

REQUIREMENTS FOR VERIFICATION OF COMMERCIAL PRODUCTIVITY OF NON-PRODUCING LEASES

PREFACE

The State Mineral Board has determined that it is in the best interest of the state of Louisiana to require its lessees to furnish certain information to substantiate the commercial productivity of any lease under which the lessee wishes to invoke the shut-in provisions of the lease, the gas marketing provision of the rider to the 1966, 1975 and 1981 lease form, or of any relative lease amendment granted by the Board.

While the lease forms in use by the State are express in granting a right to maintain a lease by a shut-in gas well, the Board wishes to observe that exercise of the Lessee's right is subject to the corresponding obligation of each Lessee to exercise the diligence of a reasonable, prudent operator to secure a market for the reserves involved. The shut-in clause does not, in the Board's view, grant the unqualified right to maintain a lease absent (1) a quantity of reserves which a reasonable, prudent operator would seek to market and have a reasonable expectation of marketing (2) diligent efforts on the part of the operator to obtain a market, and (3) in the case of application for the 18-month "Initial Period" under the gas marketing section of the rider to the 1966, 1975 and 1981 lease forms, a reasonable expectation of obtaining an intrastate market by the diligent effort to obtain an intrastate gas sales contract and direct insertion into a solely intrastate gas pipeline or system.

GENERAL PROVISIONS

All data presented to the Staff for consideration by the staff and/or the Board are for the use of the Board only. Where the operator desires to hold all, or a portion, of the data confidential, he must show these data to the Staff, but is not required to leave the data with the staff. He may, at his option, subsequently submit or show all, or any part, of the data to the Staff or the Board. Future retention of the data in a confidential status will be governed by provisions of the lease.

Failure of the staff and/or the Board to take any action or perform any function with respect to an in-lieu royalty payment submitted to the Register of the State Land Office will not affect the timeliness of it, but the timeliness thereof shall be determined as of the time such payment is made or tendered to the Register. The Staff and/or the Board specifically reserve the right to determine whether a well, on which the payment is tendered, is capable of producing in paying quantities.

NOTE:

A request for an extension of in-lieu royalty payments beyond the term provided by the lease, plus any earned additional periods involves an amendment to the lease and must be approved by the Board prior to the end of the current period. Only one additional payment period can be requested at a time. In order to maintain the lease in force, the payment also must be tendered before the expiration of the current period.

In order to obtain the data necessary to make a reasonable determination of commercial productivity the following requirements have been established; however, it is not the intent of the State Mineral Board to impose undue burden upon operators of State Leases by the promulgation of these

requirements which are, therefore, subject to such flexibility as each case may warrant.

I. DATA INITIALLY REQUIRED ON SHUT-IN COMPLETED GAS WELLS

A. GENERAL

1. All data hereinafter set forth must be submitted to the Staff, the well qualified by the Staff, and the first shut-in payment made (or, if application is made for the 18-month "Initial Period" under the gas marketing provision of the rider attached to the 1966, 1975, and 1981 lease forms, a letter from the Staff confirming the beginning date of the "Initial Period") in conformity with the following circumstances:
 - (a) If a well is drilled and/or completed during the primary term of a lease, but greater than 90 days prior to the next anniversary date, not later than the anniversary date.
 - (b) If a well is drilled and/or completed during the primary term of a lease, but within 90 days of the next anniversary date, within 90 days from cessation of drilling operations (or completion if completed in a diligent manner within a reasonable time).
 - (c) If a well is drilled and/or completed outside of the primary term of a lease, within 90 days from cessation of drilling operations (or completion if completed in a diligent manner within a reasonable time).

Failure to submit the required data to the Staff, have the well qualified, and pay the shut-in payment (or receive a letter confirming the beginning date of the "Initial Period") within the time periods set forth herein above shall preclude the Staff from considering the qualification of the well in question and said well shall not be eligible for shut-in status rendering the lease subject to termination if other provisions of the lease providing for lease maintenance are not in force.

2. The data shall be accompanied by an affidavit by the operator, or his agent, as to its validity. The effective date of the "Initial Period" must be shown, with sufficient information to substantiate selection of the date, i.e., completion date of the well or effective date of unitization if the well is located on non-State acreage. On all leases taken subsequent to adoption of the ride in March, 1973, the lessee or operator must further certify that gas producible from the subject lease is not currently subject to an interstate market under an existing area contract.
3. A plat on a scale of 1" - 1,000' showing the leased premises, or unit, and the surrounding area, with all current wells spotted thereon, must accompany the data.

B. INITIAL QUALIFICATION-WELL COMPLETED, CAPABLE OF PRODUCTION

1. Basic Well data.
 - a. Total depth.
 - b. Plugged back total depth.
 - c. Perforated interval.
 - d. Net productive sand, top and base, or water level.
 - e. Electrical survey (1" and 5").
 - f. Porosity log is mandatory; side-wall cores, conventional cores, and analysis required, if obtained.
 - g. Any other logs or well surveys run on the well will be required.
 - h. Completed copies of Department of conservation well history and well completion forms.

NOTE:

Gamma Ray survey, if run, should be included where formation water salinities seriously affect the self-potential curve. A caliper survey should be run with the porosity log where possible.

2. Bottom-Hole Pressure Data

Wells should be tested for a period necessary to produce a cumulative of 2,000 MCF gas; however, for low capacity wells, a test period of 48 hours will be considered sufficient. The cumulative may include an estimate of production during initial clean-up. The test period shall include a minimum of six (6) hours of stabilized flow at a single rate, or three (3) hours of stabilized flow at each of two or more rates.

- a. Initial shut-in bottom hole pressure.
- b. Flowing pressure data, unless deemed too hazardous by the operator.
- c. Minimum build-up in bottom hole pressure for at least 8 hours, immediately following the test period. In the case of low permeability reservoirs additional build-up time may be required.
- d. After build-up, make two bomb stops, at 100 feet and 200 feet off bottom, or greatest depth to which bomb was run.
- e. State Mineral Board should be furnished with a copy of BHP chart or charts and all pressure readings, including pressure-time build-up readings and bottom hole temperature.

NOTE:

In abnormally high-pressured wells where a kill-string or other mechanical obstructions have been installed, or in wells equipped with internally coated tubing, the above bottom-hole pressure requirements may be waived.

3. Production Data

- a. Hours well flowed and estimate of gas produced during clean-up period prior to test.
- b. Initial shut-in tubing pressure and hours S.I. prior to test.
- c. Choke size or sizes, including daily rate and time of flow period on each choke.
- d. Initial, maximum, and final tubing pressure for each flow rate.
- e. tubing pressure recorder chart is required and must be sufficiently annotated to explain all changes in test conditions.
- f. Final shut-in tubing pressure and duration of shut-in time.
- g. Total time on test.
- h. Cumulative gas produced during total test period.
- i. Cumulative condensate produced during total test period.
- j. Cumulative water produced during total test period.
- k. A.P.I. gravity @ 60 deg. F.
- l. Size of production string or DST string.
- m. Gas test meter charts.
- n. Gas and liquid analysis, if obtained.
- o. P-V-T analysis, if obtained.

NOTE:

A Repeat Formation Test is not adequate enough test data for well qualification.

4. Drill Stem Test Procedure and Data.

- a. Well data same as in (1) above.
- b. Bottom hole pressure data as in (2) above, except gradient data.
- c. Production data as in (3) above.

- d. Additional required data:
 - 1) Mud weight, feet of water cushion and salinity (or nitrogen pressure and cubic feet), bottom hole choke, and complete copy of DST Service Company report.
5. Should the applicant for initial in-lieu royalty status be rejected on the basis of the data submitted, the applicant may arrange to retest the well, under conditions mutually agreed upon, such retest to be witnessed by a member of the Board's staff.

II. DATA REQUIRED FOR EXTENSIONS BEYOND SIX PERIOD, OR OLD WELLS

- A. All data as required under "Initial Payments" will be required for extension requests, unless data has been previously submitted. Any new data or information not previously submitted or requested, or obtained when the well was originally completed, will be required with the request for the extension.
- B. When applying for an extension, a summary of negotiations for gas contracts will be required in addition to the above.

III. EXCEPTIONS TO SUBMISSION OF REQUIRED DATA

A. General

1. The Board, by amendment to a lease, may permit qualification of the lease as commercially productive of oil or gas on the basis of downhole data (logs, samples or cores, and formation tests) obtained in a test hole subsequently abandoned in accordance with applicable regulations. Where economics dictate, "expendable well(s)" allow the operator to evaluate his acreage, to determine the optimum location and size of the central drilling and production facility, and to permit time for construction and installation of the facility and required pipelines, without the necessity of installing individual jackets or platforms for each test drilled.

B. Required Data

1. An induction-electric log of the well, clearly showing a minimum of 20 feet of producible sand in one section excluding any member or layer which is less than 6 feet in thickness, and which does not include any interval appearing to be water saturated. If a commercially available computerized log is not run, the operator must furnish foot-by-foot calculations of porosity and water saturation over the entire pay zone, together with the equations and parameters employed in the calculations. All of the section counted as producible must exhibit the following properties:
 - a. Electrical spontaneous potential exceeding 20 negative millivolts beyond the shale base line. If mud conditions prevent a 20 negative millivolt reading beyond the shale base line, a gamma ray log deflection of at least 70 percent of the maximum gamma ray deflection in the nearest clean water-bearing sand may be substituted.
 - b. A minimum true resistivity ratio of the producible section to the nearest clean water sand of at least 5:1, provided the producible section exhibits a minimum resistivity of 2.0 ohm-meters.
2. A porosity log indicating porosity in the producible section.
3. Sidewall cores and core analysis which demonstrate that the section is producible.

4. A wire-line formation test, if the caliper log indicates reasonable possibility of obtaining a successful test. The test results must indicate that the section is producible.
5. All logs run must support other evidence that the section is producible.

June 2, 1999 gtc