

PETROLEUM REGULATION NO. 8

For The Conservation of Petroleum Resources

General Definitions

Article 1

As used in this Regulation:

“The Law” shall mean the Petroleum Law No. 25 of 1955 as amended.

“The Secretariat” shall mean the Secretariat of Petroleum.

“Concession Holder” shall mean any person who is legally authorized to carry out petroleum operations in Libya.

“Operation” shall mean any petroleum operations carried out by the Concession Holder.

“Assigned Tract” shall mean the area or areas in which the concession holder is authorized to carry out petroleum operations.

“Reservoir” shall mean a geological occurrence which serve as a place for the accumulation of hydrocarbons with fluid holding and fluid transmitting capacity.

“Ultimate Recovery” shall mean the recovery of the largest possible quantity of hydrocarbon from the reservoir by the primary and secondary recovery method.

Reference shall be made to the Law for the definition of terms included in this regulation but not mentioned in this Article.

Article 2

All petroleum operations within the territory of the Socialist People’s Libya Arab Jamahiriya and its continental shelf shall be carried out in compliance with the rules set out in this Regulation and in conformity with efficient and rational methods. The Secretariat may issue special rules for individual cases that require them. These rules shall prevail as against general rules if in conflict.

Article 3

Every reasonable precaution shall be taken by the Concession Holder to prevent damage or hazard, as a result of operations, to human life, property, natural resources, coasts, cemeteries, or places of archeological, religious or touristic interest, or public installations.

Article 4

The machinery, equipment and materials used in the course of the Concession Holder's operations shall meet the standards of safety and efficiency recognized in the oil industry.

Article 5

The Concession Holder shall submit to the Secretariat periodic programs, reports, data and information relevant to his operations, as specified herein.

Article 6

Prior to the construction and the installation of facilities related to drilling, gathering, separation, storage, transportation, loading and secondary recovery for the purpose of increasing the productivity of the field, or any other facilities stipulated in this regulation, the Concession Holder shall submit to the Secretariat a description of the project covering its designs, location, capacity, estimated costs, operation methods and any such other important information for the purpose of obtaining the approval of the Secretariat thereupon. The Secretariat shall issue its decision in this respect within a reasonable period of time in observance of the provisions of Clauses 12 and 13 of the Second Schedule of the Petroleum Law.

EXPLORATION

Article 7

Not less than 30 days before the end of each year the Concession Holder shall submit to the Secretariat its exploration program for the next year, containing the following information:

- (a) A topographic map of the area or areas to be surveyed, specifying assigned tract numbers, and limits of the area or areas in geographic or other recognized systems of co-ordinates, as required.

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- (b) Types of surveys to be carried out in area or areas mentioned in (a), such as geological, seismic, magnetic or similar surveys, and whether they are to be carried out by the Concession Holder directly or through contractors.
- (c) The extent of the planned survey in terms of recognized units, such as crew months, kilometers or seismic lines or other such units.

Article 8 ***

Each Concession Holder shall submit to the Secretariat, in duplicate, all the data obtained by him as a result of each surveying operation referred to in the previous article. He shall also submit final reports covering his interpretation of such data as soon as such is available to him. He shall, within six months from the completion of the surveying operation, submit to the Secretariat his final report, in duplicate, containing his interpretation of such data.

DRILLING

Article 9 ***

The Concession Holder, prior to the commencement of any operation related to the drilling of any well in the Concession Area, shall submit to the Secretariat a request for acquiring a written permission to do so, supported by the data provided for in Annex No.1 of this regulation. The Secretariat shall grant the requested permission within a reasonable period of time so long as the proposed drilling program fulfills the conditions set forth in this regulation. A drilling permission shall be issued for each well separately.

Article 10

Once a reservoir is delineated, the Concession Holder shall with the consent of the Secretariat assign a well-spaced pattern to it. The spacing pattern may be varied when justified by geological conditions and the reservoir behavior after Secretariat's approval.

Article 11

The following minimum distances shall be observed in locating wells;

- (a) A distance from the boundaries of each assigned tract equal to one and a half times the distance between wells in the spacing adopted for the field; or when such spacing has not yet been established, a distance of six hundred meters from the boundary lines.

- (b) Four hundred meters from other wells, which are being drilled or are already in production from the same reservoir provided that, in the case of directional drilling, the distances referred to in subparagraph (a) and this subparagraph shall be measured from the vertical projection of the bottom of the hole to the surface. Under no circumstances shall this projection fall beyond the boundary lines of the assigned tract on which the well is located.
- (c) One hundred meters from workshops, tank farm and other industrial installations.
- (d) Fifty meters from truck and lateral pipelines.
- (e) In the case of wildcat drilling the distances mentioned under subparagraph (c) and (d) shall be doubled. However, in all other cases the provisions of Article 9 of the Law and Clause 14 of the Second Schedule thereof shall apply.
- (f) The distances specified in the present Article may be altered by the Secretariat after consultation with the Concession Holder if justified by special circumstances.

Article 12

In drilling wells, the Concession Holder shall avoid excessive deviation (except when drilling directional wells) from true vertical, and for this purpose shall carry out deviation surveys at appropriate intervals, and shall include the results in the intermediate and final reports.

Article 13 ***

During drilling operations, the Concession Holder shall:

- (a) Provide the well with the necessary equipment and materials to prevent blow-outs.
- (b) Protect all fresh water bearing strata by means of casing and cement lining.
- (c) The protection of oil or gas bearing formations by casing and cement lining. In the event of production from non-penetrating and fractured rock formations, the lower part of the well may remain without self-casing provided that the previous permission of the Secretariat shall be obtained,

- (d) Undertake adequate geologic sampling from the well being drilled.
- (e) Undertake all appropriate surveys, such as electric radioactive, sonic, production and any other logs that may be necessary.

The results of the tests and surveys referred to in the present Article shall be included in the intermediate and final reports submitted to the Secretariat in the forms set out in Annex 2A and Annex 2B of this Regulation.

Article 14 ***

The Concession Holder shall shut down the dry holes as well as those holes, which are not commercially productive; provided that such wells be shut down in pursuance to the sound principles prevailing in the oil industry and after the previous written permission of the Secretariat is obtained. The Secretariat may, prior to granting such permission, obligate the Concession Holder to continue drilling up to the depth determined by the Secretariat thereby.

In the event of the cases mentioned in the above paragraph, the Concession Holder shall submit a written report in duplicate including, in addition to the reasons leading to the plugging of the well, the following information: -

- (a) Name and location of the well.
- (b) Characteristics of strata, including oil, gas or water encountered during drilling.
- (c) Methods and material to be used in plugging.
- (d) Geological section of the well with graphic illustration of the plugging operations.
- (e) Diameter and length of casing to be salvaged, if any.

If any stratum in the abandoned well contains fresh water, the Concession Holder shall leave the well in proper condition to permit its utilization as water well at any time.

Article 15

If the Concession Holder does not wish to plug a dry hole or non-commercial well, because it can be utilized as an observation or injection well, or for other similar purposes, he shall notify the Secretariat in writing giving full details.

Article 16 ***

The Concession Holder shall supply all production wells with production tubing, the outside diameter of which shall not be more than 3½ inches, and that the production of such wells shall be through such production tubing only. The Concession Holder shall, also, supply all productive wells as well as the wells, which are determined to be used for observation and injection purposes, with the necessary bottom hole and wellhead equipment to achieve the following:

A - Control of production and injection.

B – Allowing the bottom hole pressure measurement.

C – Prevention of liquids leakage from one formation to another.

Article 17 ***

The Concession Holder, upon the installation of equipment hereinabove referred to in the previous article, and in addition to the tests run thereby prior to the completion of the well, shall run a test to estimate the maximum capacity of the well productivity. The Secretariat shall determine the most efficient rates appropriate for the exploitation thereof in conformity with the following equation:

The average of the highest efficiency of oil production (expressed in barrels per day) equals 22.13 multiplied by (0.433 multiplied by the average depth of the producing formation in feet, multiplied by the production coefficient expressed in barrels per day for each square inch) to the power 0.4536.

The Concession Holder, shall also make bottom hole pressure surveys for production wells which are determined to be exploited for observation and injection purposes; he shall take samples of liquids discovered in the bearing formations.

Article 18 ***

The Concession Holder, shall submit to the Secretariat, weekly reports in duplicate, during the drilling operations and until the well is either completed or plugged, indicating the work progress and status of the well.

Article 19 ***

The Concession Holder shall submit to the Secretariat the following data, in duplicate, within 15 days of the date of completion, abandonment, stoppage or re-completion of the well.

- (a) Preliminary report including all the information stated in Annex (2) (A) of this Regulation.
- (b) Copies of the original logs available.

The Concession Holder shall submit to the Secretariat, in duplicate, his final report, within 60 days from the date of completion, abandonment, suspension, or re-completion of any well. Such report shall include all information stated in annex (2) (B) of this Regulation.

Article 20 ***

The Concession Holder shall submit to the Secretariat, within 90 days from the date of completion of the well, a report, in duplicate, correcting, revising and re-giving the interpretation of data and reports submitted under the provisions of the 8th Article of this regulation, wherever such is necessary.

Article 21

If a blowout occurs, the Concession Holder shall immediately notify the Secretariat. As soon as possible from this date, a written report in duplicate shall be submitted to the Secretariat indicating the causes of the blowout and the steps that have been taken to control it, and an estimate of the quantity of oil and gas lost destroyed or permitted to escape. The Concession Holder shall also submit a final report in duplicate within a reasonable period of time after the well has been brought under control.

Article 22

When a well being drilled must be abandoned for mechanical reasons, the Concession Holder shall so notify the Secretariat, specifying the reasons for, and the method employed in, the Abandonment. If a replacement well is to be drilled within fifteen meters of the abandoned one, only a written notification is required to commence operations.

Article 23 ***

If a change in the producing intervals of a well, or any major alteration in its current conditions, is to be introduced, Concession Holder shall notify the Secretariat in writing. Such a notice shall include: -

- (a) Name and location of the well.
- (b) Type of work requested (such as well work over, deepening, plugging, cleaning or any other work).
- (c) Reasons for the proposed work.
- (d) Proposed work program.

PRODUCTION

Article 24 ***

The Concession Holder shall make individual tests to ascertain the performance of the wells, once each month, and submit the results of such tests to the Secretariat in writing on the Form No. 1.

Article 25 ***

The Concession Holder is prohibited to exceed in his production from any well, the sound production rate of such well; for the realization of such purpose, the Concession Holder shall accurately and efficiently control the gas oil ratio and the water oil ratio for each well separately throughout the production period. The data related to such ratios shall be regularly submitted to the Secretariat in conformity with the form designed by the Secretariat in this connection.

The Secretariat shall notify the Concession Holder to meet this situation; the Secretariat from its side shall impose penalties on oil production resulting from the rise of such ratios and in conformity with the following two equations:

1 – Penalty coefficient on high water oil ratio equals

$$\frac{1}{1 + 0.5 \times \text{water oil ratio}}$$

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2 _ Penalty Coefficient on high gas oil ratio self produced gas oil ratio (expressed in standard cubic feet in each standard barrel)

Gas ratio in produced oil (expressed in standard cubic feet in each standard barrel).

In the event of gas or water injection, the injected quantity shall be subtracted from the produced quantity upon the calculation of the penalty coefficients on high water and gas ratios. The Concession Holder shall be exempted from the penalty coefficient on either water or gas or both, in the event that the injected quantities exceed the produced quantities.

The Secretariat may order that the well be shut down if it is contended that the Concession Holder does not take such precautions. However, the Secretariat may exclude certain poor production wells from the application of the said equation.

Article 25 Bis (A)

- 1 - The Secretariat may change “the efficient production rate of the wells determined in pursuance to the equation set forth in the previous article in any of the following three cases provided that the change ratio shall not, in any separate case, exceed 15%. Such cases are:
 - A - To enable the companies to encounter certain technical difficulties.
 - B - To give the companies, who are utilizing gas, an additional benefit to enable them to economically utilize investment projects, which they are implementing.
 - C - To give the companies, who are making additional investments in a new exploration or industry, in addition to the obligations imposed thereupon in the Concession Agreements and the Agreement of March 1971, an additional benefit to be proportionate with the investments volume, which they are executing or those, which they will execute.
- 2 - The Secretariat may review the production rates determined in pursuance to the equation set forth in the previous article for the companies, executing projects related to the additional recovery activities if the results of such projects are successful.

Article 25 Bis (B)

- 1- Any Concession Holder who contradicts the provisions of Article 25 of this regulation shall be penalized by the financial penalty provided for in Article 22 Bis of the Petroleum Law in each case separately.
- 2 - The Concession Holder, who reduces his production and does not export the production allowed under the equation set forth in Article 25 herein referred to, may be obligated to pay the value of increase in production costs, per each barrel exported as a result of such reduction. The Secretary of Petroleum shall issue a final decision imposing the penalties and compensations referred to in this Article in conformity with the conditions and situations set forth in Article 22 Bis of the Petroleum Law.

Article 26 ***

The Concession Holder shall make, at least twice per year, bottom hole pressure surveys for a selected group of wells for the purpose of knowing the average pressure in the bearing formation, and shall submit the results of such surveys in writing, to the Secretariat within 30 days from the completion thereof, as per the form prepared for such purpose

The Concession Holder shall take corrective measures with respect to wells showing abnormal pressure levels. If no improvement is observed thereafter, the Secretariat may order the wells shut in.

Article 26 Bis

In case of developing the water drive reservoirs, the Concession Holder shall conduct the calibrations necessary to determine the present status (fluctuating) of the oil water contact, at least once in the year, provided that such calibrations activity shall take place in the observation wells as well as water flood wells, whether such wells were producing or shut in and lie within the limits of the reservoir. The interpretations of such calibrations as well as the maps indicating the present status of the oil water contact shall be submitted to the Secretariat within 45 days from the calibration activity.

Article 27 ***

The Concession Holder shall submit to the Secretariat, within 15 days from the end of each month, a report about production during that month, in

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duplicate, in accordance with Form No. 3 indicating at least the following information:

- (a) Tabulation of all wells by field and reservoir.
- (b) Date of the last production test for each well and results thereof, indicating: daily production rate, gas-oil ratio, well-head pressure, choke size, API gravity of oil, basic sediment and water percentage.
- (c) Number of producing days.
- (d) Well status at the end of the month.
- (e) Monthly and cumulative production of oil, gas and water for each well, field and reservoir.

Article 28 ***

After a reasonable period of time from the discovery of a reservoir, the Concession Holder shall undertake and submit to the Secretariat a reservoir behavior study. This shall contain fluid and rock analyses, production and pressure records, log interpretation records, structural, isobaric and isopach maps, the nature of the drive or drives acting on the reservoir, prediction for reservoir behavior with time showing the effect of fluid production rates on ultimate recovery, and other similar data.

Before the 15 January of each year, an annual review of the findings of the above study, in the light of actual behavior of the reservoir during the previous period shall be submitted to the Secretariat and any major discrepancy between prediction and performance shall be analyzed. If this analysis indicates that continued production under existing conditions might damage the reservoir or adversely affect ultimate recovery, the Concession Holder shall take the necessary corrective measures immediately.

Both the initial study and the subsequent annual reviews shall include an estimate of the reservoir's reserves, classified in accordance with the standard definitions established in Annex 3 of the present regulation and on Form No. 4.

Article 29

The Concession Holder shall undertake secondary recovery from a reservoir when technically and economically justified. The Secretariat may instruct the

*** Amended in accordance with Decision No. 228 for 1972, first published in the Official Gazette No. 20/1972

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concession Holder to stop production from a reservoir if secondary recovery is not undertaken diligently.

Article 30

The Production in the condensed oil bearing formations shall be subject to the periodical injection system. Should such system prove uneconomical, then production shall be subject to gas usage.

Article 31

When the Concession Holder intends to subject any reservoir to secondary recovery methods by the injection of gas, water, air, steam, solvents, or any such methods, it shall request consultation with the Secretariat in writing; and to this effect it shall submit technical-economic study of the project containing the following information: -

- (a) Name and description of the reservoir, and the field where it is located.
- (b) Structural, isopach and isobaric maps of the reservoir showing all wells that have been drilled in it, proposed locations for additional producing wells and wells to be dried, or re-completed, for injection purposes.
- (c) Statement as to the injection material to be used, its source and estimated amount to be injected daily.
- (d) A tabulation of the production history of each well showing their most recent production test and pressure surveys.
- (e) Statement of the plan and rate of development of the area included within the project.
- (f) Statement and graphic representation of the anticipated reservoir behavior under natural method of secondary recovery, showing equations and computational techniques used,
- (g) Result of the pilot tests that may have been undertaken.
- (h) The expected economic results of the project.

Article 32

The concession Holder shall submit to the Secretariat, when the injection operation starts, a monthly report indicating the volume of liquids produced

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and injected during the month, as well as the accumulated total of such liquids. He shall also submit a monthly report about the injection pressure, the pressure of the bearing formation as well as the changes which occurred in the pressure in such formation, if any, comparing same with the previous status in conformity with form No. 5.

If the Concession Holder contends that the additional recovery project should be suspended or abandoned, he should obtain the approval of the Secretariat after submitting a written request to do so, indicating the reasons of suspension or abandonment and the results realized up to that date, and any other such information or data supporting such request.

Article 33

At the request of the Secretariat, any reservoir underlying assigned tracts of more than one Concession Holder shall be unitized. If, within six months of the Secretariat's request, the concession Holder involved do not reach an agreement on unitization, the Secretariat may itself draw up rules to govern the unitization of the reservoir, and such rules shall be binding on the Concession Holder involved. In any case, all unitization agreements or arrangements reached among Concession Holders shall be subject to the prior approval of the Secretariat.

Article 34

The Concession Holder shall provide the necessary equipment required for making proper separation of oil from gas to ensure that the highest possible percentage of oil will be obtained.

He shall also install meters of sizes that are appropriate to measure gas accurately, on gas conveying pipes, which are connected with the separators referred to and the pipelines that convey gas for the purpose of use.

Article 35

The Concession Holder shall take every reasonable measure, that if economically justified for the utilization of associated gas for any of the following purposes: -

- (a) Pressure maintenance inside the reservoir in accordance with technical procedures recognized in the petroleum industry.
- (b) Any domestic, commercial or industrial use, including use as fuel in the Concession Holder's own installations.
- (c) Injection into the oil-bearing or other suitable strata, or underground storage in accordance with technical procedures recognized in the petroleum industry.

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- (d) Extraction of the natural gasoline and other lighter liquids contained in the wet gas.

Article 36

If the gas is not utilized by the Concession Holder under the conditions referred to in Article 35 above, the Secretariat shall have the option to take delivery of it free of charge at the separator.

Article 37

Any associated gas which cannot be utilized in accordance with the two preceding Articles, shall be disposed of in a safe manner.

Article 38

The Concession Holder shall not produce any non-associated gas unless all the associated gas produced by him is totally utilized or unless such production is permitted by the Secretariat in the light of special circumstances.

Article 39

The Concession Holder shall dispose of all brine or salt water produced within the oil in one of the following manners: -

- (a) By evaporation in especially excavated pits which must be under laid by tight soil and surrounded by a continuous embankment of at least one meter high.
- (b) By injection into the strata from which it was produced or other proven salt water bearing strata.
- (c) Any other safe manner approved by the Secretariat.

Article 40

The Concession Holder shall prevent spillage of oil at the surface. Oil produced during drilling and completion tests that cannot be recovered or any other waste oil shall be burnt in open pits. All other necessary steps to avoid ground or water contamination shall be taken by the Concession Holder.

Article 41

The Concession Holder shall immediately notify the Secretariat by the fastest means, of fires, major breaks or major leaks in well heads, flow lines, gathering lines, separators, tanks or any such installations. A detailed report in writing should be submitted to the Secretariat as soon as possible of their occurrence. This report should include information regarding the place and causes of the event as well as steps taken to remedy the situation reported and the quantity of oil and/or gas lost, destroyed or permitted to escape.

STORAGE AND TRANSPORTATION

Article 42

All storage tanks to be constructed after the entry into effect of this Regulation shall be placed at the following minimum distances, measured from the point nearest the bottom ring: -

- (a) To the edge of a highway – one diameter.
- (b) To the nearest rail of a railroad track – one and a half diameters.
- (c) To buildings and warehouses – two diameters.
- (d) To dwellings and places where there are open fires – three diameters.

Storage tanks shall be vapour tight, in accordance with accepted standards. Every storage tank to be constructed after the entry into effect of this Regulation shall be surrounded by rubblework or concrete walls, or any other equally effective means, so that the volume they enclose is equal to one and a half times that of the tank. The distance separating the tank from the foot of the inner slope of the embankment, or wall, shall fill the necessary conditions of stability and resistance, and the ground enclosed between the bank and the embankment, as well as the immediate surrounding area, shall be free of vegetation, straw, wood, or any other combustible material. It shall also be provided with suitable outlets for carrying off rainwater.

Article 43

The tanks, or any other device used for the measurement of oil and gas produced, shall be properly calibrated in the presence of a representative of the Secretariat. These calibrations must be repeated periodically.

Safety of Employees

Article 44

The Concession Holder and/or his contractors shall always take all necessary measures to safeguard the health and safety of the employees working in the various operations and shall notify the Secretariat of any lost time accident occurring during or as a result of their work. Such notification shall be presented on special forms prepared by the Secretariat.

GENERAL RULES

Article 45

Any violation of the provisions of this Regulation shall be considered as a violation of oil industry practice based on appropriate scientific methods, according to Article 11 of the Law.

Article 46

General instructions issued by the Secretariat for the implementation of the provisions of the Regulation, shall be deemed an integral part of this Regulation.

APPEDIX NO. 1

EXPLORATION WELLS

- (a) The Coordinates of the well and the ground elevation above sea-level.
- (b) The Purpose of drilling and geological or geophysical grounds on which the well is positioned.
- (c) Drilling, coring, casing, and testing programs.
- (d) Expected strata and the depth of markers in connection with the first three wells.
- (e) For the first three wells drilled on a structure, a structural map, seismic isochronal map or isobathic contour map of the nearest possible market to the expected pay zone, map scale not less than 1/100000 showing the location of the well(s).

In case no seismic has been made, and other measurements, drilling, or observation positions the well, the map should indicate the expected shape of the trap.

EXPLOITATION WELLS

- (a) Coordinates, grounds elevation and grid name if any.
- (b) Purpose of drilling.
- (c) As above in paragraph c.
- (d) As above in paragraph d.
- (e) An isobath map of the expected pay zone, showing all the wells of the field, map scale not less than 1/100000.

WATER WELLS

- (a) to (d) of paragraph 2.

APPENDIX NO. 2A

INTERIM REPORT

(Cross out what does not apply);
(Data in inches, feet, barrels, pounds);

(When two or more strata are complete to produce separately in the same well, use separate forms and cross-refer).

GENERAL

1. Company
2. Concession no. Zone:
3. Well No.:
Well Name (if any):
4. Coordinates:
Latitude:
Longitude:
5. Elevation (feet) ground:
Derrick Floor:
Kelly Bushing:
6. Spudding Date:
7. Completion Date:
8. Contractor:
9. Make and Size of Rig:

COMPLETION DATA

10. Outside Diameter of the last drill pipe used:
11. Diameter of Casing pipes/depth:
Top Cement:
(Behind last casing)

12. Total depth of hole:
Plugs:
Deviation at the depth of:
13. Productive formation interval (a):
Water contact at:

Perforated interval (a):
14. For production:
15. Size/length open hole: Liner:
16. Tubing size (ID) depth:
Packer at:
17. Geological age of the productive stratum:
Lithology
Porosity
Permeability:
18. Geological age of the total depth:
Lithology:

PRODUCTION RECORD

19. Method: Flowing through tubing and/or casing - swabbing -
pumping
20. Diameter of the choke at the outlet of the tubing
Diameter of the choke at the outlet of casing:
21. Duration of final production test:
22. Amounts gauged/estimated, oil bbls.
water bbls.
gas cf.
(Rated production/day) oil bbls. (Average /hour)
water bbls.
gas cf.
23. GOR: (SCF/BBL)

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24. Gravity of the oil at 60° F: API
25. Pressure (psi) flowing: tubing casing separator bottom hole:
Pressure (psi) closed in: tubing casing separator bottom hole
Time closed in: Temp: of
26. Total quantity of acid used per productive horizon:
Description, gallons acid, pressures, etc.
27. Method of Abandoning (dry) hole or closing in well.
28. Number of cores taken:
Recovery:
Footage Cored:
Depth:
29. Logs run:
30. DST:
Number:
Depth:
Results:
31. RIG moving to:
Coord.
Gr. Elev:
32. Additional information and remarks:
Enclosures: oil, rock samples and logs.

APPENDIX NO. 2B

Final Completion Report

GENERAL INFORMATION

An abstract giving the main results, and a list of enclosures.

SUMMARY OF WELL DATA

Location: Lat: Longitude: Grid No. 1

Elevation: Ground: KB or RT:

Spudded:

Reached to:

Outfit:

Contractor:

Total Depth (Log)
 (Driller)

Footage cored:

Hole: (Size depth)

Casing: (Size depth)

Deviations:

Cores: (No. – Depth – Recovery)

Completion Status: (Perforation; Open hole; Tubing size and depth;
 packer).

GEOLOGICAL INFORMATION

- (a) Summary of Stratigraphy:
(Formation, depth, thickness)
- (b) Description:
(Formation, depth, lithology).
- (c) If the well is cored insert a graphic core log 1/50.

PETROLEUM ENGINEERING INFORMATION

- (a) **Logging**

Runs – Log Type – Intervals – Scales.
- (b) **Drill Stem Tests**

Number – Intervals – Recovery – Pressure data (Depth of Recorder ISIP –IFP-FFP-PSIP).

For each DST a test report must be included.
- (c) **Core Analysis**

Depth – Permeability – Porosity – Saturations – Special core measurements (can't be forwarded separately when available).
- (d) **Fluid(s) (if available)**
- (e) **Main Characteristics of Pay Zones (s)**

Depth – Net thickness – Average characteristics (porosity, water saturation, permeability).
- (f) **Well Completion**

Single or dual zone, flowing or artificial lift, oil or gas, production or injection.
- (g) **Flow Test Result**

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Duration, Choke, THP, CHP, Daily rate, GOR, API, BS and W.

DRILLING INFORMATION

- (a) Drilling Diary
(Site used, penetration, time analysis).
- (b) Wellhead completion diagram

FINAL RESULT

The Concession Holder's own correlation and interpretation of the above items.

APPENDIX NO. 3

General Definition Of Oil & Gas Reserves

Proven Reserves – The quantities of crude oil, natural gas and natural gas liquids which geological and engineering data demonstrate with reasonable certainty to be recoverable in the future from known oil and gas reservoirs under existing economic and operating conditions. They represent strictly technical judgments, and are not knowingly influenced by attitudes of conservatism or optimism.

Un-drilled Acreage – Both drilled and un-drilled acreage of proven reservoirs are considered in the estimates of the proven reserves. The proven reserves of the un-drilled acreage are limited to those drilling units immediately adjacent to the developed areas, which are virtually certain of productive development, except where the geological information on the producing formations insures continuity across other un-drilled acreage.

Fluid Injection – Additional reserves to be obtained through the application of fluid injection or other improved recovery techniques for supplementing the natural forces and mechanism of primary recovery are included as “proven” only after trusting by a pilot project or after the operation of an installed program has confirmed that increased recovery will be achieved.

When evaluating an individual property in an existing oil or gas field, the proven reserves within the framework of the above definition are those quantities indicated to be recoverable commercially from the subject property at current prices and costs, under existing regulatory practices, and with conventional methods and equipment.

Depending on their development or producing status, these proven reserves are further subdivided into:

1. **Proven Development Reserves** – Proven reserves to be recovered through existing facilities.
 - (a) Proven Developed Producing Reserves – Proven developed reserves to be produced from completion interval(s) open to production in existing wells.

- (b) **Proven Developed No producing Reserves** – proven developed reserves behind the casing of existing wells or at minor depths below the present bottom of such wells, which are expected to be produced through these wells in the predictable future. The development costs of such reserves should be relatively small compared to the cost of a new well.
2. **Proven Undeveloped Reserves** – Proven reserves to be recovered from new wells on unrolled acreage or from existing wells requiring a relatively major expenditure for recompletion or new facilities for fluid injection.

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