GOVERNMENT OF ZAMBIA

STATUTORY INSTRUMENT NO. 20 OF 2018

The Water Resources Management Act
(Act No. 21 of 2011)

The Water Resources Management (Groundwater and Boreholes) Regulations, 2018

IN EXERCISE of the powers contained in section 179 of the Water Resources Management Act, 2011, the following Regulations are made:

Title

1. These Regulations may be cited as the Water Resources Management (Groundwater and Boreholes) Regulations, 2018.

Interpretation

2. In these Regulations unless context otherwise requires—

"Authority" has the meaning assigned to the word in the Act;

"brackish" has the meaning assigned to the word in the Act;

"casing" means a pipe of steel, unplasticised polyvinyl chloride or any other suitable material inserted into a borehole to support the borehole against collapse;

"drillers" has the meaning assigned to the word in the Act;

"gravel pack" means sand or gravel that is uniform, clean, well rounded and siliceous;

"karst" means a limestone rock layer that contains the cavities and cracks, which are characterised by high permeability and water movement is not homogeneous;

"pollution" has the meaning assigned to the word in the Act;

"pumping test" means a test carried out to assess the aquifer or borehole characteristics;

"sanitary seal" means a seal composed of a cement grout, with which the annular space between the borehole wall and the surface casing is filled in order to prevent contamination of the borehole;

"screen" means a perforated section of a casing pipe that allows water to enter the borehole whilst restricting sediments from entering the borehole;

"successful borehole" means a borehole that has acceptable yield upon completion;

"Total Dissolved Solids" means the quantity of dissolved material in water expressed as milligrams per litre; and

"unsuccessful borehole" means a borehole that does not yield any water or meet the acceptable yield.

Notice to drill borehole

3. (1) A person who intends to drill a borehole shall give notice of intention to drill a borehole to the Authority, catchment council or subcatchment council in Form I set out in the First Schedule.

(2) An application to drill a borehole shall be made to the Authority in Form II set out in the First Schedule, on payment of the prescribed fee.

(3) The Authority shall, where it authorises the drilling of a borehole, inform the applicant in Form III set out in the First Schedule.

(4) The Authority shall, where it rejects the notification of drilling a borehole, inform the applicant in Form IV set out in the First Schedule.

Location of boreholes

4. (1) A driller shall ensure that the location of the borehole meets the distances specified in the Second Schedule.

(2) Where the specified distances in the second Schedule are not practicable, the Authority may approve such other distances.

Specification of boreholes

5. (1) A driller shall ensure that a successful borehole is installed with the following:

(i) full casing of the borehole from the top to the bottom;
(ii) gravel pack;
(iii) bottom plug; and
(iv) a sanitary seal.

(2) An unsuccessful or exploratory borehole shall not require the specifications under subregulation (1).

(3) A driller shall ensure that an unsuccessful borehole is backfilled and capped with grout within twentyfour hours.

Register of boreholes

6. (1) A person who drills a borehole shall register the borehole in Form V set out in the First Schedule, on payment of a prescribed fee.

(2) The Authority shall keep and maintain a Register of boreholes as set out in the Third Schedule.

Defective borehole

7. A person who owns a defective borehole shall report to the Authority or a catchment manager within fourteen days of discovering brackish water or any other substance in Form VI set out in the First Schedule.

Fees

8. The fees set out in the Water Resources Management (Fees and Charges) Regulations, 2018, are the applicable fees for the purposes of these Regulations.

General offence and penalty

9. A person who contravenes these Regulations commits an offence and is liable, on conviction, to a fine not exceeding one hundred thousand penalty units or to imprisonment for a term not exceeding twelve months, or to both.

Transitional provisions

10. A person who had a borehole before the coming into operation of these Regulations, shall
register that borehole on payment of the prescribed fee within six months of the coming into effect of these Regulations.

FIRST SCHEDULE
(*Regulations* 2)

Form I
(*Regulation* 3 (1)

Water Resources Management Authority

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(Groundwater and Boreholes) Regulations, 2018

NOTICE TO DRILL BOREHOLE				
Please complete in block letters	Shaded fields for official use only	Licence Code		
		Date and Time		
Information Required	*Information Provided*			
ENTERPRISE INFORMATION				√
1. Full name of enterprise				
2. Postal Address				
Email Address				
4. Physical address				
Plot No:				
Street.				
Province				
Town				
Tel				
A person wishing to object to the grant of approval may do so in writing stating reasons for the objection, within thirty days of the date of publication of the notice. Objections should be sent to the Authority, catchment council or sub-catchment council				
Note: The Form must be attached to the application to drill				

Form II
(*Regulation* 3 (2)

Water Resources Management Authority

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APPLICATION TO DRILL BOREHOLE					
Please complete in block letters		Shaded fields for official use only	Licence Code		
			Date and Time		
Information Required		*Information Provided*			
1.	Surname of Applicant				√
	Forename(s)				
	Registration No.				
	Nationality				
	NRC/Passport No.				
	Email address				
2.	Licence/Permit No.				
3.	Physical Address				
	(a) Telephone No.				
	(b) Fax:				
	(a) Email:				
4.	Owner of property				
5.	Anticipated use: Residential ☐ Commercial ☐ Irrigation ☐ Industrial ☐ (Other) ..... (denote intended use) Will water withdrawn be greater than 10,000 litres per day? ☐Yes ☐No				
6.	Drilling Contractor: Licence No:				

Form II
(*Regulation* 3 (2)

Water Resources Management Authority

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APPLICATION TO DRILL BOREHOLE					
Please complete in block letters		Shaded fields for official use only	Licence Code		
			Date and Time		
Information Required		*Information Provided*			
1.	Surname of Applicant				√
	Forename(s)				
	Registration No.				
	Nationality				
	NRC/Passport No.				
	Email address				
2.	Licence/Permit No.				
3.	Physical Address				
	(a) Telephone No.				
	(b) Fax:				
	(a) Email:				
4.	Owner of property				
5.	Anticipated use: Residential ☐ Commercial ☐ Irrigation ☐ Industrial ☐ (Other) ..... (denote intended use) Will water withdrawn be greater than 10,000 litres per day? ☐Yes ☐No				
6.	Drilling Contractor: Licence No:				

7.	Property address where drilling of borehole is planned:.....		
5.	Name of Company Name):		
	Address:		
	Phone Number:		
	City/Town:		
	Province:		
	Cellphone No:		
	Person completing form: Borehole owner ☐ Driller ☐ Other ☐		
	DECLARATION BY THE APPLICANT: I..... declare that the information given above is true and correct to the best of my knowledge. Should the information be verified to be false, this application shall be rendered invalid. .... Applicant's signature Date		
	Before submitting: ☐ Complete all required information in the form. ☐ If domestic applicant, a sketch map or site or site map covering a radius of 30 metres showing property boundaries, road, distance from septic/pit latrine or any other potential pollution source. ☐ If non-domestic applicant, attach a borehole site investigation report containing: Planned location of boreholes, existing boreholes within 250m, distance from any pollution source, proposed depth of borehole and casing diameter. ☐ Attach proof of consent from landowner or certified title deeds or letter of property sale. Sign the borehole registration form Approved/ Not approved:		
	Reasons for rejection:		
	FOR OFFICIAL USE ONLY *Received by:*..... RECEIPT No..... *Date Received:*..... OFFICIAL STAMP *Amount Received*..... *Signature:*.....		

Form III
(*Regulation* 3 (3))

Water Resources Management Authority

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NOTICE OF GRANT TO DRILL BOREHOLE

To:.....

IN THE MATTER OF:.....

You are hereby notified that your application to drill has been accepted on the following conditions:

(i) This permit is contingent on land ownership and is, therefore, transferable upon ownership transfer, but is restricted to its conditions or any other relevant rules and conditions prevalent at the time of transfer

(ii) Where there is transfer of property, the new property owner shall notify the Authority in writing within ninety days.

(iii) In case where the applicant intends to drill more than one borehole, the applicant shall be required to fill in an application form for each borehole.

(iv) The borehole shall be drilled by a licensed driller in accordance with the Authority's technical specifications.

(v) Upon completion of drilling a borehole, a driller shall be required to submit to the Authority, a borehole completion report and any other tests made.

(vi) This permit is valid for six months but may be revoked at any stage due to contravention of any of the above stated conditions.

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Received by:..... RECEIPT No.....
(Name of Officer)

Date Received:.....

Amount Received.....

OFFICIAL STAMP

Form IV
(*Regulation* 3 (4))

Water Resources Management Authority

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NOTICE OF REFUSAL TO DRILL BOREHOLE

(1) Here insert name and address

To: (1).....

(2) Insert the reference No. of the Notice

IN THE MATTER OF.....(2).....

(3) Here insert type of application

You are notified that your application for (3).....

has been rejected on the following grounds:

(a).....

(b).....

(c).....

(d).....

(4) Signature of Director-General

(4) .....
Director-General

OFFICIAL STAMP

Form V
(*Regulation* 6 (1)

Water Resources Management Authority

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BOREHOLE REGISTRATION FORM						
Please complete in block letters		Shaded fields for official use only		Licence Code		
				Date and Time		
Information Required		*Information Provided*				√
1	**APPLICANT INFORMATION**					
	Surname of Applicant Forename(s)					
	Address					
	City/Town					
	Province:					
	NRC/Passport No:					
	Telephone					
	Cell No:					
	Email address					
2.	Name(s) of applicant					
3.	Type of applicant	Company	Partnership	Co-operative	Individual	
4.	**BOREHOLE LOCATION INFORMATION:**					
	If the address of the borehole location is the same as the above, please check %					
	If not, at least one of the three following property descriptions must be provided					
	Address					
	Town					
	Legal description.					

	Plot/Lot Plan. District Lot Block Section Township:	
	Borehole Location Map: Attach a sketch or diagram showing where the borehole(s) are located on the property relative to property boundaries, road or any other structures on the land	
5.	**GLOBAL POSITION SYSTEM (GPS) COORDINATES OF THE BOREHOLE** Coordinates for the borehole can be determined by using a GPS unit, a cell phone application, or by using a mapping application such as Google Earth. Latitude:..... Longitude:..... UTM Zone:.....UTM Easting:.....UTM Northing:..... Source of Coordinates (Check one): GPS ☐ Google Earth ☐ Other ☐ (Please specify)	
6.	**BOREHOLE INFORMATION** If the borehole construction report is available, please attach to this form. Attached ☐ Not Available ☐	
	If no borehole construction report is available, complete the following information:	
	Borehole Identification Number or Name:..... Dade drilled (DD/MM/YYYY)..... If the date of the borehole was drilled is unknown, provide the date you took possession of the property (DD/MM/YYYY) Drilling Company..... Method of Drilling:..... Borehole depth (m):..... Borehole Diameter (in)..... Estimated abstraction per day:..... Purpose of borehole:.....	
7.	**DECLARATION BY THE APPLICANT:** .....declare that the information given above is true and correct to the best of my knowledge. Should the information be verified to be false, this application shall be rendered invalid. Signed:..... Date:..... Contacts(s) Number (Cell).....	

Before submitting: ☐ Complete all required information in the application form ☐ Attach a sketch or map where the borehole is located Water Resources ☐ Provide supporting documentation (e.g. borehole completion report) if available ☐ Sign the borehole registration form	Mailing Address: The Director-General Management Authority P. O. Box LUSAKA Email:

FOR OFFICIAL USE ONLY

Received by:..... RECEIPT No.....
Officer(Name and Signature)

Date Received:.....

Amount Received......

Serial No. of Applicant:.....

OFFICIAL STAMP

Form VI
(*Regulation 7*)

Water Resources Management Authority

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DEFECTIVE BOREHOLE REPORT						
Please complete in block letters		Shaded fields for official use only		Licence Code		
				Date and Time		
Information Required		*Information Provided*				
1.	Name of Applicant:					√
2.	Type of Applicant:	Company	Partnership	Co-operative	Individual	
	Company Name : (if applicable)					
	Owner of property:					
	Surname:					
	First Name:					
	Address:					
	City/Town					
	Province::					
	Phone Nos: Home: Work: Cell No: Fax:					
3.	GPS Location of borehole: WGS 84 East:..... South:.....					

Thresholds for toxic in a defective borehole					
Toxic substances	**mg/L**	**Pesticides**	**µg/l**	**Others**	**µg/l**
Arsenic (As)	> 0.01	Aldrin/dieldrin	>0.01	Polychlorinated biphenyls (PCBs)	>0.05
Mercury (Hg)	>0.002	Chlordane	>0.002	Dioxins	>0.0000003
Cadmium (Cd)	>0.005	Dichloro-Diphenyl-Trichloroethane (DDT)	>1	Perchlorate	>2
Barium (Ba)	> 2.0	Endonsulfan	>2	Methyl tertiary-butyl ether (MtBE)	>20
Chromium (Cr)	> 0.1	Endrin	>0.002		
Cobalt (Co)	>0.5	Heptachlor and heptachlor epoxide	>0.0002		
Cyanide (CN-)	>0.2	Hexachloro-benzene	> 0.001		
Fluoride (F-)	>4.0	Lindane (Gamma BHC)	>0.0002		
Lead (Pb)	>0.01	Methoxychlor	>0.04		
Aluminium (Al)	>0.5	Toxaphene	>0.003		
Manganese (Mn)	>0.1				
Nitrates (NO-3)	>10				
Nitrite (NO-2)	>1.0				
Selenium (Se)	>0.05				
Silver (Ag)	> 0.05				
State any other chemicals or substances					

FOR OFFICIAL USE ONLY

Received by.....RECEIPT No.....

Officer (Name and Signature)

Date Received:.....

Amount Received:.....

Serial No. of application:.....

OFFICIAL STAMP

SECOND SCHEDULE
(*Regulation* 4)

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MINIMUM DISTANCES BETWEEN BOREHOLES IN RELATION TO WATER QUANTITY

Pumping rate (l/s)	**Type of Aquifer**	**Minimum distances between boreholes (m)**
1-20	Intergranular – porous or fractured sandstones	50
0.5-5	Fractured basement/ consolidated rocks	50
0.2-1	Fissured deep weathered zone	30
1-10	Cavity or karstic fractured limestone	100
1-20	Unconsolidated sediments (e.g., Aeolian Kalahari deposits)	200

Minimum Distances between boreholes and pollution sources	
Pollution type/source	**Minimum distance from water abstraction point (radius)**
Pit latrine	30 meters
Septic tank and soakaway	30 meters
Unprotected shallow well	30 meters
Waste disposal (formal or informal)	500 meters
Sewage effluent/lagoon/pond	50 meters
Animal pen/kraal	50 meters
Farm stables and sheds	50 meters
Garages	30 meters
Manure or composting materials application	30 meters
Fuel storage	100 meters
Pesticide or fertiliser storage	100 meters
Parking lots, roads and railways	50 meters
Dead animal burial or composting site	100 meters
Cemeteries	500 meters

SECOND SCHEDULE
(*Regulation* 6 (2)

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REGISTER OF BOREHOLES

Name	Address	Contact details	Email Address	Driller	WARMA Number	Date of registration	Depth of borehole	Permitted volume (l/ day)	Purpose

D.M WANCHINGA,
Minister of Water Development, Sanitation and Environmental Ptoection

LUSAKA
16th February, 2018
[MWDSEP/DPI.101/21/14]