

## DEPARTMENT OF WATER AND SANITATION

NO. 406

7 May 2021

**REGULATIONS FOR THE USE OF WATER FOR EXPLORATION AND PRODUCTION OF ONSHORE NATURALLY OCCURRING HYDROCARBONS THAT REQUIRE STIMULATION, INCLUDING HYDRAULIC FRACTURING AND UNDERGROUND GASIFICATION, TO EXTRACT, AND ANY ACTIVITY INCIDENTAL THERETO THAT MAY IMPACT DETRIMENTALLY ON THE WATER RESOURCE**

I, Noncabe Lindiwe Sisulu, Minister of Human Settlements, Water and Sanitation, hereby give notice of my intention to make Regulations on the exploration and production of onshore unconventional gas developments, in terms of section 26(1)(g) of the National Water Act, 1998 (Act No. 36 of 1998) read together with Government Notice 999 (Government Gazette No: 39299), of 18 October 2015, set out in the Schedule hereto.

Any person wishing to comment on or make representations with regard to the proposed Regulations is hereby invited to do so within one month of the date of publication of this notice. All such comments and representations must be submitted in writing in any of the following ways:

By post to: The Director-General  
Department of Water and Sanitation  
Private Bag X313  
Pretoria  
0001

By hand to: The Director-General  
Department of Water and Sanitation  
Sedibeng Building, 185 Francis Beard Street,  
Pretoria

By e-mail to: [unconventionalsgas@dws.gov.za](mailto:unconventionalsgas@dws.gov.za)

Comments or representations must be marked for the attention of: Deputy Director-General: Water Sector Regulation, Mr Anil Singh.

Any enquiries in connection with the proposed Regulations can be directed to Mr Siboniso Mkhalephi at 012 336 8048 or to [mkhalephi@dws.gov.za](mailto:mkhalephi@dws.gov.za).

Comments received after the closing date will not be considered.



**N L SISULU, MP**  
**MINISTER OF HUMAN SETTLEMENTS, WATER AND SANITATION**

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## CHAPTER 1

### GENERAL PROVISIONS

#### Definitions

1. In these regulations, any word or expression to which a meaning has been assigned in the Act has the meaning so assigned and, unless the context otherwise indicates—

**"abandonment of wells"** means any wells that are not satisfactorily decommissioned, according to the responsible authority, beyond the authorised care and maintenance time period;

**"appraisal"** means the assessment of the potential, economic viability, properties and extent of a discovered reservoir through the acquisition of more data from the drilling and testing of wells. This phase follows immediately after successful exploration;

**"baseline studies"** means the monitoring of key indicators to establish reference conditions of potentially affected water resources prior to stimulation (pre-exploration and production exposure) to form the basis for a change over time assessment;

**"coalbed methane"** means petroleum (in any state) occurring naturally in strata associated with coal;

**"spring"** means a point where subsurface water emerges at surface, usually as a result of topographical, lithological or structural controls.

**"controlled" activity"** means the controlled activity declared by the Minister by notice in the *Government Gazette* No. 39299, Notice 999 of 2015 in terms of section 38 of the Act in respect of the exploration and production of onshore naturally occurring hydrocarbons that requires stimulation, including hydraulic fracturing and underground gasification, to extract, and any activity incidental thereto that may impact detrimentally on the water resource;

**"decommissioning"** means the plugging of wells, removal of well equipment, production tanks and associated installations, site rehabilitation and monitoring;

**"exploration"** means the acquisition and processing of data or any other activity with the intention of locating an economically viable regulated substance. This definition includes the appraisal phase of any controlled activity, developing conceptual geological and geo-hydrological models and drilling of exploration wells;

**"flow-back"** means all hydraulic fracturing fluid and other fluids that return to the surface after hydraulic fracturing, or other, stimulations have been completed and prior to the well being placed into production;

**"hazardous substance"** means a substance, mixture of substances, product or material declared in terms of the Hazardous Substances Act No.15 of 1973.

**"hydraulic fracturing"** means injecting fluids into the target formation at a pressure exceeding the parting pressure of the rock to induce fractures through which naturally occurring hydrocarbons can flow, and is applicable to exploration and production;

**"hydraulic fracturing fluid"** means the mixture of the base fluid and all the hydraulic fracturing additives used to perform hydraulic fracturing;

**"hydraulic fracturing programme"** means a programme developed and based on risk assessment and describes control and mitigation measures for fracture containment and for any potential induced seismicity;

**"hydrocensus"** means the systematic collection of information related to all water resource features potentially affected within a target area;

**"incidental activity"** includes all operations and activities reasonably necessary for undertaking the controlled activity, including—

- (a) the drilling of wells that will be stimulated;
- (b) the injection of water or some other substance into a natural reservoir in order to enhance production of petroleum or another regulated substance;
- (c) the processing of substances recovered from a well;

(d) the onsite treatment of wastewater including but not limited to flow-back and produced water;

**"independent auditor"** means a person who provides specialist services and who is able to provide independent and autonomous opinions and has no business, financial, personal or other interest in the activity, application or appeal in respect of which that person is appointed other than fair remuneration for work performed in connection with that activity or that there are no circumstances that may compromise the objectivity of that specialists;

**"monitoring"** in relation to water resource quality means repeated sampling of water resource quality and quantity for the purposes of building time series data on water resources that would indicate seasonal quality and quantity fluctuations;

**"municipal wellfield"** means a water resource used by water services institutions to provide water supply services as defined in the Water Services Act, 1997 (Act No. 108 of 1997) and includes future potential identified water resources;

**"naturally occurring hydrocarbons"** means an organic compound containing only carbon and hydrogen naturally occurring in petroleum, natural gas, coal and bitumen;

**"onshore"** means situated or occurring onland;

**"petroleum"** means a complex mixture of naturally occurring hydrocarbon compounds found in rock strata ranging from solid to gas;

**"process water"** includes all water related to exploration and production (including flowback, produced water and contaminated stormwater);

**"produced water"** means all fluids displaced from the geological formations, which can contain substances that are found naturally in the formations that is produced when performing a controlled activity, but excludes hydraulic fracturing flowback;

**"production"** means the production of the regulated substance and is the phase that occurs after successful exploration (including appraisal);

**"regulated substance"** means—

- (a) petroleum;
- (b) hydrogen sulphide;
- (c) nitrogen;
- (d) helium;
- (e) carbon dioxide; or
- (f) any other substance that occurs naturally in association with petroleum;

**"shale gas"** means natural gas occurring within shale geological formations.

**"stimulation"** means the act of increasing a well's productivity by artificial means such as hydraulic fracturing, refracturing, gasification, depressurisation, acidising, oxidising or other techniques;

**"strategic water source area"** means a natural source area for water resources that provides disproportionately large volumes of water per unit area and that is considered of strategic significance for water security from a national planning perspective;

**"the Act"** means the National Water, 1998 (Act No. 36 of 1998);

**"unconventional"** in relation to oil or natural gas means oil and natural gas that is produced by means that do not meet the criteria for conventional production and requires stimulation including shale gas extraction, coalbed methane and underground coal gasification;

**"underground coal gasification"** means the conversion of coal to methane and other gas mixtures underground by ignition of a coal seam, involving the drilling of a two well system into the coal seam, one for injection of the oxidants and another to bring the product gas to the surface, with a connecting path;

**"water use licence"** means a water use licence issued in terms of section 40 of the Act for the following purposes or phases for the controlled activity—

- (a) Exploration; or

(b) Production;

"well" means any drilled hole used for the purposes of undertaking the controlled activity and includes holes drilled in any state of use or disuse;

### **Purpose of Regulations**

2. The purpose of these regulations is to protect the water resource so as to avoid and minimise detrimental and cumulative impacts on the water resource by the controlled activity.

### **Application of Regulations**

3. (1) These regulations apply throughout the Republic of South Africa to all onshore exploration and production operations for unconventional oil or gas that may impact detrimentally on the water resource.

(2) These regulations do not exempt a person from complying with any other provision of the Act, or any other applicable law, regulation, ordinance or by-law of another organ of state.

## **CHAPTER 2**

### **APPLICATIONS AND LICENSING**

#### **Conducting of controlled activity during exploration**

4. (1) No person may conduct, carry out, undertake or commence with the controlled activity without a water use licence.

(2) An application for water use licence during exploration must meet the minimum information requirements specified by the responsible authority.

(3) A water use licence during exploration may not exceed a period of nine years, cumulatively.

(4) The holder of a water use licence during exploration may produce a regulated substance from a well in the licenced area for the purpose of establishing



the nature and extent of a discovery: Provided that the production may not continue for more than ten days in aggregate without the approval of the responsible authority.

### **Applications for water use licence during production**

5. (1) No application for water use licence during production may extend beyond the licensed area, except where—

- (a) the applicant holds, or held at the time of the application for water use licence during production, a water use licence during exploration for the area in respect of which the water use licence during production has been applied; and
- (b) production of the regulated substance is commercially feasible at the time the application is made as read with 5 (1) (a).

(2) Notwithstanding subregulation (1)(a), if the applicant for a water use licence during production has not complied with the conditions of his or her water use licence during exploration, the responsible authority may decline to grant a water use licence during production until such time as the non-compliance is remedied to the satisfaction of the responsible authority.

(3) Notwithstanding sub-regulation (2), the water use licence for production may be declined by the responsible authority based on unsatisfactory performance on other licenced areas.

(4) The water use licence during production shall lapse if the holder thereof fails to commence production of a regulated substance in terms of the licence within six months after the issuance of the licence.

### **Suspension and withdrawal of water use licence**

6. (1) If the responsible authority has reason to believe that the water use licence was obtained through fraud, non-disclosure of material information or misrepresentation of a material fact, the responsible authority may, in writing—

- (a) suspend or partially suspend, with immediate effect, the water use licence; and
- (b) direct the holder of such a water use licence forthwith to cease any activities that have been commenced or to refrain from commencing any activities, pending a decision to withdraw the water use licence.

(2) The person concerned must be given an opportunity to make representations within reasonable period, on proposed suspension or withdrawal of the water use licence.

(3) The responsible authority, may for good reason, withdraw the suspension.

(4) The responsible authority in withdrawing the water use licence, may direct the necessary rehabilitation measures required.

## **CHAPTER 3**

### **PROHIBITIONS**

#### **Prohibited areas**

7. (1) No controlled activity may occur:

- (a) within five kilometres from the edge of an existing or proposed municipal wellfield, including its aquifer; water supply borehole and/or groundwater supply infrastructure;
- (b) within five kilometers from any town without a wellfield as future water source areas;

- (c) within five kilometres of any government waterworks including dams with a safety risk;
- (d) within five kilometres from the edge of any identified strategic water source area; and
- (e) within five kilometres from the edge of a thermal or cold spring including seismically active springs.

(2) Notwithstanding sub-regulation (1), the Responsible Authority may further amend the various distances in sub-regulation (1) after taking into account the findings of the baseline studies and scientific evidence for zone of influence.

### **Prohibited activities**

8. The following activities are prohibited—

- (a) the disposal of drill cuttings containing radioactive substances;
- (b) deep well injection of process water for disposal without authorisation;
- (c) the drilling of a well so as to enter an area outside the authorised area stipulated in the water use licence;
- (d) the storage of process water containing radioactive substances, for reuse or disposal in pits or pollution control dams;
- (e) the treatment of process water for disposal, including drilling fluids, at a treatment works that is not suitably engineered or authorised to handle such fluid;
- (f) the disposal of sludge at a landfill that is not suitably engineered or authorised to accept such waste;
- (g) the care and maintenance of exploration wells beyond eighteen months after testing, contemplated in regulation 4(4); and
- (h) abandonment of wells without decommissioning.

**CHAPTER 4****DRILLING AND FLUID MANAGEMENT****Drilling and fracturing fluid**

**9.** (1) No person may use hazardous substances in drilling fluids or as additives to fracturing fluid.

(2) A person who applies for a water use licence must submit a list of all chemicals planned for use in the fracturing fluids to the Department for approval.

(3) The holder of a water use licence must provide such approved list of fracturing fluids on its website in accordance with regulation 10(2)(d).

**CHAPTER 5****DISCLOSURE****Disclosure**

**10.** (1) The holder of a water use licence must ensure that the water use licence is made available for access and copying, at the site of the controlled activity to anyone on request.

(2) The holder of a water use licence must publish on its website:

- (a) a complete copy of the water use licence;
- (b) its relevant hydrocensus, baseline and monitoring information, risk analysis information and environmental impact assessment;
- (c) the hydraulic fracturing programme;
- (d) the fracturing fluids and its chemical composition;
- (e) the location of all wells and monitoring boreholes and well integrity information, verified by an independent auditor or specialist; and
- (f) audit reports as specified in the licence.

**CHAPTER 6****OFFENCES****Offences**

- 11.** (1) A person is guilty of an offence if that person—
- (a) provides incorrect or misleading information in any form, including any document submitted in terms of these regulations to a responsible authority or intentionally omits information that may have an influence on the outcome of a decision of a responsible authority;
  - (b) obtains water use licence through fraud, non-disclosure or material information or misrepresentation of a material fact, or
  - (c) fails to comply with any provision of these regulations.

(2) Any person who contravenes any provision of sub-regulation (1) is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and, in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment.

**CHAPTER 7****SHORT TITLE****Short title and commencement**

**12.** These regulations are called Regulations for the Use of Water for Exploration and Production of Onshore Naturally Occurring Hydrocarbons that Require Stimulation Including Hydraulic Fracturing and Underground Coal Gasification to Extract and any Activity Incidental Thereto that may Impact Detrimentally on the Water Resource, 2021, and take effect on the date to be determined by the Minister by notice in the Government Gazette.