

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:

- | | | |
|----|--|----------------|
| 1. | These Regulations may be cited as the Water Resources Management (Groundwater and Boreholes) Regulations, 2018. | Title |
| 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; | Interpretation |

*Copies of this Statutory Instrument can be obtained from the Government Printer,
P.O. Box 30136, 10101, Lusaka, Price K32.00 each*

“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.

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.

Register of boreholes

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

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.

Defective borehole

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.

Fees

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.

General offence and penalty

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.

Transitional provisions

FIRST SCHEDULE
(Regulations 2)



Form I
(Regulation 3 (1))

Water Resources Management Authority

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

The Water Resources Management
(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 | |
| <i>Information Required</i> | <i>Information Provided</i> | | |
| 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

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

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

| 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 <input type="checkbox"/> Commercial <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> (Other) (denote intended use) Will water withdrawn be greater than 10,000 litres per day? <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| 6. | Drilling Contractor: Licence No: | | |



Form II
(Regulation 3 (2))

Water Resources Management Authority

**The Water Resources Management Act
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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 <input type="checkbox"/> Commercial <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> (Other) (denote intended use) Will water withdrawn be greater than 10,000 litres per day? <input type="checkbox"/> Yes <input type="checkbox"/> 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 <input type="checkbox"/> Driller <input type="checkbox"/> Other <input type="checkbox"/> | | |
| 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: | | |
| <input type="checkbox"/> Complete all required information in the form. | | |
| <input type="checkbox"/> 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. | | |
| <input type="checkbox"/> 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. | | |
| <input type="checkbox"/> Attach proof of consent from landowner or certified title deeds or letter of property sale. | | |
| <input type="checkbox"/> 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

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

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

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.

FOR OFFICIAL USE ONLY

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

Date Received:.....

Amount Received.....

OFFICIAL STAMP



Form IV
(Regulation 3 (4))

Water Resources Management Authority

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

NOTICE OF REFUSAL TO DRILL BOREHOLE

(1) Here To: (1).....
insert name
and address

(2) Insert IN THE MATTER OF.....(2).....
the reference
No. of the
Notice

(3) Here You are notified that your application for (3).....
insert type has been rejected on the following grounds:
of application
(a).....
(b).....
(c).....
(d).....

(4) Signature (4)
of Director- **Director-General**
General

OFFICIAL STAMP



Form V
(Regulation 6 (1))

Water Resources Management Authority

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

| 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 <input type="checkbox"/> Google Earth <input type="checkbox"/> Other <input type="checkbox"/> (Please specify) | |
| 6. | BOREHOLE INFORMATION If the borehole construction report is available, please attach to this form. Attached <input type="checkbox"/> Not Available <input type="checkbox"/> | |
| 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)..... | |

| | |
|---|---|
| <p>Before submitting:</p> <ul style="list-style-type: none"><input type="checkbox"/> Complete all required information in the application form<input type="checkbox"/> Attach a sketch or map where the borehole is located Water Resources <input type="checkbox"/> Provide supporting documentation (e.g. borehole completion report) if available<input type="checkbox"/> Sign the borehole registration form | <p>Mailing Address:</p> <p>The Director-General Management Authority P. O. Box LUSAKA</p> <p>Email:</p> |
| <p style="text-align: center;">FOR OFFICIAL USE ONLY</p> <p>Received by:..... RECEIPT No..... <i>Officer(Name and Signature)</i></p> <p>Date Received:.....</p> <p>Amount Received.....</p> <p>Serial No. of Applicant:.....</p> <div style="border: 1px solid black; width: fit-content; margin: 10px auto; padding: 5px; text-align: center;">OFFICIAL STAMP</div> | |





Form VI
(Regulation 7)

Water Resources Management Authority

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

| DEFECTIVE BOREHOLE REPORT | | | | | |
|----------------------------------|-------------------------------------|-----------------------------|---------------|--------------|------------|
| Please complete in block letters | Shaded fields for official use only | | Licence Code | | |
| | | | Date and Time | | |
| <i>Information Required</i> | | <i>Information Provided</i> | | | |
| 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 | Endosulfan | >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..... | | | | | |
| <i>Officer (Name and Signature)</i> | | | | | |
| Date Received:..... | | | | <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> OFFICIAL STAMP </div> | |
| Amount Received:..... | | | | | |
| Serial No. of application:..... | | | | | |

SECOND SCHEDULE
(Regulation 4)



Water Resources Management Authority

The Water Resources Management Act
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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))



Water Resources Management Authority

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

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

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 Protection

LUSAKA

16th February, 2018

[MWDSEP/DPI.101/21/14]