovery of reservoirs.
- To warn public that this situation might change should the algae spike again, as the cause is still being identified.
- To give an update to the public and stakeholders on when the situation will normalise.

## 5.2 Key Messengers

uMngeni-uThukela Water

eThekweni Municipality

Department of Water and Sanitation

## 5.3 Key Message Platforms

### **AUDIENCE**

All media (local and national)

eThekwini, KZN and South African general public and stakeholders

### **CHANNELS & COMMUNICATION TOOLS**

Media Briefing- 29 August at 08:30 (ICC)

Media advisories and statements-28 August

Radio and TV interviews (Community, National)- 28 August

Broadcast media- 28 August

Social media-28 August

### **COMMUNICATION PERIOD, MEDIA AND STAKEHOLDER ACTIVITIES**

Issue daily media alerts and engage media houses (radio and tv) for interviews

Issue daily social media updates across all platforms

Give daily updates to critical stakeholders, including councillors from affected wards and business stakeholders

Meeting between UUW, eThekwini and Councillors- 28 August-Council Chamber

## 5.4 Publicity Approach

MEDIA HOUSE	ACTIVITY
The Mercury	Print media coverage
Daily News	Print media coverage
Ilanga	Print media coverage
Isolezwe	Print media coverage
1KZN TV	Television coverage
SABC TV	Television interview
ENCA	Television interview
Newsroom Afrika	Television interview
SABC Radio	Radio interview
East Coast Radio	Radio interview
Igagasi FM	Radio interview
Community Radio stations	Radio interview

## 6. CONCLUSIONS

- UUW will provide daily updates to the City
- The City in turn will provide Councillors with daily updates
- The Minister-Mayor meeting will be reconvened if there is any deterioration in the situation
- New information, such as the results of the DWS investigation into the cause of the algae spike, will be provided to all parties as soon as it becomes available
- As part of the communications strategy, daily updates will be provided to the public, including on social platforms

## ANNEXURE A: AREAS SUPPLIED PER AQUEDUCT FROM DURBAN HEIGHTS WATERWORKS

SUPPLY NODE	AFFECTED RESERVOIRS
<b>Northern Aqueduct</b>	<p>Command Reservoirs : Umhlanga 2, Ntuzuma 2, Newlands 2, Phoenix 2 and Mt View</p> <p>Secondary Reservoirs : Ntuzuma 3,4,5,7, KwaMashu 1, 2,3, Newlands 1,2,3,4, Phoenix 1, 3,4,5,6, Seacowlake, Effingham, Trenance 1,2,3, Durban North LL, HL, Umhlanga South, Umhlanga North, Ambleside, Beachway, Amaotana, Etafuleni, Aloes</p>
<b>Southern Aqueduct</b>	<p>Command Reservoirs : Umlazi 2, Northdene 3, Umlazi 1, Umlazi 4, Chatsworth 1, Salisbury</p> <p>Secondary Reservoirs : Lea Dr, Dawncliffe, Chatsworth 2, 3, 4, Klaarwater, Westcliffe, Northdene 1&amp;2, Firwood, Ridley Park, Umlazi 3,6, Nsimbini 1, Folweni 1, 2, Washington Heights, Intake road.</p>
<b>Pinetown Pumps</b>	<p>Command Reservoir : Mt Moriah</p> <p>Secondary Reservoirs : Clermont 1&amp;2, 3, 4, Kwadabeka 5, Berkshire downs, Methven, Dunkeld, Hocking Place, Clubhouse, Tshelimnyama 1, 2</p>

# Annexure B: Tanker deployment plan

## NORTH ZONE

WARDS	AREA	NUMBER OF TANKERS	
		MORNING SHIFT	AFTERNOON SHIFT
35	MHLANGA ROCKS	5	5
48	Mt EDGECOMBE	5	6
50	WOODVIEW	2	2
102	PARKGATE/OTTAWA	5	6
	GANDHI HOSPITAL	10	10
106	VERALUM	3	6
58	TONGAAT		4
59	OSINDISWENI	10	6
59	TRENANCE PARK	5	5
59	BUFFELSDRAAI	3	2
59	ZWELISHA	2	1
59	PHASE 5	4	1
60	CANELANDS	6	2
	BUSAMED HOSPITAL	4	4
	UMHLANGA HOSPITAL	3	3

## NORTH ZONE

WARDS	AREA	NUMBER OF TANKERS	
		MORNING SHIFT	AFTERNOON SHIFT
61	TONGAAT	3	0
62	TONGAAT	1	1
49	PHOENIX	6	9
36	DURBAN NORTH	4	4
34	AVOCA	3	3
51	BROOKDALE	7	7
52	BROOKSFARM	7	9
110	GLEN ANIL	ON REQUEST	



## NORTH ZONE

WARDS	AREA	NUMBER OF TANKERS	
		MORNING SHIFT	AFTERNOON SHIFT
43	NTUZUMA	4	3
38	NTUZUMA	6	5
55	CONGO	5	2
56	AMATIKWE	4	2
107	NTUZUMA	2	3
37	NEULANDS	1	2
104	KWA MASHU	1	0
45	NTUZUMA	3	0
54	NEWTOWN C	5	2
47	BESTER	3	1
42	NTUZUMA	2	3
40	KWA MASHU	0	2
41	KWA MASHU	0	2
46	KWA MASHU	0	1
52	REDFERN	0	4
45	NTUZUMA BUS DEP	0	2