

BARBADOS

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Petroleum Winning Operations

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PETROLEUM WINNING (DRILLING AND PRODUCTION) REGULATIONS, 1950

Authority: These regulations were made on 22nd June, 1950 by the Minister under section 21 of the *Petroleum Winning Operations Act*.

Governor-in-Executive Committee: This power is now vested in the Minister under section 21 of the *Petroleum Winning Operations Act*.

Commencement: 1st August, 1950.

Amended by:

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1974/9

Law Revision Orders

The following Law Revision Orders authorized the insertion and removal of pages under the Law Revision Act Cap.2 now repealed:

1989

1. These Regulations may be cited as the *Petroleum Winning (Drilling and Production) Regulations, 1950*.

2.(1) In these regulations, unless the context otherwise requires

“boundary well” is a well drilled at the nearest point to the boundary of adjoining properties of different operators;

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“natural gas” means all natural gas, both before and after it has been subjected to any treatment or process by absorption, purification, scrubbing, or otherwise, and includes all other fluid hydrocarbons not referred to as petroleum.

“operator” means

- (i) in respect of any drilling operations carried on for the purpose of drilling a well for the production of natural gas or petroleum, or either of them, every person who has the right as lessee, sub-lessee or assignee to carry on such drilling operations and every person who has control or management of such operations;
- (ii) in respect of any well producing or capable of producing natural gas or petroleum or either of them, every person who has the right as lessee, sub-lessee, or assignee to the production from such well, and every person who has the control and management thereof; or
- (iii) every contractor who engages in any operations carried on for the purpose of drilling a well for the production of natural gas or petroleum or either of them or for the purpose of reconditioning or abandoning a well, or who may contract for the carrying out of such operations, or any of them;

“pool” means an underground reservoir containing or appearing to contain an accumulation of crude petroleum or natural gas, separated or appearing to be separated from any other such reservoir or accumulation in the general structure;

“productive horizon or zone” means any strata bearing natural gas, petroleum or water or any other substance which may, from time to time, be designated by the Minister, either generally or in respect of any designated area, or any specified well or any number of specified wells.

“waste” in addition to its ordinary meaning means “waste” as that term is ordinarily understood in the petroleum and natural gas industry and without limiting the generality of the foregoing, includes

- (i) the insufficient, excessive or improper use or dissipation of reservoir energy;
- (ii) the locating, spacing, drilling, equipping, operating or producing of any well or wells in a manner which results or could result in reducing the quantity of petroleum or natural gas ultimately recoverable from any pool;
- (iii) the inefficiently storing of petroleum or natural gas, whether on the surface or underground;
- (iv) the producing of petroleum or natural gas in excess of transportation or marketing facilities or of reasonable market demand;
- (v) the locating, drilling, equipping, operating or producing of a well or wells in a manner which causes or could cause unnecessary or excessive surface loss or destruction of petroleum or natural gas;

“reasonable market demand” means the demand for petroleum or natural gas for reasonable current requirements and current consumption, or use within and outside Barbados, together with such amounts as are reasonably necessary for building up or maintaining reasonable storage reserves and working stocks of petroleum and natural gas and the products thereof;

“well”, means any orifice in the ground made or being made by drilling, boring or in any other manner

- (i) from which any petroleum or natural gas is obtained or obtainable, or which is being so made for the purpose of obtaining any petroleum or natural gas; or
- (ii) which is drilled to a depth of more than 500 feet regardless of the purpose for which the same is drilled or is being drilled;

“spacing unit” means the area allocated to a well for the purpose of drilling for and producing petroleum or natural gas, and includes all subsurface areas bounded by the vertical planes in which the surface boundaries lie;

“zone” means any stratum which may, from time to time, be designated by the Minister as a zone, either generally or in respect to any designated or any specified well or wells.

(2) The Minister may depute any person or body by name, or the person for the time being holding the office designated by him, to exercise the powers or perform the duties on his behalf which are hereby conferred or imposed subject to such conditions, exceptions and qualifications as the Minister may prescribe, and thereupon the person or body so deputed shall have and exercise those powers and perform the duties as aforesaid.

3.(1) No person shall commence to drill any well or undertake any operations preparatory or incidental to the drilling of a well or continue any drilling operations or any producing operations at any well unless a drilling licence has been issued by the Minister authorising such drilling operations.

(2) Notwithstanding the provisions of the preceding subparagraph, the site of a proposed well may be surveyed without a drilling licence.

(3) Every well shall be drilled at the point specified in the drilling licence and no amendment of such licence with respect to the location of the well shall be made by the Minister if and so long as the said location is in accordance with the provisions of these regulations.

4.(1) An application for a drilling licence shall be submitted to the Minister on the form prescribed by the Minister.

(2) The application shall set out in the manner required by the Minister

- (a) the name proposed for the well which shall include in its meaning any identifying number;
- (b) the point at which it is proposed to drill the well;
- (c) the proposed programme of drilling operations; and
- (d) such other information as the Minister may require.

(3) The application shall be accompanied by a drilling licence fee of \$25 payable to the Accountant General.

(4) In an area where there may be more than one production zone, the Minister may require that the application set out the definite zone to which the well shall be drilled and from which the well shall be produced.

5.(1) The application shall be accompanied by a sketch plan sufficiently detailed to enable the location of the proposed well site to be accurately determined and as soon as possible thereafter a detailed plan shall be submitted to the Minister showing the location of the proposed well site in relation to any roads, existing wells,

structures and buildings of every kind upon or within a distance of 330 feet and the distances to wells on the same spacing unit.

(2) The plan shall be dated and signed by the operator and certified by the surveyor or engineer, and their signatures shall be duly witnessed.

(3) All measurements and distances shall be tied to some definite survey mark.

6.(1) The Minister may grant or refuse an application for a drilling licence but no application shall be refused if the proposals contained therein are in accordance with the provisions of these regulations and good field practice.

(2) The drilling licence shall be subject to such conditions, restrictions and stipulations as may be set out therein or attached thereto.

7.(1) An application for a drilling licence shall be accompanied by a deposit payable to the Accountant General to guarantee the proper control, completion or abandonment of the well to the satisfaction of the Minister in full compliance with the provisions of these regulations.

(2) The amount of the deposit shall be \$5 000:

Provided that in the case of a second or subsequent application, the Minister may in his discretion, grant a drilling licence without further deposit.

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(3) If an application for a drilling licence is not approved the deposit shall be returned to the applicant.

(4) Upon the completion or abandonment of a well in strict accordance with the directions and requirements of the Minister, the deposit or unused portion thereof shall be returned to the drilling licensee.

(5) If in the opinion of the Minister the control of a well or any completion, suspension or abandonment is not in accordance with his orders, directions or requirements, then the Minister may enter upon the well site or do or cause to be done whatever he deems necessary for compliance with such orders, directions or requirements and the Accountant General may use all or any part of the deposit to defray the Minister's cost of and incidental to the work of completion, suspension or abandonment to the satisfaction of the Minister.

(6) The return of a deposit or any part thereof shall not relieve the drilling licensee of or reduce his liability for any costs of or incidental to the control, completion, suspension or abandonment of a well.

(7) If the costs of or incidental to the work of control, completion, suspension or abandonment of a well exceed the sum of the deposit, or a repayment having been made, exceed the sum remaining on deposit, the amount of such excess shall be a debt payable by the drilling licensee to the Accountant General.

8.(1) A drilling licence granted pursuant to these regulations shall not be assigned without the consent in writing of the Minister.

(2) A person applying for the consent of the Minister to the assignment of a drilling licence to him may be required to make a deposit in accordance with regulation 7 and the former drilling licensee shall not be refunded his deposit until his assignee's deposit has been received.

(3) The assignee of a drilling licence shall be subject to the duties, obligations and liabilities of the original drilling licensee.

(4) An application for the consent of the Minister to the assignment of a drilling licence shall be accompanied by a fee of \$25 payable to the Accountant General.

9. The Minister may

- (a) cancel, or suspend a drilling licence granted pursuant to these regulations, either for a definite time or indefinitely, if it is made to appear to him that a contravention of these regulations has occurred with respect to the well which the drilling licence was granted;
- (b) cancel a drilling licence if drilling has not commenced within \$120 days of its issue;
- (c) issue a new drilling licence in place of a cancelled licence.

10.(1) An application to amend a drilling licence shall be submitted to the Minister.

(2) The Minister, in his discretion, may approve the amendment applied for or such other amendment as he deems fit, or refuse the application.

- (3) A drilling licence granted pursuant to these regulations shall be on the form prescribed by the Minister and shall be issued to the drilling licensee in duplicate.
- (4) The duplicate of the drilling licence shall be posted and kept prominently displayed at the well site during drilling operations.

11.(1) A spacing unit of a boundary well shall not be less than 5 acres.

(2) A drilling licence shall not be granted for the drilling of a well or boundary well for petroleum or natural gas at any point which is within 100 feet of a road or other right of way or within 150 feet of a permanent building.

12.(1) The operator of every well drilled or being drilled for the production of petroleum or natural gas shall

(a) except as otherwise directed by the Minister make or cause to be made tests at intervals not exceeding 500 feet from the top to the bottom of the well, or at such less intervals as the Minister may require, for the purpose of ascertaining to what extent, if any, the well deviates from the vertical. In the event of failure to take the deviation test herein required the Minister may order that no further drilling be conducted;

(b) whenever required so to do by the Minister, make or cause to be made a directional survey of the well.

(2) The operator shall, immediately upon the making of any test or survey required by this regulation, make a report in writing to the Minister setting out the manner in which the test or survey was made and the results thereof.

(3) The Minister may require the operator to make such further tests or surveys as he deems necessary for the purpose of determining the deviation, if any, and may give directions as to the manner in which such tests or surveys shall be made, and the operator shall comply with any directions so made or given.

13.(1) No drilling equipment casing, or tubing shall be used at any well unless it complies in all respects with the specifications, if any, set forth in the drilling licence and with such further specifications as may from time to time be made or approved by the Minister.

(2) Every well shall be cased in such manner as may be prescribed or approved by the Minister, except where testing indicates that casing is not required.

(3) The operator of a well shall, in completing the same, adopt such methods and install such equipment as may be from time to time prescribed or approved by the Minister.

14. No departure from or variation in any programme of drilling operations approved by the Minister pursuant to any of these regulations shall be made unless such departure or variation has been approved by the Minister in writing, provided always that in cases of emergency in which an immediate departure from or variation in the programme is necessary, such departure or variation may be made to the extent that the same is necessary, and in any such case the operator shall immediately advise the Minister thereof in writing signed by him.

15. The use of surface vacuum pumps and casing swabs, or other like devices used for lifting petroleum or natural gas to the surface by means of wire cables and suction tools, or any mechanical appliance which tends to produce a vacuum in a well, is prohibited, except by special permission of the Minister, or except for testing or cleaning or when bringing a well into production.

16. The surface and subsurface equipment of every petroleum or natural gas well shall be so arranged as to allow the Minister to take the closed-in pressure, the bottom hole pressure, the working pressure, or make any test required at any time, and the operator of any well shall assist the Minister at any time to carry out tests so required.

The subsurface equipment shall include a pin-collar or its equivalent appended to the lower end of the production string or tubing as a safeguard against loss of testing equipment. The surface equipment shall include such valve connections as are necessary to sample the petroleum, natural gas or water produced. For sampling the natural gas there shall be a half-inch sampling valve in the line in which the gas is being metered but far enough away from the orifice plate so as not to affect the requirements of regulation 35 respecting metering.

17.(1) Subject to the provisions of paragraph (2) hereof, unless otherwise directed the operator shall cause to be taken, preserved and maintained a series of samples of the various formations which the drilling penetrates

in the drilling of the well, such samples to be taken at interval depths of 10 feet, or at less intervals if required by the Minister which samples shall be washed, dried, accurately tabulated and forwarded as required to the Minister.

(2) In the case of wells, where drilling methods resulting in the recovery of cores are not employed, the operator shall cause samples to be taken of the cuttings carried up by the flush water, at interval depths of 10 feet, or at less intervals if required by the Minister, and shall wash, dry and accurately tabulate and preserve in bags, a fair sample of cuttings obtained, and shall forward the same to the Minister.

(3) Whenever it shall be reasonable so to do, the Minister may require the operator to take the samples referred to in paragraph (1) hereof by means of a core barrel.

(4) When cores are taken from the core barrel they shall be released into core boxes of a kind and size to be specified by the Minister and accurately tabulated as to the number of the core, top, bottom and per cent recovery of the core, and shall be protected from theft or misplacement by being housed in a suitable building and under lock and key, and a fair sample of such cores shall be forwarded to the Minister by the operator whenever required by the Minister at the expense of the operator.

(5) The operator of every well which is being drilled for petroleum or natural gas shall immediately upon encountering a geological horizon or formation from which production of petroleum or natural gas may be anticipated, and when ordered by the Minister, core and adequately test such horizon or formation. All information so obtained shall be forwarded to the Minister by the most expeditious method, and if so instructed by the Minister no further drilling shall be conducted.

(6) Whenever, during drilling or production, water makes its appearance in a well, the operator shall at once notify the Minister, with as full details as are available, and when the drilling system permits shall take and preserve in a suitable vessel, supplied by the Minister, a quantity of not less than 1 gallon, to be placed at the disposal of the Minister for analysis, should the latter so determine, and shall, if so required, afford such facilities as may be necessary for sampling the water by the Minister.

(7) Whenever petroleum is discovered in such quantity as will permit of samples being taken, a sample of not less than 1 gallon shall be preserved in a suitable container supplied by the Minister and forwarded immediately to the Minister.

(8) Whenever natural gas is discovered, samples thereof shall be taken in such amounts and in such manner as the Minister may direct, and shall be delivered to the Minister in containers supplied by him at such times as he may fix for that purpose.

(9) Whenever directed so to do by the Minister the operator shall take or cause to be taken an electrolog. The operator shall see that the electrical resistivity, weight and viscosity of the mud are recorded on the electrolog. A copy of all electrologs, whether or not taken at the direction of the Minister, shall be supplied to the Minister.

18. It shall be the duty of every operator of a well which is being drilled, to maintain at all times the casing and adequate control equipment in such condition that in case any petroleum, natural gas or water is encountered, the same will be effectively controlled, and if at any time the Minister considers that the casing or control equipment is not adequate it may prescribe remedial measures which shall be instituted and completed before any further drilling is carried on.

18A.(1) Where a well, which is being drilled for the purpose of obtaining any petroleum or natural gas, passes through the lower or water bearing strata of the coralline limestone, and water makes its appearance in the well, the operator shall at once not only notify the Minister but also the Chief Engineer of the Waterworks Department, with as full details as are available.

(2) The Chief Engineer of the Waterworks Department may take such steps as he deems necessary to satisfy himself concerning the procedure proposed to be taken for the protection or preservation of such underground water from either pollution or contamination or from diminution in quantity by or in consequence of the drilling of such well, and may for that purpose confer with the person or body deputed pursuant to paragraph (2) of regulation 2.

(3) Should the Chief Engineer of the Waterworks Department be not satisfied with the procedure proposed to be taken pursuant to paragraph (2) hereof, or if no person or body has been deputed pursuant to paragraph (2) of regulation 2, it shall be his duty to forthwith make such representations and recommendations to the Minister as he may deem necessary.

(4) Where water has made its appearance in a well under the circumstances set forth in paragraph (1) hereof, the operator shall afford to the Chief Engineer of the Waterworks Department or his authorised representative the

right of inspection until such time as the flow of such water has been effectively controlled.

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19. In all proven or well-defined petroleum or natural gas fields, or where it is to be expected that petroleum or natural gas will be encountered, adequate preparation shall be made for the conservation of petroleum or natural gas before drilling-in a well, and the petroleum or natural gas horizons shall not be penetrated until proper equipment, as approved by the Minister, is installed on the well.

20. If the operator encounters significant quantities of petroleum or natural gas or water in a well, he shall immediately notify the Minister, by the most reasonably expeditious method, of the character, extent and quantity thereof.

21.(1) A daily record of operations shall be kept in triplicate by the operator at oil wells in process of drilling or reconditioning. The original copy of all the daily records for any week shall be filed with the Minister within the next ensuing week; the duplicate copy of such record to be turned over to the owner of the well and made a part of his permanent record.

(2) Any suspension of operations shall be noted on the last daily report submitted previous to suspension.

(3) The daily report shall set out complete data on all operations carried on during the day, including depth at beginning of day, depth at end of day, formation penetrated, any change in casing and, if casing set all data regarding setting with size, type and weight of casing, particulars of cementing any water, petroleum or natural gas encountered, even if only small showings and a report of any deviation tests or any other tests carried on. Reports shall be submitted not only on drilling operations, but on all operations carried on, such as fishing, shooting, perforating, acidizing, surveying or abandonment.

(4) The operator of every well which is being drilled, or is producing any petroleum or natural gas shall keep at his office, complete and accurate records of all drilling operations conducted at, and all petroleum and natural gas produced from his well, and shall produce such records at all reasonable times when requested so to do by the Minister, and shall afford facilities for inspecting the same and making copies thereof and extracts therefrom.

22. No well shall be drilled beyond any significant petroleum, natural gas or water stratum regardless of the volume, without sealing off such stratum or the contents thereof, either by the mud-laden fluid process, or by casing, or by cement, unless authorised so to do by the Minister, and such sealing shall be subject to the approval of the Minister.

23. Whenever a stratum known to contain petroleum or natural gas in the general area is encountered in any well, such stratum shall be adequately protected from infiltrating waters in such manner as may be prescribed by the Minister.

24.(1) When a test of the water shut-off is intended to be made by the operator in any well, reasonable notice of the time that such test is to be made shall be forwarded to the Minister. An authorised representative of the Minister shall be present when the test of water shut-off is made, unless such representation is waived by the Minister.

(2) The method and duration of a shut-off shall be as prescribed by the Minister.

(3) Should the test of water shut-off prove to be unsatisfactory, the Minister may direct that further tests be made and may direct that such remedial measures be instituted as may be deemed necessary effectively to exclude water from the well. Any additional tests required or remedial measures directed shall be made or instituted without unreasonable delay. Further drilling shall not be carried on until the water shut-off has met all requirements.

25.(1) The operator shall not allow a well to be shot, perforated, or reacidized, until the Minister has been notified in writing of such contemplated action, and consent obtained, and such shooting or perforation or acid treatment shall be so conducted that no irreparable injury shall be done to the well and so as to prevent ingress of water or other foreign substance to any productive horizon. The operator shall submit to the Minister a report on all wells shot, perforated or acidized, on a form obtainable from the Minister. In case any injury is done to the well by shooting, perforation, or acid treatment, it shall immediately be repaired to the satisfaction of the Minister.

(2) Explosives of every kind and description shall be stored only in a properly constructed magazine situated not less than 500 feet from any place where any drilling or production operation is being carried on.

26.(1) No operator shall suspend drilling operations for more than 3 months or abandon a well without first obtaining the approval of the Minister on the appropriate forms which may be secured from him, provided that in any particular case such approval may first be given orally.

(2) No operator shall remove or cause or permit to be removed the operating equipment from a well and no operator shall disrupt or cause or permit to be disrupted any part of the casing in a well without obtaining the written approval of the Minister provided that in any particular case such approval may first be given orally.

(3) No drilling contractor or drilling operator shall remove or cause or permit to be removed the rig, derrick or other drilling equipment from a well without obtaining the written approval of the Minister provided that in any particular case such approval may first be given orally.

(4) In case it is proposed to suspend drilling operations for more than 3 months the operator shall notify the Minister on forms to be obtained from the Minister, of such intended suspension, and the Minister may cause an inspection to be made of the well and, in approving such suspension, may direct the taking of such measures as the Minister considers proper so that the well shall, at time of suspension of drilling operations, be left in a condition satisfactory to the Minister. If operations at the well are not resumed within 6 months from the date of approval of suspension, or such less time as the Minister may set out in his approval of said suspension, the operator may apply to the Minister for an extension of time of suspension giving reasons therefor and the Minister may in his discretion approve an extension of time of suspension or, in the absence of an application by the operator for an extension of time, the Minister shall direct the operator to carry out such additional work as considered necessary by the Minister for proper abandonment of the well.

(5) In the event it is proposed to abandon a well the operator shall notify the Minister, on forms to be obtained from him of such intended abandonment, and the Minister may cause an inspection to be made of the well by any of his officers and, in approving such abandonment, may direct the taking of such measures as the Minister considers proper so that the well shall upon abandonment be left in a condition satisfactory to the Minister.

(6) The operator shall execute and carry out the suspension or abandonment in strict accordance with the requirements and directions set out in the Minister's approval and shall use every effort to shut off and exclude all water from entering the horizons productive of petroleum, natural gas, or other minerals which may have been encountered in the well.

(7) The operator shall fill up all excavations and cellars which have been made during the drilling and production operations in connection with any well to a height of 2 feet above the surrounding land, and shall leave the well site in a reasonably clean condition before the suspension or the final abandonment of any well.

(8) In the event of a suspension or abandonment being carried out in a manner unsatisfactory to the Minister as determined on inspection by him or his authorised agent, all costs and expenses incurred by the Minister in subsequent inspections necessary to determine that the suspension or abandonment has been satisfactory shall be payable by the operator to the Minister on demand.

(9) In the event of a suspension or abandonment being carried out contrary to the requirements and directions contained in the Minister's approval and in a manner unsatisfactory to the Minister, he may take such steps as are necessary to carry out the suspension or abandonment in accordance with his requirements, and all costs and expenses incurred in so doing shall be payable by the operator to the Minister on demand.

27.(1) Notice of intention to recondition or re-drill a well, or to perforate, or alter any casing of any well or to resume drilling operations on any well upon which drilling has been suspended for more than 3 months shall be given to the Minister for approval before the commencement of such operations, on forms obtainable from him.

(2) Notice of intention to deepen a well beyond the formations shown on the original drilling licence, or to deepen any well beyond the formation from which production is being taken or has been taken, or to alter any casing with a view to production from any formation other than from which production is being taken or has been taken under the original drilling licence shall be given to the Minister for approval before the commencement of any such operations, on forms obtained from the Minister and in the event that the ownership of the well is other than that shown on the original drilling licence, the said form shall be accompanied by a fee of \$25.

(3) The notices required under sub-paragraphs (1) and (2) of this regulation shall set forth the present condition of the well, the programme of operations to be carried out, and such further or other information as the Minister will require.

(4) No programme of operations of the nature described in sub-paragraphs (1) and (2) of this regulation shall be commenced without the approval in writing of the Minister, provided that in any particular case such approval may first be given orally.

28. No operator shall permit any well to flow uncontrolled.

29.(1) If the escape of petroleum or natural gas is not prevented, or if a flow of water is not controlled, the Minister may take such effective means as may appear to him to be necessary or expedient in the public interest to control and prevent the escape of the petroleum or natural gas, or to plug the well at such depth as may prevent the water from gaining access to any petroleum or natural gas-bearing formation, or either, or to prevent water from gaining access or escaping from such well, and all costs and expenses incurred in stopping the escape of petroleum or natural gas, the ingress or egress of water to or from the well, or in plugging the well at such depth as may prevent such water from gaining access to such petroleum or natural gas horizons, shall be payable by the operator to the Minister on demand.

(2) In taking such means for the control of the petroleum, natural gas or water the Minister may appoint such representatives as he may deem necessary, and may authorize such representatives to enter upon the premises and perform the work, and for that purpose to take possession of and use any drilling rig, derrick, tools, machinery, or other appliances or equipment necessary for the performance of the work, which may be upon the site or which may be the property of the operator.

30.(1) For the more effectual enforcement of these regulations, the Minister may, whenever it is deemed to be proper or convenient, seal or cause to be sealed with a metallic seal or seals, any or all valves or meters, installed in any well or wells and on all pipe lines, tanks, or other receptacles used for the storage or transportation of petroleum or other liquid produced or withdrawn from any such well or wells.

(2) The person in charge of operations at the well and the operator's agent shall be notified in writing by the Minister of the affixing of the said seal or seals.

(3) Any seal or seals so affixed shall not be removed without authority in writing from the Minister except in case of emergency, and every person who is the operator of a well shall be under the duty to prevent any seal or seals so affixed from being removed or tampered with.

(4) Whenever any seal at any well has been removed in case of emergency, the operator shall forthwith notify the Minister in writing, setting out particulars as to the seal removed, the date of removal and the nature of the emergency.

31.(1) When it appears to the Minister that water is penetrating any petroleum or natural gas bearing stratum, he may order a test of water shut-off, and designate a day upon which the same shall be made; such order shall be in writing, and shall be served upon the operator of the well at least 5 days prior to the day designated in the order as the day upon which the shut-off test shall be made.

(2) Upon receipt of such order, it shall be the duty of the operator to make the test in the manner and at the time prescribed in the order.

(3) In any well where it appears to the Minister that there exists defective casings or faulty cementing, corrective procedure shall at once be undertaken on such well, according to the instructions of the Minister.

32.(1) Operators shall use every possible precaution, in accordance with the most approved methods, to stop and prevent waste of petroleum or natural gas in drilling and production operations, and in storing, piping or distributing petroleum or natural gas, and shall not wastefully utilize petroleum or natural gas, or allow same to leak or escape from natural reservoirs, wells, tanks, containers or pipes.

(2) No well shall be allowed to produce petroleum or natural gas from different pools or zones at the same time, from the same string or column of casing unless upon permission in writing from the Minister.

33. No natural gas shall be produced for storage in any case where by the production of such gas any energy necessary for the production of crude petroleum may be dissipated.

34.(1) If any production of petroleum or natural gas is being obtained from any well or wells, the operator shall file with the Minister, on forms furnished by him, not later than the fifteenth day of the month, a full report of the petroleum or natural gas production from each well or wells during the preceding month, the details of production from each well to be shown separately.

(2) The operator shall also be required to keep a daily record at the well in such form as is approved by the Minister of all petroleum or natural gas produced from each well showing disposal thereof. The medium of measurement must be approved by the Minister.

(3) Each purchaser, transporter or gasoline plant operator, purchasing, transporting or treating petroleum or natural gas from wells, shall maintain a daily record of such petroleum or natural gas and file with the Minister on

or before the fifteenth day of each month, a full report of the petroleum or natural gas purchased, transported, or treated during the preceding month.

(4) Unless otherwise directed by the Minister the operator shall report the daily production during any period of testing following completion of a well or following reworking of a well, such reports to be made daily. If the test continues for a period of less than 24 hours in each day, the report shall be specified as to recovery of petroleum and natural gas and the period of time in which such production was obtained.

35.(1) Where the measurement of gas is required for any purpose, its volume shall be computed as the number of cubic feet it would occupy at Standard Conditions (S.C.) of 14.73 pounds per square inch absolute at a temperature of 60°F.

(2) Whenever the conditions of pressure and temperature differ from the Standard Conditions described in paragraph (1) hereof, conversion of the volume from the measured conditions to the Standard Conditions shall be made in accordance with the Ideal Gas Laws and corrected for deviations from the Ideal Gas Laws whenever such correction exceeds 1 per cent.

(3) Correction for deviation from Ideal Gas Laws shall be based on tables of the California Natural Gasoline Association published in Bulletin T.S. - 354.

(4) A well producing gas shall be equipped with a gas meter approved by the Minister and no gas shall be produced, at a well unless it is metered; provided however, that the Minister may give permission to dispense with the installation of a meter or the metering of the gas.

(5) Each orifice meter shall be installed in accordance with the provisions of the code of the American Gas Association published as "Gas Measurement Committee Report No. 2" reprinted in 1948 or as subsequently amended by the same authority.

(6) Where for economy of operation gas from several wells is brought to a common locality for metering, each meter shall be marked clearly to indicate the source of gas being measured.

(7) Any by-pass around a meter shall be closed by valves or stopcocks which effectively stop all flow of gas when closed, and every occasion when the by-pass is operated and on any extraordinary occasion when gas does not reach the meter, a suitable entry shall be made in the tour report, and where an orifice meter is installed, a record shall be made also on the meter chart.

(8) Whenever an orifice plate is changed a record of the time of change and the sizes of orifice removed and inserted shall be similarly recorded on the meter chart and in the tour report, and within the meter cover.

(9) Each orifice meter installed shall be equipped with a thermometer well.

(10) The measured inside diameter of the pipe at the orifice shall be clearly marked on the pipe near the orifice flanges and also inscribed in the meter shelter together with the date of measurement and the name of the person making the measurement.

(11) At installations where an orifice plate is bolted in place, the place shall show clearly the size of orifice, in inches and decimals, by figures stamped or cut into the metal of the plate, and a plate shall not be rebored or the orifice size increased without first removing or permanently defacing the old marking.

(12) All meters shall be maintained in good and usable condition by inspections as frequently as may be necessary and by replacements of parts when inspection indicates that such replacements are required.

(13) The meter shall be suitably safeguarded from weather and from interference by unauthorised persons.

(14) Orifice meter charts shall be clearly marked in such manner as to indicate the well or wells being metered and the time and the date of start and finish of records.

(15) Charts shall be computed daily and shall be preserved for a period of 1 year.

(16) In computing the quantity of gas passing the meter during the period covered by a chart, all metered gas shall be recorded together with a fair estimate of all unmetered gas during all periods in which the meter fails for any reason to record.

(17) Coefficients for calculating meter charts shall be computed according to code published as Gas Measurement Committee Report No. 2 and referred to in paragraph (5) of this regulation.

(18) The Minister may permit group meter measurements.

(19) The Minister, after examination, may exempt any well or wells from metering the volume of gas produced therefrom, providing satisfactory estimates of the volume of gas so produced are supplied to the Minister in lieu of such meter measurements.

(20) Where, in the opinion of the Minister, adequate measurements are not being made of the gas produced from a well, the Minister may require that the well be closed in until such time as adequate measurements or other arrangements have been made.

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36. The Minister may order that a test be made of the gasoline content of any natural gas, and if natural gasoline is thereby shown to be present in paying quantity, the Minister may require that such natural gasoline shall be separated, conserved and utilized.

37. The production of natural gas from any gas well shall be restricted to the market demand and in no event shall the production exceed 25 per cent of the open flow of the well, provided that the Minister may, in its discretion allow such additional volume to be used as he may deem expedient.

38.(1) No petroleum shall be stored in unprotected earth excavations or in the storage receptacles which, in the opinion of the Minister are inadequate or likely to cause waste or loss, leakage, evaporation or fire hazards.

(2) All petroleum tanks or batteries of tanks must be surrounded by a dike or ditch of a capacity equal to that of the tank or battery of tanks, such dike or ditch must be maintained in good condition and free from high grass, weeds or combustible material.

(3) All fires used by the operator for any purpose shall be so safeguarded by sufficient mechanical or other means that no hazard to surrounding property shall be created.

(4) Any rubbish or debris that might constitute a fire hazard shall be removed to a distance of at least 100 feet from the vicinity of wells, tanks and pump stations. All waste material shall be burned or disposed of in such a manner so as not to create any fire hazard to the wells, tanks or stations or the pollution of any stream or any fresh water stratum. No salt water and no drilling fluid shall be permitted to flow over the surface of any land.

39. No boiler or electric lighting generator shall be placed or remain nearer than 150 feet to any producing well or petroleum tank.

40. Every operator shall immediately notify the Minister by telephone and by letter of all fires which occur at petroleum and natural gas well or petroleum tanks owned, operated or controlled by him on his property, and shall immediately report all tanks struck by lightning and any other fires which destroy petroleum or natural gas, and shall immediately report in the manner herein prescribed any breaks or leaks in the tanks or pipe lines from which petroleum or natural gas is escaping. In all reports of fires, breaks, or leaks in pipes, or other accidents of this nature, the location of the well, tank or line break shall be given.

41. All persons are prohibited from smoking on any rig, derrick or structure, or within 75 feet of any petroleum or natural gas well, whether drilling or in production, also within 100 feet of any receptacle used for the storage, measurement, or separation of petroleum or natural gas, and negligence on the part of the operator to enforce the provisions of this regulation shall in the discretion of the Minister, render the drilling licence liable to suspension or cancellation.

42. No inflammable product, or waste product of any kind from any petroleum or natural gas well shall be permitted to run into any stream or other body of water, or any highway of public road, and all waste or petroleum and refuse from tanks or wells must be drained into proper receptacles at a safe distance from tanks, wells or buildings, and be immediately burned or transported from the premises and in no case shall it be permitted to flow over the land.

43.(1) To conserve the petroleum and natural gas resources of Barbados and to secure the orderly and regular development, and the most efficient economic recovery thereof, the Minister shall promote and assist all efforts initiated by the owners of leaseholds petroleum and natural gas interests, in any pool so designated by the Minister to consolidate, merge or otherwise combine their interests for the purpose of accomplishing the more efficient and more economical development and production of the petroleum and natural gas resources of the pool, irrespective of whether such purpose be accomplished by unit operation, cooperative development or joint participation.

(2) No mutual agreement for the consolidation, combination or co-operation of the owners of petroleum and natural gas interests of a pool shall be put into effect unless and until the approval of the Minister has first been obtained.

(3) Notwithstanding the approval by the Minister of any mutual agreement for the operation of a pool, the owners of the petroleum and natural gas operating interests in a pool shall obtain from the Minister a permit for

the development and production of the pool, and petroleum and natural gas shall not be produced other than that from the discovery well designated by the Minister until such permit is obtained.

44.(1) Every operator (as defined in regulation 2(iii)) shall before the commencement of operations apply to the Minister on forms prescribed by and obtainable from the Minister for a "Permit to Operate Drilling Equipment;" the application for a permit shall be accompanied by a fee of \$1 payable to the Accountant General and shall name in such application its duly appointed representative for the purpose of receiving directions and communications from the Minister.

(2) The application shall be examined by the Minister and the granting or refusing of the permit shall be at the discretion of the Minister.

(3) No operator shall commence drilling operations at any well or undertake any operation preparatory or incidental to the drilling of any well or continue any drilling operations at a well or recondition or abandon a well unless he is the holder of a subsisting "Permit to Operate Drilling Equipment" issued pursuant to these paragraphs authorising him to do so.

(4) The "Permit to Operate Drilling Equipment" shall be valid for a period of 3 years commencing January 1 for the calendar year in which application is made to the Minister.

(5) In the event an operator does not comply with the provisions of any of these regulating his "Permit to Operate Drilling Equipment" may be cancelled by the Minister.

(6) In the event of the "Permit to Operate Drilling Equipment" issued to an operator has lapsed or has been cancelled by the Minister for any reason as outlined in sub-paragraph (5) above the operator shall apply to the Minister for a new "Permit to Operate Drilling Equipment" before carrying on further drilling operations.

45.(1) The Minister shall maintain a record of official names to be known as the Well Name Register, in which shall be entered.

- (a) the name and location of each well; and
- (b) the name of the drilling licensee and his agent; and
- (c) the name of the drilling contractor; and
- (d) subsequent name or names assigned to the well and approved by the Minister.

(2) The last name assigned to a well in the Well Name Register shall be the official name of the well and the one by which it shall be known and referred to.

(3) If the drilling licensee wishes to change the official name of a well, he shall apply to the Minister on a form supplied by him and pay a fee of \$25 payable to the Accountant General.

(4) The Minister, in his discretion may grant or refuse an application to change the official name, and if the application is granted the new name shall be entered in the Well Name Register.

(5) The drilling licensee shall mark the well in a conspicuous place with the official name of the well, and preserve the markings until the well is abandoned.